

Substance Use Disorder

Manual for Physicians

Editor

Dr. Rakesh Lal

Contents

Preface	10. Community-based Treatment of Substance Use Disorder
Foreword	11. Nicotine Dependence
Acknowledgements	12. Intervention with Treatment Non Seekers
1. Drug De-addiction Programmes in India	13. Role of Laboratory Services in Substance Use Disorder
2. Assessment and Diagnosis in Substance Use Disorder	14. Prevention of Substance Abuse in India
3. Epidemiology of Substance Use	15. Management of Substance Use Disorder in Primary Care
4. Acute Effects of Alcohol, Opioid and Cannabis Use	16. Comorbidity in Substance Use Disorder
5. Health Hazards of Long Term Alcohol, Opioid and Cannabis Use	17. Substance use disorder in Women
6. Treatment Principles and Issues in Management of Substance Use Disorder – An Overview	18. Adolescent Substance Abuse
7. Pharmacotherapy of Substance Use Disorder	19. Legal Aspects of Drug Abuse in India
8. Long-Term Treatment of Opioid Dependence Syndrome	Appendix 1 Appendix 5
9. Psychosocial Treatment in Substance Use Disorder	Appendix 2 Appendix 6
	Appendix 3 Appendix 7
	Appendix 4 Appendix 8
	List of Contributors
	Glossary



National Drug Dependence Treatment Centre
All India Institute of Medical Sciences, New Delhi

Preface

It is indeed a pleasure to be associated with the task of compiling the manual for the World Health Organization (India) and the Ministry of Health and Family Welfare (Government of India). This manual is a product of intense deliberations and the felt need to revise the course materials for training of General Duty Medical Officers being conducted as a part of training programmes undertaken by the Ministry of Health and Family Welfare (Government of India) at various apex institutes across the country. It is intended to cover as many areas as can be envisaged. There may be some degree of overlap in the information given between chapters, which the editors have not deleted in order to maintain the coherence of individual chapters. Any suggestions for topics that have not been covered and are important may be informed so that they may be addressed in the revised version.

Though intended to be used primarily by the GDMO's, this manual may also be useful for others who are involved in the care of patients with substance use disorders.

We look forward to any suggestions for improvement and changes.

**Rakesh Lal
Ravindra Rao
Indra Mohan**

October 2005

Foreword

Substance Abuse is a complex problem having medical and social ramifications which impacts all social strata. It affects not only the user and their families but all sections of the society. Controlling substance abuse by way of demand reduction, provision of treatment services etc. has been a matter of priority for the Ministry of Health and Family Welfare for many years now.

Recognizing that there is a paucity of experts in this field, the Ministry has made efforts so that in each State and Central Government Health Institutions, General Physicians are sensitized and trained to combat the problem. The task of managing this training was entrusted to the National Drug Dependence Treatment Centre, AIIMS which has been conducting regular courses for medical officers on the subject of Substance Abuse for the past 15 years. A Manual had been developed to assist the GDMO's undergoing training in 1999.

Due to the rapid advancements in this field, a need to revise the existing manual became necessary. I congratulate the National Drug Dependence Treatment Centre, AIIMS for bringing out this new edition of the training manual. I am sure it will be a useful tool for all persons concerned with the treatment and care of patients of Substance Use Disorder.

Rita Teatia
Joint Secretary
Ministry of Health and Family Welfare

Acknowledgements

In the road to putting this manual together there were a number of persons and agencies that helped. At the outset I would like to gratefully acknowledge the funds provided by the World Health Organization (India). I would like to especially thank Dr Cherian Varghese at the WHO (I) who has been a guiding force all through. Thanks are also due to the Drug Abuse Cell at the Ministry of Health and Family Welfare (Government of India) for the support and encouragement. Special mention must be made of the Joint Secretary, Ms. Rita Teaotia and Director, Mr Rajesh Bhushan.

Acknowledgements are due to the Director as well as to the Dean, All India Institute of Medical Sciences for permission to carry out the work.

Professor Rajat Ray, Chief, National Drug Dependence Treatment Centre deserves special gratitude for being the constant guide and critic and without his tireless assistance this work would not have been possible.

Acknowledgements are also due to the participants of the National Workshop where the course materials revision was discussed and finalized.

This work would just not have been possible without the timely help of the contributors and special thanks are due to each and every one of them.

My associate editors, Dr. Ravindra Rao and Dr. Indra Mohan deserve special mention of gratitude for their tireless support and help in putting this case-book together.

Rakesh Lal

Drug De-addiction Programmes in India

1

Rajesh Bhushan

I. The context

- 1.1 The constitution of India under Article 47, enjoins that the state shall endeavor to bring about prohibition of the consumption, except for medical purposes, of intoxicating drinks and of drugs which are injurious to health. The various drug de-addiction programmes of Government of India have to be seen in this light. The Government of India, Ministry of Health and Family Welfare in 1976 appointed a high powered committee to examine the problem of Drug De-Addiction and suggest future guidelines. The report of this high powered committee was submitted in 1977 and was laid on the floor of the Parliament. The Planning Commission and the Central Council of Health Ministers reviewed this report in 1979. The recommendations of the report emphasized the need to evolve appropriate strategies and to bring about better coordination among different Ministries and Departments working in this area. The Planning Commission and the Central Council of Health Ministers accepted this.
- 1.2 Drug addiction entails high cost to human health, social fabric and economy. In addition, Drug addiction has come to represent yet another danger over the past decades. This comes from the role which drug use plays in the spread of HIV/AIDS. It was in this context that the Drug De-addiction Programme in the Ministry of Health & Family Welfare was started in the year 1987-88.
- 1.3 In the area of Drug De-addiction and drug trafficking, the control on illicit drug trafficking and its production in India as well as coordination with international agencies is the responsibility of Ministry of Home Affairs. Rehabilitation of addicts as well as their counseling is the responsibility of Ministry of Social Justice & Empowerment. Demand reduction by way of treatment and after care is the concern of Ministry of Health & Family Welfare. The Drug De-addiction Programme of the Ministry of Health & Family Welfare was started in 1987-88, which was modified in 1992-93 as a scheme under Central sector assistance to States.
- 1.4 The role of Ministry of Health & Family Welfare in the area of Drug De-addiction is demand reduction by way of providing treatment services. Under the scheme a one time grant in aid of Rs. 8.00 lakhs is given for construction of Drug De-addiction Centres and a recurring grant of Rs. 2.00 lakhs is given to Drug De-addiction Centres established in North Eastern Regions. At present 122 such Centres have been established across the country including centres in Central Government hospitals and institutions. 43 such Centres have been established in the North Eastern Region. The six Drug-addiction Centres established in Central Government hospitals and institutions are at All India Institute of Medical Sciences, New Delhi, Dr. RML Hospital, New Delhi, Lady Hardinge Medical College, New

Delhi, PGI, Chandigarh, JIPMER, Pondicherry and NIMHANS, Bangalore. A national nodal centre has been established under the All India Institute of Medical Sciences (AIIMS), New Delhi. This is located in Ghaziabad and has been designated as “National Drug Dependence Treatment Centre.”

II. National Drug Dependence Treatment Centre, AIIMS

2.1 National Drug Dependence Treatment Centre, AIIMS was established during the year 1987-88 and was functioning at Deen Dayal Upadhyay Hospital, Hari Nagar. This has subsequently been shifted to its own building constructed at CGO Complex, Kamala Nehru Nagar, Ghaziabad. It started outdoor facilities from 14.04.03 and indoor facilities on 2.12.03. A Community Clinic was established at Trilokpuri and this started functioning from 1.8.2003. Apart from rendering patient-care services, the centre is engaged in a number of research projects.

III. Drug De-addiction Centre, PGI Chandigarh:

3.1 Drug De-Addiction Centre, PGI Chandigarh was established during 1988-89. The Centre has facilities for both outdoor and inpatient services. Additionally, it conducts drug-de-addiction awareness programmes, treatment camps, counseling and provides free medication.

IV. Drug De-addiction Centre, National Institute of Mental Health & Neuro Sciences, Bangalore

4.1 Drug De-addiction Centre at NIMHANS, Bangalore was established during the year 1991. This Centre is functioning as a Regional Centre. A separate building has been constructed with a cost

of Rs. 5.10 crores and currently houses 30 in patient beds. The centre conducts therapeutic group sessions for both inpatients and outpatients.

4.2 The De-addiction Centre caters to more than 50% of the patients seeking treatment for substance abuse problems in the city of Bangalore. The Centre also treats patients from different parts of Karnataka, Andhra Pradesh, Tamil Nadu and Kerala. Referrals are also received from other states of the country including the North-Eastern States. Recently there have been several referrals from countries in the SAARC region and other countries as well.

V. Convergence:

5.1 In a meeting held on 6.10.04 in the chamber of Joint Secretary, Ministry of Social Justice & Empowerment, it was decided that an effective linkage between the rehabilitation centres managed by NGOs funded by the Ministry of Social Justice could be established with the treatment centres supported by the Ministry of Health. The collaboration would be through the following modalities:-

5.2 Identification of NGOs to be linked with Drug De-addiction Centres would be done, Drug De-addiction Centre wise. This action would be initiated and completed by Ministry of Social Justice and Empowerment.

5.3 NGOs would recommend cases requiring treatment for Drug De-addiction to the Drug De-addiction Centres. The Drug De-addiction Centres in turn would refer patients after completion of treatment to identified NGOs for rehabilitation and monitoring.

5.4 Apart from detoxification services, which are provided by the Drug De-Addiction

Centres run by Ministry of Health and Family Welfare, the counseling of patients and their families would commence along with the treatment. Ministry of Social Justice and Empowerment would consider funding one counselor in each Drug De-Addiction Centre run by the Ministry of Health and Family Welfare.

- 5.5 All Health Secretaries of State Governments have been requested for issuing necessary directions to the Drug De-addiction Centres in this regard.

VI. Evaluation

- 6.1 Under the Drug De-addiction Programme, so far 114 Drug De-addiction Centres have been established in various States. On the request of the Ministry, WHO has provided funds for the evaluation of centres. Evaluation of these Centres have been done by National Drug Dependence Treatment Centre, AIIMS on the following parameters

- (a) to assess the status of functioning of Government De-addiction centres by assessing the patient load
- (b) treatment being provided
- (c) availability and utilization of

equipment

- (d) staffing in terms of posts available and filled
- (e) on-site interview and
- (f) review of records of de-addiction centres.

The evaluation had focussed on the states of Manipur, Nagaland and Rajasthan. The evaluation findings have served as a valuable input into the reformulation of the National Drug De-addiction Programme which is under consideration of the Ministry.

VII. Five Year Plan Outlay

- 7.1 Approved outlay for 10th Five Year Plan in respect of this programme is Rs. 33.00 crores, the break-up of which is given below:-

Rs. in crores

Year	Outlay
2002-03	7.00
2003-04	6.50
2004-05	6.50
2005-06	6.50
2006-07	6.50
Total	33.00

Assessment and Diagnosis in Substance Use Disorder

2

Ravindra Rao, Indra Mohan, Rakesh Lal

Summary

Assessment forms the cornerstone in diagnosis and management of substance use disorder. The chapter is divided into two parts – assessment and diagnosis. The assessment part begins with the discussion on necessity of assessment followed by stages, settings and levels of assessment. Finally it is described how the assessment is carried out (tools of assessment). In this chapter emphasis is given on the clinical tool(history and examination), as the laboratory investigation to aid in assessment is dealt with elsewhere.

The diagnosis section begins with the meaning of some commonly employed terms, followed by description of the criteria for ‘dependence’ and ‘harmful use’.

Assessment

Substance use disorder (SUD) affects individuals across various strata of society. The prevalence of SUD including alcohol, tobacco is high in general population across the world including India.

Though there are experts in deaddiction centres to treat such patients, the fact remains that only a handful of patients are treated in these centres. Often deaddiction centres are the last point of contact in the patients’ chain of treatment seeking. In contrast, primary care physicians are often contacted initially for a number of physical problems associated with drug use. Thus physicians should have knowledge of

treating patients in their setup.

A proper assessment is necessary for treatment. It is also helpful in numerous other ways including:

- a) Screening of patients who may present only with physical problems but do not reveal drug use by themselves.
- b) Establishing a diagnosis
- c) Planning treatment
- d) Referral to a specialist for further treatment
- e) Assessment also serves to establish rapport and motivate client towards seeking treatment/ reduce harmful use/ abstinence.

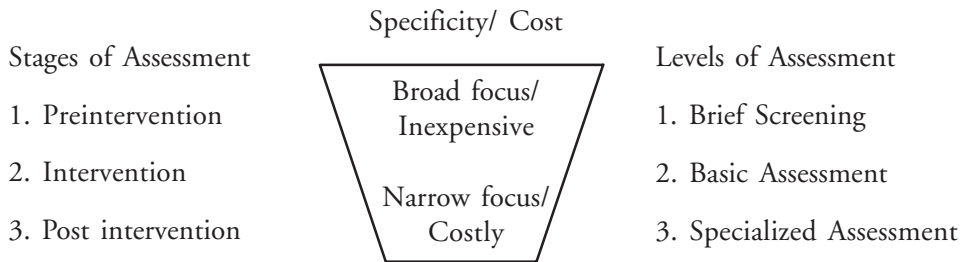
Assessment is not a one time phenomenon. This is carried out at various stages. Thus, the stages of assessment include

- a) Preintervention: where the purpose of assessment is to define the problem, formulate treatment, select an appropriate treatment from various modalities and motivate clients for treatment.
- b) Intervention: here assessment is done to monitor progress
- c) Post intervention: assess maintenance and abstinence status.

Depending on the reasons for assessment and the settings in which the assessment is being carried out (inpatient v/s outpatient), there can

be various levels of assessment. This can range from brief screening and basic assessment for diagnosis to specialized assessment for taking

clinical decision regarding treatment and reassessment for continuing care.



Screening:

An initial function of assessment is identifying individuals who may either have a substance use problem or is at risk of developing one. Screening is usually applied to a large group of individuals and is brief by nature. It is usually applicable in those settings where the individuals are encountered for problems that may not appear to be related to substance use, yet the association of the problem with substance use may be strong. Such settings may include a general medical setup, emergency rooms, trauma centres, psychiatric setting, and antenatal checkup or in a legal setup (e.g. prison wards, individuals caught for drunken driving). These settings usually encounter individuals who may have a substance use problem but are not actively seeking treatment for the same.

Efforts have been made to develop brief questionnaires and interviews so that many individuals with drug abuse problem may be identified in a relatively short period. Consequently a number of instruments have been developed towards this end. These instruments comprise of simple questions that have a 'yes/no' or a 'most true/ not true' answers. These instruments have been designed to have a high degree of sensitivity at the cost of specificity (thereby increasing false negativity). Some

frequently used instruments are

1. CAGE: an acronym for 4 questions used to assess those with alcohol problem
2. MAST: Michigan Alcohol Screening Test
3. DAST: Drug Abuse Screening Test
4. AUDIT: Alcohol Use Disorder Identification Test

The usefulness of these instruments depends on the setting and the type of population in which these instruments are used.

Tools of assessment

Assessment can be carried out by various means. These are

A) Clinical:

Here, assessment is carried out by eliciting information as well as carrying out a detailed examination of the patient. The relevant information can be gathered from patient as well as persons associated with patients who are willing to be involved in the treatment and care of the patient. It has been observed that, at times, informants tend to under/over report the patient's drug abuse. However, informants can be a good source for corroborating other aspects of patients drug use with regards to

various complications (physical, social, familial, occupational) as well as patients' attempts to leave the drug (abstinence).

SUD has been considered as biopsychosocial problem. Hence assessment should be carried out in multiple domains focusing on physiological, behavioral, psychological and social factors associated with drug use.

Clinically, assessment may be carried out in the following manner:

History

Assessment begins with collection of

- a. Patient's sociodemographic profile i.e. name, age, sex, marital status, qualification, occupation, type of family and place of residence.
- b. Details of drug use are then inquired into. This include
 1. age of initiation
 2. various drugs used
 3. frequency of drugs used
 4. the quantity of drug taken usually (usual dose)
 5. the time lag since the dose last used
 6. need to increase the quantity of drug consumed in order to produce the same effect (tolerance)
 7. the effect of the use of a particular drug and signs and symptoms of intoxication
 8. presence/ absence of physiological/psychological symptoms and signs when the particular drug is not taken/ less than the usual amount of drug is being taken (withdrawals)
 9. compelling need/ urge to take the substance
- c. Complications associated with drug use should be inquired. This can be in various spheres of patients' life and gives the treating team, areas to be focused during rehabilitation. The areas probed are
 1. physical: long term health hazards associated with drug use
 2. psychological: chronic mental effects of continuous use of drug
 3. financial: losses suffered/debts incurred
 4. occupational: frequent absenteeism at work, constant change of job, memos issued, periods of unemployment
 5. familial – social: frequent fight with spouse/ other family members, neglect of responsibility at home, social outcast
 6. Legal: involvement in illegal activities to sustain drug use, arrests/ charges on account of drug use, caught driving under intoxicated state, drinking brawl.
- d. High risk behaviors: presence of injection use with needle sharing and unsafe sexual practices
- e. Past abstinence attempts: herein inquiry should be made regarding
 1. number of attempts made
 2. duration of each attempt
 3. reason for abstinence
 4. whether treatment sought
 5. nature of treatment sought: pharmacological, psychological or combined
 6. reason for relapse

The information collected would be very helpful in deciding further treatment plan and measures to be taken to prevent relapses
- f. Reason for seeking treatment and motivation level of individual: whether seeking treatment by self or brought forcibly by family member. Assessing level of motivation would help the clinician decide the type of intervention needed.
- g. Psychiatric illnesses such as a mood disorder, psychotic disorder and personality disorder.

order/ traits are common comorbid conditions accompanying substance use disorder. Presence of comorbid psychiatric illness should be specifically inquired and intervention modified accordingly.

- h. Presence of family history of SUD, psychiatric illness and the current living arrangements. Extent of social support should be assessed.
- i. Premorbid personality: especially presence/ absence of Antisocial personality disorder.

Physical examination

- 1. Evidence of drug use with respect to
 - a) Intoxication,
 - b) Withdrawals and
 - c) Route of drug use as evidenced by burn marks/ nicotine stains on fingers in cigarette use and heroin by inhalational route; injection marks in case of injection drug use (IDU).
- 2. Evidence of physical damage due to drug use: a systemic examination should be conducted for every drug user to rule out physical damage associated with drug use. This would provide an excellent opportunity to treat comorbid physical problem and also use this evidence to enhance motivation towards abstinence

Mental status examination

Though a detailed description is outside the purview of the current chapter, in mental status examination, attention is given to the general appearance and behavior of the patient (dressing, grooming, mannerism, motor activity, and eye contact), the nature of his affect (mood: happy, sad, anxious), speech (rate, volume, pitch, coherence, relevance), the content of the patient's thought (delusions, obsessions, depressive thought, suicidal ideas), perceptual disturbances (illusions, hallucinations) and

cognitive functions of the patient.

Finally, the motivation level of the patient is assessed. This can be assessed by inquiring into the reasons for seeking treatment.

B) Investigations:

While the details of laboratory measures in drug abuse settings in discussed elsewhere in the manual, it serves two purposes.

- 1. confirming presence/ absence of drugs of abuse
- 2. investigations for physical damage caused by these drugs

Similar to examination, investigation provides an objective measure of the drug used and the extent to which drug use has caused damage to the body. This can be used effectively to enhance motivation of individuals who are in the state of denial with regards to their drug use.

C) Instruments:

These tools consist of a set of questions designed to assess one or more domains associated with drug abuse. This provides a more structured way of assessment of an individual. Several rating scales and instruments exist to assess different domains. Some of these instruments have high sensitivity so that they can be used for screening purpose. Instruments with high degrees of specificity confirm the diagnosis of SUD. Some instruments may require training to enable the individual to administer the particular instrument.

Thus, it can be seen that assessment can be carried out using several sources of information as well as using different measures. Though investigations and rating scales can aid in assessment, a thorough clinical assessment serves a number of additional purposes including establishing rapport as well as increasing motivation of the individual.

Validity of self reports

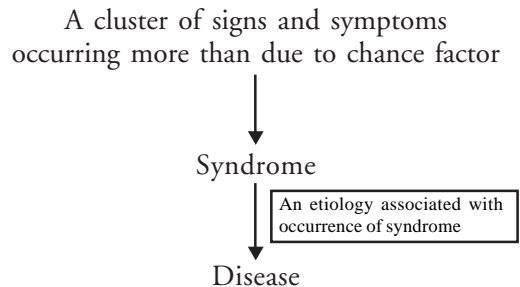
Many clinicians are of the impression that self report, especially in the area of substance use, may not be reliable because of a perceived notion that the substance user does not accurately report the extent of his substance use. However, research suggests that the possible distortion in self report is less problematic than it is feared to be. Self reports can be made more reliable by enhancing motivation and developing an empathic and non judgemental attitude towards drug user.

Several factors have been suggested that increase the validity of self reports.

1. the patient is alcohol and drug free when interviewed
2. sufficient time has passed since last drink/drug use to allow clear responses
3. confidentiality is assured.
4. the setting is non threatening and non judgemental.
5. the patient does not feel pressured to respond in a particular way.
6. the patient has no reason to distort reports (e.g. abstinence being a condition of parole).
7. the patient is aware that corroborating information is available and will be collected (e.g. breath test, report of spouse), and that this information from other sources will be used to confirm what he or she reports.
8. the questions are clearly worded and valid measurement approaches are used.
9. the assessment worker or therapist has a good rapport with the patient.
10. the person administering the measures should be able to communicate clearly with the patient.

DIAGNOSIS

Before looking into features that make a diagnosis of SUD, it would be beneficial to see what constitutes a disease.



SUD, like most other psychiatric disorders, is still at the syndromal level. This is because there is no definite etiology to explain SUD. In the absence of a definite etiology, the diagnosis of SUD is based on a cluster of signs and symptom. Many hypothetical constructs or models exist to explain the occurrence of a particular syndrome. Some of these, for SUD, are moral model (use seen as sin, crime), characterological (use seen as a defect in personality), conditioning model (use as a result of classical and operant conditioning) and biomedical model (genetic and physiological/biological cause of SUD). However, it is not possible to explain the phenomenon of SUD based on one model exclusively. In the face of this, people of different schools of thought would diagnose SUD differently. Thus, a clinician ascribing to the biological model would place more importance to the biological changes caused by substance, while another of psychological school would place importance on the psychological factors to make a diagnosis of SUD. This naturally would lead to a variable diagnosis of SUD.

To this effect the World Health Organization (WHO) and the American Psychiatric Association have independently proposed a cluster of factors to make a uniform diagnosis of SUD. These classificatory systems aim to be atheoretical. The current versions are polythetical, meaning that no single criterion

is necessary or sufficient to make a diagnosis. Rather, the diagnosis is made by the presence of a fixed number of criteria out of the larger group. The most commonly followed diagnostic system is that published by WHO, the ICD 10 (International Classification of Diseases). ICD 10 classifies SUD into intoxication, harmful use, dependence syndrome, withdrawal state, psychotic disorder and amnestic syndrome. This chapter deals with the 'dependence syndrome' and 'harmful use'.

Dependence syndrome

Dependence syndrome has been defined in ICD 10 as "A cluster of physiological, behavioural and cognitive phenomena in which use of a substance or a class of substances takes on a much higher priority for a given individual than other behaviours that once had greater value"

The criteria for substance dependence syndrome has been influenced by the criteria laid down by Edwards and Gross (1976) for the diagnosis of Alcohol dependence syndrome. Though Edwards and Gross laid down the criteria particularly for alcohol dependence, this has been used uniformly to diagnose all classes of substance dependence. The ICD 10 criteria specifies dependence as three or more experiences exhibited at some time during a one year period

- a) Tolerance: there is a need for significantly increased amounts of the substance to achieve intoxication or the desired effect, or a markedly diminished effect with continued use of the same amount of the substance.
For e.g., an individual would have started with 60ml of whisky to obtain pleasure, however with continuous use, he has to consume 180 ml of the same to obtain the same amount of high.
- b) Physiological withdrawal state: characteristic symptoms experienced on stoppage/reduction of a substance after prolonged use. The patient uses the same (or closely related) substance to relieve or avoid with-

drawal symptoms.

Every class of substance produces its own set of signs/ symptoms of withdrawal. For e.g. alcohol withdrawal would produce tremors, sweating, nausea/ retching/ vomiting, insomnia, palpitations with tachycardia, hypertension, headache, psychomotor agitation and in severe cases, hallucination, disorientation and grand mal seizures.

- c) Impaired capacity to control substance use behavior in terms of its onset, termination or level of use as evidenced by the substance being often taken in larger amounts or over a longer period than intended; or by a persistent desire or unsuccessful efforts to reduce or control substance use.
Thus, an individual may find it difficult to avoid using substances at particular place or time or also to limit himself to a particular predetermined amount. Some researchers are of the view that loss of control is the most important criterion determining substance use.
- d) Preoccupation with substance use, as manifested by important alternative pleasures or interests being given up or reduced because of substance use; or a great deal of time spent in activities necessary to obtain, take or recover from the effects of the substance.
- e) Continued use in spite of clear evidence of harmful consequences, as evidenced by continued use when the individual is actually aware, or may be expected to be aware, of the nature and extent of harm.
- f) Strong desire to use substance (craving).

This craving may occur spontaneously or induced by the presence of particular stimuli. Exposure to stimuli where or with whom the individual would have used the substance would lead to a strong desire to consume the substance. This is termed 'cue induced' craving.

Criteria (a) and (b) are physiological, while criteria (c), (d) and (f) are psychological in

nature. Thus, not one domain is sufficient to diagnose dependence. For e.g. cancer patients who are given opioid as analgesics may have tolerance and withdrawal. However they may not be diagnosed as having dependence syndrome unless they fulfill other criteria. The dependence syndrome criteria are not an all or none state, rather one that exists in degrees of severity.

Harmful use

ICD 10 uses the category of harmful use as a state that constitutes

- a) A pattern of substance use that is causing damage to health. The damage may be physical or mental. The diagnosis requires that actual damage should have been caused to the mental or physical health of the user.
- b) No concurrent diagnosis of the substance dependence syndrome for the same class of the substance.

The DSM IV equivalent of this category is 'abuse'. This includes social, legal and occupational consequence of drug use in addition to physical and mental harm. Because there may be cultural difference that may result in different impact on the social, legal and occupational front, ICD 10 has intently omitted these and stuck to the health damage only.

Technique and style in assessment and diagnosis

The traditional view regarding substance abusing population is that drug abusers are to a large extent unmotivated, are in a state of denial and resistant to change/ stop their drug

using behavior. Thus, because of this view clinicians often assume a confrontational style and much of the efforts goes into making the patient accept/realize his drug use i.e. 'addict/ alcoholic' label. However, such an approach would make the drug user move away from the treatment rather than towards it. Research has found that these labels and opinions regarding drug user is falsely based. Denial is not a personality of drug abuser, but a modifiable state. Treatment works, but the clinician should

- a. not insist that the individual accept the label of 'addict/ alcoholic'
- b. express a warm and affective concern about the problem
- c. be non directive, non judgemental and supportive

Such an approach goes a long way in effectively engaging a drug abuser in treatment process.

Conclusion

The magnitude of SUD is enormous. However the experts to treat such patients are few. The primary physicians are better suited to form a cost effective alternative to this. While a comprehensive treatment requires a comprehensive evaluation, the assessment done is guided by a number of factors. Apart from diagnosing substance related problems, assessment provides a very good opportunity to develop rapport with patients. This goes a long way in management of SUD.

Suggested Reading

1. Galanter M, Kleber HD, eds. The American Psychiatric Press Textbook of Substance Abuse Treatment, American Psychiatric Press, Washington D.C.; 1999.
2. Lowinson J, Ruiz P, Millman R, Langrod J, eds. Substance abuse, A comprehensive textbook, 4th ed. Baltimore: Lippincott Williams and Wilkins; 2005.
3. McCrady, B.S. & Epstein, E. eds. Addictions: A Comprehensive Guidebook. New York: Oxford University Press; 1999: 477-498.
4. Mood Disorders. In: Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, (DSM-IV), Text Revision (2000), American Psychiatric Association: 297-343.

Suggested slides for OHP

Slide 1

SUD is common among general population
Specialised Deaddiction centres are able to treat only few patients and are often last point of contact
Primary care physicians are often considered initially for problems other than SUD

Slide 2

Reasons to assess patients
 Diagnosis and treatment
 Screening
 Referral to a specialist
 Establish rapport and increase motivation

Slide 3

Stages of assessment
 Preintervention – define problem and formulate a treatment plan
 Intervention – monitor program
 Post intervention – assess maintenance

Setting – inpatient v/s outpatient

Slide 4

Levels of assessment
 Brief screening
 Basic assessment to diagnosis
 Specialised assessment to treat individuals
 Reassessment for continuing care

Slide 5

Screening
 Applied to a large group
 Brief in duration
 Usually applied in high risk non treatment seeking individuals
 Questionnaires with a high degree of sensitivity available which are easy to apply

Slide 6

Tools of assessment
 Clinical
 Investigations
 Questionnaires

Clinical – history & examination (points provided in

appendix)

Investigations – for confirming substance use & establishing physical damage caused by substance use

Questionnaires – provides for structured assessment

Self reports – largely found to be reliable

Slide 7

Diagnosis

Syndrome = signs + symptoms, Disease = etiology ascribed to syndrome

Psychiatric disorders, including SUD, are at syndrome level

Uniform Criteria for diagnosis of SUD, proposed by WHO (ICD) and APA (DSM)

Both criteria are polythetic in nature

No single criterion necessary or sufficient

Slide 8

ICD 10 criteria for dependence

Tolerance

Withdrawal

Craving

Difficulty in controlling substance use

Continued use despite knowledge of harm

Neglect of all pleasures or great deal of time spent on substance use

Slide 9

Harmful use

Substance use causing damage to physical or mental health

Doesn't fulfill criteria of diagnosis anytime

'Abuse' term used by DSM IV to describe legal, social, occupational and physical damage by substance use

Epidemiology of Substance Use

3

Hem Raj Pal, Amardeep Kumar

Summary

Data on substance use is required from different regions in the country as the likelihood of regional disparity in substance use is high. The recently completed project “The extent, pattern and trends of drug abuse in India” provides nationwide data of substance use among general population (NHS), treatment seeking substance using population (DAMS), hidden substance using population not seeking treatment (RAS) and certain special groups (FTS). The finding refutes certain previously held notions about substance use in India; e.g. IDU use being found all over India as opposed to previously held belief that only North- Eastern states are affected. Similarly picture from rural India is a worrying finding as it reflects heroin use and injection opioid use. Indulgence in unsafe sexual and injection drug use practices by a substantial proportion of our drug using population along with limited number of functional specialized drug dependence treatment centre is another cause of concern. Among licit drug use, doubling of per capita alcohol consumption over past two decades is another worrying finding. However, the findings of the project provide only baseline information for further study. It gives a wakeup call to policy makers as well as treating clinician to tackle the problem more effectively. Cost-effective screening instruments and intervention need to be developed to tackle the problem. There is a need to continuously monitor changing trends in substance abuse.

Introduction

Epidemiology is defined as the study of distribution and determinants of disease frequency

in humans. This definition as applicable to substance use would be “*the study of distribution and determinants of substance use in humans*”.

Information obtained from the epidemiology of substance use is as follows –

1. Extent of substance use problem.
2. Nature and pattern of substance abusing behaviour.
3. Characteristics of persons abusing the substances.
4. Change in the trend of substance use over time.
5. Factors that may be associated with or etiologically related to substance use.

The information obtained from the epidemiological studies helps in understanding the substance use problem in two ways –

1. **At a macro level** – for a policy maker whereby treatment and prevention related policy issues can be planned.
2. **At a micro level** – for a clinician whereby information about risk factors and outcome can be obtained leading to effective treatment of substance use problem.

Indicators of Substance Use Problem

There are number of indicators pointing towards extent and magnitude of substance use problems in a population. Arbitrarily they can be divided into direct indicators and indirect indicators.

Direct indicators

Surveys – In direct epidemiological studies or surveys researchers go into a community and

collect information about substance use pattern. This approach gives a reasonably accurate picture of extent of substance related problems. Additionally, this approach has the advantage of finding out about substance users who are not seeking treatment.

Surveys also obtain information about demographic variables, pattern of drug use, perception of risk associated with drug use, health and adverse psychological consequences and treatment history (if any).

In India, the National Household Survey of Drug and Alcohol Abuse (NHS) sponsored by Ministry of Social Justice and Empowerment, Government of India (MSJE, GOI) and United Nations Office on Drugs and Crime, Regional Office for South Asia (UNODC, ROSA) has recently been completed. This survey was a part of larger project- the 'National Survey on Extent, Pattern and Trend of Drug abuse in India'. This is the first study that aimed to generate national level prevalence estimates of drugs of abuse in India.

Issues that need to be addressed while conducting a survey include:

- *Where to conduct a study?* A preliminary study needs to be carried out to identify high prevalence areas. Thereafter surveys focus on these areas.
- *How to select a sample?* For licit substances, surveys which select a sample representative of general population, generates most generalisable result and has usefulness in planning policies related to prevention and therapeutic intervention strategies. For illicit substances whose use are more prevalent in certain high-risk population such as students, slum-dwellers, drivers transportation workers and commercial sex-workers. Sample representative of general population has limited usefulness in terms

of planning, focused preventive and therapeutic intervention strategies. For these groups of substances, a sample of high-risk population is more appropriate.

- *How to obtain information?* Most of the studies obtain information regarding substance use from the subjects. However due to certain limitations posed by this approach such as feasibility, misinformation, 'hidden' phenomenon of illicit drug use, alternative techniques to obtain the information have also been developed. Two such techniques are:
 - (a) "Key information technique": This technique elicits information on substance use and its profile in the persons under survey from key informant. 'Key informant' is usually person with respectability, knowledge and wisdom, and they are considered to be quite reliable source of information. Examples of key informants are Head of the Household (HOH), teachers, local community leaders, etc.
 - (b) "Snowball" technique: This technique makes use of few identified substance users, who provide information about other users. The newly identified users are contacted to obtain information about other users and so on. This technique is particularly effective in surveys and studies looking for illicit substance use.
- *What information is to be obtained?* Depending upon the objectives of study and resources available, a variety of information could be obtained including nature of the substance being used, its pattern, adverse consequences, treatment history and perception of risk. Normally surveys do not generate a diagnosis of abuse and dependence. They focus on information such as 'ever use' (any time in the past), 'recent use' (past 1 year), and 'current use' (past 1 month) of the substance

Whereas survey is a cross sectional study, surveillance is defined as “*the continuous scrutiny of the factors that determine the occurrence and distribution of disease and other conditions of ill-health i.e. use of substance*”. The main purpose of surveillance is to detect changes and identify trends.

Indirect indicators

Indirect indicators are those which do not directly provide information regarding substance use in a population, but they are elicited from the data already available somewhere. This data is then secondarily analyzed to gauge the extent of substance use problems. Some such indicators can be –

1. **Production and consumption of substances**
2. **Seizure of illicit drugs.**
3. **Drug related illness.**
4. **Reporting systems:** Data obtained from persons attending health services notably drug dependence treatment services can provide valuable indirect information regarding substance use problems in the community.

India has no national system to monitor drug abuse currently. An attempt was made to develop and establish a National Drug Abuse Monitoring System (DAMS) as a part of larger project- the ‘National Survey on Extent, Pattern and Trends of Drug Abuse in India’. The study obtained data from 203 agencies across India.

The major limitation of this approach is that it touches only the tip of the iceberg since not all substance users come for treatment. In order to assess the extent and magnitude of substance use in a community the best way is a direct epidemiological study or survey.

GLOBAL SCENARIO

Licit substances

Alcohol

Alcohol consumption has numerous health and social consequences and is an important contributor to death and disability. Alcohol is estimated to cause about 20-30% of oesophageal cancer, liver cancer, and cirrhosis of the liver, homicide, epilepsy, and motor vehicle accidents. Worldwide, alcohol causes 1.8 million deaths each year

Globally alcohol consumption has increased in recent decades, with all or most of that increase being in developing countries

Tobacco

Tobacco continues to be the substance causing the maximum health damage globally. According to WHO estimates, there are around 1.1 thousand million smokers in the world; about one-third of the population aged 15 and over. While consumption is levelling off and even decreasing in some countries, worldwide more people are smoking, and smokers are smoking more cigarettes. Substantially fewer cigarettes are smoked per day per smoker in developing countries than in developed countries. However, this gap is fast narrowing and unless effective tobacco control measures take place, daily cigarette consumption in developing countries is expected to increase as economic development results in increased real disposable income.

According to the World Health Report 2002, among industrialized countries where smoking has been common, smoking is estimated to cause over 90% of lung cancer in men and about 70% of lung cancer among women. In addition, in these countries, the attributable fractions are 56-80% for chronic respiratory disease and 22% for cardiovascular disease.

Worldwide, it is estimated that tobacco cause about 4.9 million deaths each year and unless current trends are reversed, that figure is expected to rise to 10 million deaths per year in another 20 years, 70% of those deaths occurring in developing countries.

Illicit substances

Opiates–

Reports by the UNDCP have shown that there has been a global increase in the production, transportation and consumption of opioids, mainly heroin. The worldwide production of heroin has almost tripled since 1985. Globally, it is estimated that 13.5 million people take opioids, including 9.2 million who use heroin.

Although in recent time the production of heroin in 2002 was more or less at the same level as in 1998, regional shift has markedly reshaped the patterns of heroin abuse in the world. The rapid growth of opium production in Afghanistan has fuelled the development of a large heroin market in the region and, further, in Central Asia, the Russian Federation and East Europe. An increase in intravenous heroin abuse has led to an increased prevalence of HIV/AIDS.

Cannabis –

Cannabis is by far the most widely cultivated, trafficked and abused illicit drug. Half of all drug seizures worldwide are cannabis seizures. The geographical spread of those seizures is also global, covering practically every country of the world. About 147 million people, 2.5% of the world population, consume cannabis (annual prevalence) compared with 0.2% consuming cocaine and 0.2% consuming opiates. In the present decade, cannabis abuse has grown more rapidly than cocaine and opiate abuse. Cannabis has become more closely linked to youth

culture and the age of initiation is usually lower than for other drugs.

Amphetamine–type stimulants (ATS)–

Amphetamine-type stimulants (ATS) refer to a group of drugs whose principal members include amphetamine and methamphetamine. However, a range of other substances also fall into this group, such as methcathinone, fenetylline, ephedrine, pseudoephedrine, methylphenidate and MDMA or ‘Ecstasy’ – an amphetamine-type derivative with hallucinogenic properties.

The use of ATS is a global and growing phenomenon and in recent years, there has been a pronounced increase in the production and use of ATS worldwide. Over the past decade, abuse of amphetamine-type stimulants (ATS) has infiltrated its way into the mainstream culture in certain countries. Younger people in particular seem to possess a skewed sense of safety about the substances believing rather erroneously that the substances are safe and benign.

For many countries, the problem of ATS is relatively new, but is rapidly growing and unlikely to go away. The geographical spread is widening, but awareness is limited and responses are neither integrated nor consistent. Recent data has shown a decline in ATS use in the regions of the Americas and Europe, while the highest levels of abuse worldwide have emerged in East Asia and Oceania. According to a review of ATS by UNDCP in 1996, there are about 20 countries in which the abuse of ATS is more widespread than that of heroin and cocaine combined. Japan, Korea and the Philippines all register 5-7 times the rate of ATS use compared with heroin and cocaine use.

Smoking, sniffing and inhaling are the most popular methods of ATS use, but ways to take the drug vary widely across the region. In countries like Australia, where over 90 per cent of

those who report using ATS (mostly methamphetamine) inject, the drug represents a significant risk factor in the transmission of blood-borne viruses. Philippines and Viet Nam are also reporting signs that injecting methamphetamine is increasing while in Thailand the number of methamphetamine users now represents the majority of all new drug treatment cases.

Cocaine –

Cocaine and its derivative ‘crack’ provide an example of both the globalization of substance use and the cyclical nature of drug epidemics. Traditionally coca leaves have been chewed by people in the Andean countries of South America for thousands of years. Cocaine became widely available in North America in the 1970s and Europe in the 1980s.

Prevalence rates for lifetime use of cocaine are typically 1-3% in developed countries, with higher rates in the United States and in the producer countries. Cocaine dependence has become a major public health problem, resulting in a significant number of medical, psychological and social problems, including the spread of infectious diseases (e.g. AIDS, hepatitis and tuberculosis), crime, violence and neonatal drug exposure.

Box 1 :

- Licit substances (alcohol and tobacco) are the most commonly used substances.
- Among illicit substances, heroin and cocaine have most serious health related effects.
- Heroin abuse is increasing in Central Asia, the Russian Federation and East Europe.
- Largely caused by IDU, HIV/AIDS epidemic has been expanding at an alarming rate in South-East Asia.
- ATS abuse is clearly shifting towards East and South-East Asia in recent years.

INDIAN SCENARIO

In 1999, the Ministry of Social Justice and Empowerment, Government of India (MSJE, GOI) and the United Nations International Drug Control Programme, Regional Office for South Asia (UNIDCP, ROSA) decided to undertake a large-scale national survey to obtain information on extent, pattern and magnitude of substance abuse in the country. The study had several components, which could be called “.....carried out first time in India”. For this purpose multiple indicators and several methods to assess the situation were chosen.

The major components of this survey were National Household Survey (NHS), Drug Abuse Monitoring System (DAMS) and Rapid Assessment Survey (RAS). Additionally, focused studies on special populations like women, rural subjects, people living in border towns and prison population have also been carried out. Finally, burden as perceived by women due to drug abuse in the family has also been enquired into.

National Household Survey (NHS) is one of the first nationwide surveys which aimed at determining prevalence of the use of licit (tobacco, alcohol and prescription medications) drugs & illicit (opiates and cannabis) drugs, studying some socio-demographic correlates of drug abuse and estimating the extent of drug dependence for alcohol and opiates for country as a whole. The survey was conducted to provide estimates of the prevalence at the national level drawing a sample of 40,000 males from 25 states of the country. The data was collected between March 2000 and November 2001 through face to face interviews with the respondents by trained interviewers. The diagnosis of dependence was arrived using WHO (ICD-10) criteria.

The data for Drug Abuse Monitoring Survey (DAMS) component was obtained from con-

secutive new patients contacting various treatment centres. In addition, information on the drug abusing population was also obtained from prisons, NGOs working with children, NGOs working with HIV/ AIDS affected persons, youth organizations (Nehru Yuva Kendras) and psychiatric hospitals.

The Rapid Assessment Survey (RAS) collected information on drug use through in-depth interviews of identified drug users (non-random sample), key informants and focus group discussion from 14 urban sites.

The five focused thematic studies (FTS) were designed to capture information in the following areas: drug abuse among women, the burden on women due to drug abuse by family members, drug abuse among the rural population, the availability and consumption of drugs in border areas.

A comprehensive picture of a country can only be obtained through multiple data sources using multiple methodologies, as has been carried out in the current survey. Each element supplements another.

Table 1- Objectives of major components of National Survey

NHS	DAMS	RAS
Prevalence of lifetime and current use of various substances	Develop a monitoring system for the country	Study the extent and nature of drug use in the identified urban sites
Estimate the extent of substance dependence	Collection of data from people seeking treatment	Study the demographic characteristics, drug use patterns, risk behaviors, adverse health and social consequences of drug users
Socio-demographic correlates	Develop a format for collecting information on a regular basis	Study the service demand of drug users and the existing treatment responses Recommend an action plan to reduce the adverse consequences of drug abuse

Source : *National Survey, 2004*

Table 2: Major Drugs of Abuse in India

Drug Type	NHS (current prevalence, %)	DAMS (% among treatment seekers)
Alcohol	21.4%	43.9%
Cannabis	3.0%	11.6%
Heroin	0.2%	11.1%
Opium	0.4%	8.6%
Other Opiates	0.1%	6.3%

Source : *National Survey, 2004*

- Alcohol, cannabis, opium and heroin are the major drugs of abuse in the country as shown in the table.
 - Relative importance of the drugs as seen in the general population (NHS) and among treatment seekers (DAMS) is different.
 - Alcohol is the most frequently used substance as seen in the NHS and the DAMS.
 - The relative proportion of opiate users is high in the treatment centres (26%) though their prevalence is low in general population (0.7%).
 - Very few cannabis users reported for treatment.
- It was observed that between 17 and 26 per cent of current users of various substances were dependent users. Thus, the proportion of dependent users would be around one quarter of the total population shown in table 3 requiring immediate treatment for substance use problem. An attempt has been made to project the total number of males abusing various drugs for the nation as a whole based on the prevalence figures is depicted in the table below-

Table 3- Estimates of Number of Users of Select Drug Type (approximate, in millions *Based on 1991 census male population stratified for age (15-60 years) adjusted for ten-year growth in males*)

Drug Type	Ever Use	Current Use
Tobacco	168.99	162.86
Alcohol	75.59	62.46
Cannabis	11.96	8.75
Opiates	2.92	2.04
Sedative/ Hypnotics	0.58	0.29

Source : NHS

It can be interpreted from the above table that a large number of current users would require help so that they do not progress to regular or dependent use. It is useful to know about the consumption of major substances of abuse in India as compared with the consumption in other countries.

Table 4 – Comparison of Annual Prevalence of major substances of abuse

Annual Prevalence (%) of alcohol use among adult males	Annual Prevalence (%) of Opiate Abuse among those 15 years and older	Annual Prevalence (%) of cannabis abuse among those 15 years and older
. India (2001, past month use)- 21.4. Canada (1997)- 78.1. Finland (1995)- 90. Sweden (1997)-90. Poland (1997)-93.8. Australia (1996)-80. China (1997)-87.3	India (NHS, 2001 past month use)- 0.7. Canada-0.2. Russian federation-0.9. U.K-0.6. Australia (1998)-0.7. Pakistan (1997)-1.7. Bangladesh-0.6 Nepal (1996)- 0.3. Sri Lanka (1997)-0.3	India (NHS, 2001 past month use)- 3.0. Canada- 7.4. Russian Federation-0.9. U.K-9.0. Australia (1998)-17.9. Pakistan (1998)- 1.2. Bangladesh- 3.2. Nepal (1996)-2.8. Sri Lanka (1999)-1.4

Source : National Survey, 2004

- Annual prevalence of drinking among adult males in India is low. However, the worrying development is that over two decades the consumption of alcohol in India has increased by 106 percent as against many countries where the consumption of alcohol declined.
 - Annual prevalence of opiates in other countries is relatively low.
 - The current prevalence of cannabis use in India is relatively low when compared to other countries.
- The high prevalence of opiate use in the country is a worrying phenomenon. The number of persons requiring help is deemed enormous when projecting the prevalence data on to a male population that stood at 531 million as per the 2001 census.

Regional variation of substance of abuse in India

The variation of different substance use region wise is as follows-

Table 5: Regional variation of Alcohol abuse in India (high use regions)

Region	NHS	DAMS
North-East	Nagaland, Arunachal Pradesh, Manipur	.....
North	Himachal Pradesh, Haryana	Uttar Pradesh
West	.....	Maharashtra
South	.....	Kerala

Source: *National Survey, 2004*

Table 6: Regional variation of Cannabis abuse in India (high use regions)

Region	NHS	DAMS
North- East	Manipur	.....
North	.....	Uttar Pradesh
East	Bihar	Bihar

Source: *National Survey, 2004*

Table 7: Regional variation of Opiate abuse in India (high use regions)

Region	NHS	DAMS
North- East	Mizoram, Nagaland, Arunachal Pradesh	.....
North	Haryana, Himachal Pradesh, Punjab	Punjab, Uttar Pradesh
East	.....	West Bengal
West	Rajsthan	Rajsthan

Source: *National Survey, 2004*

Changing Trends of substance use in India

The RAS component of the study provided certain indicators, which suggest emerging trends. These can be summarized as in the next table-

Table 9: New emerging trend of substance use in India

Substance	Region
LSD	Goa, Ahmedabad
Methaqualone	Bangalore, Ahmedabad
Inhalants	Delhi, Bangalore, Thiruvananthapuram
Inj. Propoxyphene	Imphal, Dimapur
Pharmaceutical products	Amritsar, Ahmedabad, Imphal, Dimapur, Mumbai and Kolkata

Source: *National Survey, 2004*

Hazards and High-Risk Behaviour

Substance use causes various health and psychosocial hazards. Along with these, high risk behaviours are associated with injecting drug use thereby increasing the possibility of transmission of HIV, HBV and HCV infection. Table 10 reflects the study findings of high-risk behaviours associated with injecting drug use.

Table 10: High-Risk Behaviour among Current Users

Items	NHS (National) Drug users	DAMS	RAS All 14 sites (States)	RAS Non-metros 9 sites (States)
IDU (%)				
Lifetime	0.1	14.3	43.0	33.4
Current	....	9.4	....	....
Sharing of needles/ syringes (%)	97.0	7.7	....	57.9
Sex with CSWs (%)	....	4.4	....	24.4
Practice of safe sex (%)	....	38.5	41-64	35.9

Source: *National Survey, 2004*

- Sharing of needles is extremely common in the sample studied in NHS as well as RAS and overall varied between 58 and 97 %.
- Other high-risk behaviour i.e. unsafe sex and sex with CSWs was also seen.
- Women are sufferers either directly due to substance use by themselves or indirectly as a consequence of substance use by spouse or another family member.

Concerns of Special Populations

The study also provides information on special population such as women, rural

- population, border areas and prison population. The summarized study findings are-
- The data from women drug users showed that opiates (heroin and propoxyphene),

alcohol and minor tranquillizers were being abused. This contradicts a prevalent myth about drug use by women, that tranquillizers are the exclusive drugs of choice.

- Abuse of heroin and IDUs were reported in rural settings too.
- Drug abuse is prominent in rural India but with inadequate service delivery for the

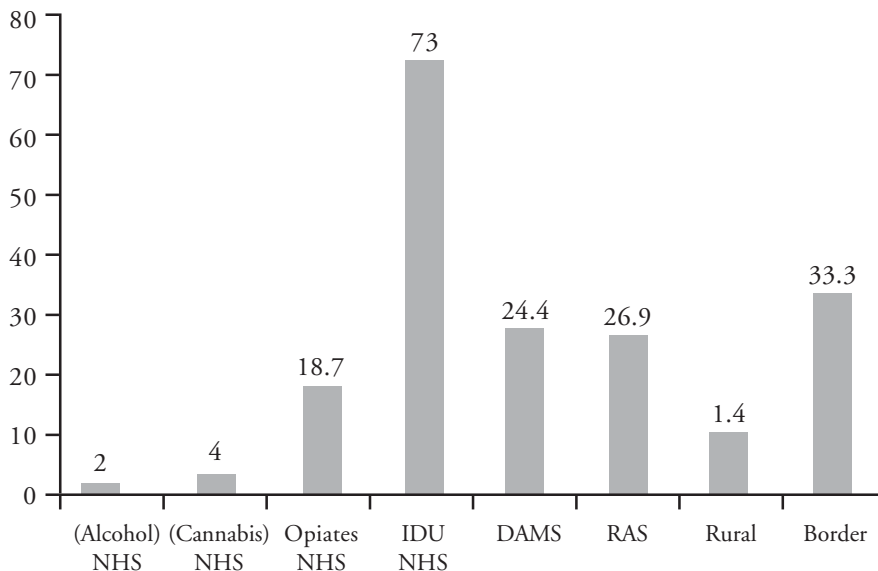
population.

- Youth and very young drug users were indulging in several high-risk behaviours like IDU, needle sharing and unsafe sex practices.

Treatment seeking

The figure below give an account of treatment seeking (ever) for substance use problems as found by the various survey components.

Fig 3: Percentage of Subjects reporting ever having Taken Treatment by Various Components



Needs of Users and Service Requirements

Focussed Group Discussions with Drug Users Revealed –

- Treatment should be free and available to all.
- Identity of the person seeking treatment should not be revealed.
- Proper medication and counseling should be available.
- Some requested for drug substitution.

Service requirements reveal that modification is needed in data collection due to the changing need of drug using population. These requirements include –

- . Low cost surveillance
- . Improve data collection on drug related morbidity and mortality
- . Surveillance of IDU and linkages with HIV/AIDS

The overall findings can be summarized as thus:

- Alcohol, cannabis, opium and heroin are the major drugs of abuse.
- The number of persons requiring treatment is large.
- Drug abuse is seen in both rural and urban India which is against the previously held belief that it is mostly found in urban population.
- IDUs have been reported from various sites, including rural India as opposed to previously held belief that IDU is mainly limited to North-Eastern states.
- One study reported IDU among women.
- A large number of drug users engage in unsafe sex practices.
- Multiple other high-risk behaviours were reported.
- Several common variables associated with drug abuse were identified across various survey components and thematic studies.
- Congruence between treatment seeking and the extent of the problem in a given state was lacking.

One of the important use of epidemiological studies is to give some information on aetiological factors (risk factors) associated with substance use. Some information about risk factors for substance dependence can help to target strategies to prevent dependence. Most of the data available is related to demographic factors associated with substance dependence.

FACTORS ASSOCIATED WITH SUBSTANCE DEPENDENCE

Sex:

Substance abuse is primarily a phenomenon occurring among the males in India but women also indulge in abuse of a few drugs like alcohol, tobacco, minor tranquillizers, heroin and

IDUs. In tribal areas, consumption of home brewed alcoholic beverages occurs among both the sexes. Raw opium consumption for therapeutic and other traditional purpose is prevalent in women in Rajasthan.

Age:

The age group of 15-24 years has emerged as critical period for the initiation of substance use habit and more than half of the abusers of all substances use the substance for the first time at this age. Tobacco use starts at an even earlier age. Among college students, the boys are initiated to drug use a year or two before entering college and among girls, it is two-three years after entering college. Most of the opiate dependent individuals are in the age group of 21 to 30 years and there is a decline in opiate use in those above 40 years of age.

Occupation:

Substance abuse has been reported from different occupational categories such as students, factory employees, auto rickshaw drivers, sex-workers, professionals and businessmen. About one- third to half the drug dependent individuals were either currently unemployed or had never been employed.

Other Determinants

Genetic:

Family studies from West have demonstrated that the risk of alcoholism was much higher among the first- degree family members of an alcoholic. On an average, the risk was increased seven times. Studies of twin pairs also demonstrated a genetic influence. There is also a high correlation between smoking by parents and child's substance use.

Co-morbidity:

The diagnosis of other substance abuse, anti-social personality, mania, schizophrenia, depression and anxiety disorders are also associated with alcoholism and drug dependence.

Attitude towards Substance Abuse

Personal

Perceived positive effects, harmful effects, whether own abuse perceived as a problem, sources of help perceived as available/useful are important determinants.

Societal

Tolerance/ ambivalence towards substance abuse amongst specified groups (e.g., age, sex, occupation) and situational context are important determinants.

Personality variables

Self-esteem, sense of personal control, anxiety, depression and disturbed mood states influence drug use.

Interpreting Epidemiologic Research

Methodological Issues

1. Concepts and definitions – Although there is consensus about the concept of the term dependence, certain terms like disorder, problematic or morbid pattern of use and what constitutes a case are subject to individual interpretations.
2. Reliability of information – The major source of information in epidemiological studies is the individual himself. The accuracy and reliability of information remain questionable due to factors such as social-stigma and denial.
3. Geographical variations – The pattern of substance use and frequency of substance related disorders varies across geographical areas. This limits the generalization of results obtained from one area or community.

Population Screening Instruments

These are the instruments which help in the early detection of substance use problem. They are very useful in general population settings.

Population screening instruments for substance abuse need to be highly sensitive, easy to administer and brief. It also needs to be validated on the population to be used.

Screening instruments available for alcohol use disorders are CAGE, MAST and AUDIT. (Appendix).

The AUDIT has been validated for use in Indian population through a study co-coordinated at National Drug Dependence Treatment Centre (NDDTC), AIIMS, New Delhi.

Interventional epidemiology

To be useful for public health, data obtained from epidemiological studies need to provide effective methods of early interventions so that the problem can be tackled at an early stage in a cost-effective manner. Interventional epidemiology deals with generation of such interventions.

Linking screening and intervention

Screening instruments and interventional methods are closely linked. For example, by using AUDIT as a screening instrument for alcohol use disorder one can roughly estimate the number of alcohol using problematic patients. Depending upon the cut-off score, various level of severity of alcohol problem can be estimated i.e. mild, moderate and severe. Depending upon the degree of severity, specific intervention that is cost-effective can be used. For example, in mild degree of severity of alcohol use problem, community based Brief Intervention strategies have been found to be very useful and cost-effective.

Suggested guidelines for getting familiar with local epidemiology

It is important to follow certain guidelines if one wishes to be familiar with epidemiology of substance use in your area. Some suggestions are-

1. To have a clearly stated aim and objective of the study.
2. To decide the study design- To study the prevalence of substance use in a locality survey is preferred. However, other indirect indicators can also be studied, such as studying drug-related illness from hospital emergency room data.
3. To decide the universe of study- depending on how the results are going to be used. For policy issues general community is preferred universe but for treatment planning specific areas such as slums, college campus/university area may be preferred.
4. To decide from whom to obtain information: person using the substance is preferred source of information but in some cases key informants and snowballing may be the preferred approaches.
5. What information to obtain: Depends on the aim and objective of the study. Commonly, following information is obtained-
 - Socio-demographic information- Age, Sex, Social class, Occupation, Education
 - Drug use information- Type of drugs used, amount and frequency of use
 - Treatment history and Complications- Medical, Psycho-social
 - For IDU- H/o needle sharing, unsafe sexual practices
7. Analysis of the data.

Suggested Reading

1. Kumar S M (2002). Rapid Assessment Survey of Drug Abuse in India. Ministry of Social Justice and Empowerment, Government of India and United Nations Office on Drugs and Crime, Regional Office for South Asia.
2. Murthy P (2002). Women and Drug Abuse: The Problem in India. Ministry of Social Justice and Empowerment, Government of India and United Nations Office on Drugs and Crime, Regional Office for South Asia.
3. Ray R (2004). The Extent, Pattern and Trends of Drug Abuse in India, National Survey.
4. Sethi H S (2002). Drug Abuse among Prison Population: A case study of Tihar Jail. Ministry of Social Justice and Empowerment, Government of India and United Nations Office on Drugs and Crime, Regional Office for South Asia.
5. Siddiqui H Y (2002). Drug Abuse Monitoring System- A Profile of Treatment Seekers.
6. Srivastava A, Pal H, Dwivedi S N, Pandey A (2002). *National Household Survey of Drug Abuse in India*. Report submitted to Ministry of Social Justice and Empowerment, Government of India and United Nations Office on Drugs and Crime, Regional Office for South Asia.
7. UNODCCP (United Nations Office for Drug Control and Crime Prevention) (2000). World Drug Report. United Nations Office for Drug and Crime Prevention, Vienna.
8. UNODCCP (United Nations Office for Drug Control and Crime Prevention) (2001). Global Illicit Drug Trends 2001. United Nations Office for Drug and Crime Prevention, Vienna.
9. Saxena S, Pal HR, Ambekar A (2003). Alcohol and drug abuse, New Age International Publishers, New Delhi.
10. The Centre for Harm Reduction (2002). Revisiting 'The Hidden Epidemic'- A situation Assessment of Drug Use in Asia in the context of HIV/AIDS. The Burnet Institute, Australia.
11. Ministry of Social Justice and Empowerment, Government of India and United Nations Office on Drugs and Crime, Regional Office for South Asia.
12. Ministry of Social Justice and Empowerment, Government of India and United Nations Office on Drugs and Crime, Regional Office for South Asia.

Suggested slides for OHP

Slide 1

Epidemiology of drug abuse is the study of distribution of drug abuse in a population and factors associated with it.

Indicators of substance use problem

Direct indicators – Surveys

Indirect indicators

- Production and consumption of substances
- Seizure of illicit drugs
- Drug-related illness
- Reporting systems

Slide 2

Global Burden of Substance use

<u>Substance</u>	<u>Number of users</u>
Alcohol	2 billion
Tobacco smoker	1.3 billion
Illicit drug	185 million

Death and Disability

Death- 12.4% of all deaths

DALYs- 8.9% of DALYs lost

Regional distribution of Burden

Overall- DALYs lost higher in EURO and WPRO regions

Tobacco- Largest burden in EURO and SEARO regions

Alcohol- Largest burden in AFRO, AMRO and WPRO regions

Slide 3

Global trends

“Licit substances (alcohol and tobacco) - most commonly used substances.” Among illicit substances, heroin and cocaine - most serious health related effects. “Heroin abuse - increasing in Central Asia, the Russian Federation and East Europe.” Largely caused by IDU, HIV/AIDS epidemic expanding at an alarming rate in South-East Asia.” ATS abuse shifting towards East and South-East Asia in recent years.

Slide 4

Indian Scene

• National Survey (2004) - First nationwide survey done for substance use

• Components-

NHS

RAS

DAMS

FTS

• Major findings-

- Alcohol, cannabis, opium and heroin - major drugs of abuse.
- The number of persons requiring treatment - large.
- Drug abuse is seen in both rural and urban India.
- IDUs have been reported from various sites, including rural India.
- A large number of drug users engage in unsafe sex practices.
- Multiple other high-risk behaviours were reported.
- Congruence between treatment seeking and the extent of the problem in a given state was lacking.
- Enrollment in treatment is low.
- The duration of drug abuse is long.
- The time gap between onset of drug use and treatment seeking is significant.

Slide 5

Factors Associated with Drug Dependence

- Sex- male more common
- Age-onset in adolescent or early adulthood
- Occupation varies
- Pattern of use in rural/urban areas
- Others- Genetic factors important in alcoholism

Slide 6

Methodological issues

- concepts and definitions
- Reliability of information
- Geographical variations

Acute Effects of Alcohol, Opioid and Cannabis Use

4

Kul Bhushan, BN Gangadhar.

Summary

The acute effects of psychotropic substances are determined by a number of factors. The knowledge of acute effects of commonly used psychotropic substances is necessary to the primary care physician for accurate diagnosis and management. Along with the acute effects on various body systems as well as psychological effects, mention is also made of the pharmacokinetics of the substances as well as the signs/symptoms of acute intoxications. This chapter deals with the commonly abused substances viz. alcohol, opioid and cannabis

Introduction

The acute effects of psychotropic substances are determined broadly by 4 groups of factors:

1. Levels of use: Based on quantity used and consequences, the use of psychoactive substances can be at one of two levels.
 - a) *Social use*, with no apparent harm and includes experimentation, group activity, dietary practice and religious ritual. Once initiated, susceptible individuals graduate to abuse and even dependence.
 - b) *Pathological use*, which includes abuse and dependence characterised by craving, compulsive use, tolerance and the withdrawal syndrome.
2. Patterns of use: Includes the routes of administration, quantity and frequency of use, route of administration and variations in preparations.
3. Individual factors: Besides differences between naive and experienced users, genetically determined susceptibility accounts for the occasional psychotic reactions. Mental set and expectations too are important.
4. Social factors: Group influence, social ambience and shared values are a potent influence in shaping the subjective experience both in content and magnitude.

ALCOHOL

Ethyl alcohol (ethanol) is the active ingredient. Concentration of ethyl alcohol differs across preparations:

Drinks prepared by using yeast to ferment various sugar containing plant products have a low concentration as yeast ceases to grow when the concentration of ethanol reaches about 15%. Stronger liquors, however, have become available in modern times through distillation. Whisky, brandy, rum and gin contain 35% to 50% alcohol whereas beers ordinarily contain 4 to 5%. Wines contain approximately 12% alcohol. However, fortified wines (prepared by adding brandy to wine) may contain about 20% of alcohol.

Table 1: Alcohol Preparations

Preparation of Alcohol	Concentration of alcohol by volume (%ABV)	Absolute alcohol (gms/100ml)	Standard Drink
Beer (standard)	3-4	2.3-3.1	300-400 ml.
Beer (strong)	8-11	6.2-8.6	100-150 ml.
Wines	5-13	3.9-10.1	100-250 ml.
Fortified Wines	14-20	10.9-15.9	60-90 ml.
Spirits (Whiskey, Rum, Gin, Vodka, Brandy etc)	40	31.2	30 ml.
Arrack	33	25.7	40 ml.

The standard drink or a unit of alcohol corresponds to 10 ml of absolute alcohol.

One Standard Drink = $\frac{1}{2}$ bottle of Standard Beer = $\frac{1}{4}$ bottle of Strong Beer = 1 peg (30 ml.)
Spirits = $\frac{1}{2}$ packet of Arrack = 1 glass (125 ml.) of table wine = 1 glass (60 ml.) fortified wine

Absorption

Alcohol is rapidly absorbed from upper gastrointestinal tract. Peak blood alcohol concentration (BAC) is reached in 30 to 60 minutes after consuming alcohol on an empty stomach. A number of variables influence the BAC attained. It rises slowly if the drink is sipped over a period but rapidly if it is gulped. The larger the quantity of absolute alcohol, the higher the peak BAC. Alcohol absorption may increase by as much as 20% as concentration rises. Carbonated beverages (e.g. soda) increase the rate of absorption of alcohol. Conversely, food in the stomach, especially carbohydrates, delays the absorption and peak BAC. There is no sex difference in the time to reach peak BAC though in women the peak BAC is 20% higher than in men since body water is only 50% of body weight compared to 60% in men. For the average person of 70 kg body weight, one drink (one standard unit of alcohol is 10ml of absolute alcohol, i.e. 7.87g) is likely to raise the BAC to approximately 15 to 20 mg/dl. Consumed over a period of an hour, 60ml and 90 ml of whisky produce BAC of 50mg/dl and 80mg/dl respectively.

Metabolism

Alcohol is eliminated from body at a rate of 7-10 gm (1 standard drink) an hour. So, BAC may remain elevated for considerable periods following ingestion. If an individual drinks 9 large drinks (60 ml.) of whisky (18 units) during an evening, then alcohol will still be present in his blood at noon the following day.

Most of the alcohol in blood is metabolised in liver by oxidation. Small amounts of alcohol (2-4% of the total dose) are lost into the urine and into the alveolar air by diffusion. The alcohol in alveolar air is in equilibrium with the alcohol in the blood passing through the lungs; a determination of the alcohol concentration in respiratory air by a breath analyzer can therefore be used and estimate blood concentration for medico-legal purposes. The concentration of alcohol in the urine is less precisely correlated with the average blood concentration.

Alcohol is converted by the activity of enzyme Alcohol dehydrogenase (ADH) to acetaldehyde, which is oxidized to acetate by the enzyme Aldehyde Dehydrogenase (ALDH). Acetate thus produced is rapidly converted to

carbon dioxide and water. A variant of enzyme Aldehyde Dehydrogenase is found in some 40% oriental people. The individuals carrying this variant have a remarkably reduced capacity to metabolize acetaldehyde and thus increase in circulating acetaldehyde produces general vasodilatation with distinctive flushing response.

Acute Effects of Alcohol

Psychological Effects:

The effects of alcohol begin within about 15 minutes and last for several hours. Alcohol is a depressant of the central nervous system (CNS). In small amounts it sedates and relieves anxiety. Paradoxically, it may also give a sense of strength and result in boisterous behaviour. These latter effects seen as 'drunkenness' are mistaken to be different from the effects of other CNS-depressing sedatives. The excitement that some times follows drinking is a manifestation of CNS depression, not stimulation. Alcohol is generally taken not at bedtime as a hypnotic but as a social drug. This explains the more common occurrence of paradoxical excitement and accounts for the commission of crimes as well as the consequences of drunken driving. The behavioural manifestations of CNS-depression by alcohol vary with the individual and with the setting. It heightens the mood prior to intake, be it sadness or happiness.

Despite being suitable and generally accepted as a social or recreational drug (relieves anxiety and promotes social behaviour), alcohol impairs judgement by reducing conscious self control during the period of intoxication. Coupled with a lack of insight into the impairment, the individual undertakes activities that can be risky - driving cars, operating machinery, besides indulging in social indiscretions such as unsafe sex.

Impairment of performance of real or simulated driving provides a generally accepted index to define drunken driving: blood alcohol concentration of 80mg/dl or more. This is achieved in the majority of persons after drinking 3 or more of 30 ml (1-oz) whisky within an hour.

The unpleasant effects that follow a drinking bout, usually the morning after, is at least partly a manifestation of withdrawal. For example, the first half of a night's sleep after alcohol may be deeper than usual but is followed by a disturbed sleep pattern reflecting increased excitability. Also, other factors like keeping awake till late in the night, unaccustomed activity, anxiety and remorse besides certain trace ingredients in the drink contribute to hangover. The manifestations of hangover include throbbing headache, vertigo, tremors, weakness, fatigue, gastritis with nausea and vomiting and dehydration with persistent acidosis and labile blood pressure. It is self-limiting and subsides

Table 2: The acute effects that commonly occur at increasing blood alcohol concentrations (BAC)

BAC mg/dl	Effects
< 80	Euphoria, feeling of relaxation and talking freely, clumsy movements of hands and legs, reduced alertness but believes himself to be alert.
>80	Noisy, moody, impaired judgement, impaired driving ability
100-200	Electroencephalographic changes begin to appear, Blurred vision, unsteady gait, gross motor in-coordination, slurred speech, aggressive, quarrelsome, talking loudly.
200-300	Amnesia for the experience – blackout.
300-350	Coma
355-600	May cause or contribute to death

with fluids, but aspirin, antacid and sodium bicarbonate may be tried for early relief.

Physical effects:

Gastrointestinal effects: Alcohol in moderation is an appetizer and gastric acid secretion is increased. Alcohol irritates the gastric mucosa and therefore should be avoided by patients with acid peptic disease. Alcohol ingested in a concentrated form even in the presence of food will cause gastritis with hyperaemia. This also leads to prolonged emptying time due to pylorospasm and decreased gastric motility, increased mucous and decreased acid secretion. Eventually, vomiting as well as gastric bleeding may occur. Alcohol also reduces the sphincter pressure at both ends of oesophagus and impedes oesophageal peristalsis. It may lead to gastro-oesophageal reflux and oesophagitis. Vomiting occurs after a drinking bout and may result in a Mallory-Weiss tear in the mucosa of the cardio-oesophageal junction, leading to profuse gastrointestinal bleeding.

Cardiovascular effects: Acute alcohol intake may lead to depression of left ventricular function and may cause ventricular premature beats even in individual with no history of heart disease. The blood pressure usually decreases with small or extremely large doses, but actually increases with moderate doses. Vasodilatation is the primary cardiovascular effect of alcohol as well as its active metabolite acetaldehyde. It causes a warm, flushed skin and a subjective feeling of warmth. Loss of heat from the body is increased, raising the risk of hypothermia. Heart rate and stroke volume may increase, but bradycardia may be seen with a very large intake. Anginal pain is sometimes relieved. This may be explained as analgesia due to central depression but it may be due to reduced cardiac work consequent to generalised vasodilatation.

Respiratory effects: Small or moderate doses

cause stimulation of respiratory centre consequent to accumulation of acetaldehyde. Very large doses of alcohol cause the respiratory depression as part of the CNS depressant effect. Vomiting occurring in intoxicated individuals may lead to aspiration pneumonia.

Musculoskeletal System: Acute heavy intake of alcohol may lead to alcoholic myopathy. The spectrum of this disorder is wide; some individuals may be asymptomatic and may be detected only because of increased serum creatinine kinase levels, while others may develop acute rhabdomyolysis with myoglobinuria, acute tubular necrosis and fatal renal failure. However, most individuals present with muscle pain, mainly around shoulder and hip. This is often accompanied by muscular swelling and progressive weakness of lower limb muscles.

Diuresis: Initially, alcohol suppresses the action of antidiuretic hormone (ADH) and causes diuresis independent of the volume of fluid taken as a beverage. Later, urine volume generally reflects fluid intake, but some sodium retention occurs.

Diagnosis of Alcohol intoxication

Clinically, a person can be said to be intoxicated if he exhibits significant maladaptive behavioural or psychological changes (e.g., inappropriate sexual or aggressive behaviour, mood lability, impaired judgement, impaired social or occupational functioning) that developed during, or shortly after alcohol ingestion. This is accompanied by one (or more) of the following signs: slurred speech, motor incoordination, unsteady gait, nystagmus, impairment in attention or memory, and stupor or coma.

By definition, such intoxication is due to the recent ingestion of alcohol and is reversible over a relatively short period of time (hours). Intoxication is readily recognized by eliciting his-

tory, examining the individual and conducting blood examination for BAC. Breath analyzers can satisfactorily discern intoxication too. Some breath analysers can give actual alcohol concentration but others only indicate whether it is above a preset threshold, (e.g. 60 mg/dl).

Table 3: Summary of acute effects of alcohol

Summary of acute effects of alcohol	
Mental & Behavioural Effects	Physical Effects
Drowsiness	Flushed face
Impaired attention	Rapid pulse
Impaired memory	Headache
Impaired judgement	Stomach ache
Impulsive behaviour	Diarrhoea
Inappropriate sexual behaviour	Sweating
Aggressive behaviour	Slurred speech
Inappropriate social conduct	Motor in coordination
Impaired occupational performance	Unsteady gait
Mood lability (rapid changes)	Nystagmus
Stupor/Coma	Respiratory depression

OPIOIDS

Pharmacological aspects

Opium and morphine occur naturally, and are the principal constituents of the poppy plant (*Papaver somniferum*). An **opioid** is any drug that activates the opioid receptors found in the brain, spinal cord and gut. There are three broad classes of opioids:

1. Naturally occurring opium alkaloids, such as morphine and codeine;
2. Semi-synthetics such as heroin, oxycodone and hydrocodone that are produced by modifying natural opium alkaloids.
3. Pure synthetics such as fentanyl and metha-

done that are not produced from opium and may have very different chemical structures than the opium alkaloids.

All these drugs produce a similar profile of acute effects and carry the risk of addiction. Morphine, pethidine, codeine and pentazocine are in medical use whereas methadone is used for maintenance of opioid addicts. The highly potent heroin has largely replaced morphine among illicit users in most countries. The term opiate is limited to the natural opium alkaloids and the semi-synthetics derived from them.

In India, apart from heroin, several opioids that are used as medications are also abused. Common among these are codeine cough syrups, morphine and pentazocine injections, dextropropoxyphene capsules and buprenorphine tablets. Several abusers use them to tide over periods of non availability of heroin, but many individuals use them as primary substance of abuse.

Route of administration

Heroin may be smoked, chased (inhaled) or injected (intramuscular or intravenous) and morphine is usually injected intravenously. When suitable vessels become unavailable, subcutaneous administration or “skin-popping” may be substitutes. Oral ingestion of opium as well as smoking through a special wooden pipe has been the traditional Indian method. Buprenorphine is either taken sublingually or dissolved in water and injected.

Absorption and metabolism

Opioids are less potent when taken by mouth than when injected, as they are readily metabolised in liver (first-pass metabolism). Opioids display “multi-compartmental” distribution : re-distribution occurs firstly into muscle, and then into poorly perfused tissues (e.g. fat). Their accumulation in body and saturation of tissue binding leads to prolonged effects with chronic use. They generally have low plasma protein binding (e.g. Morphine 20-30%, Methadone 60-90%)

Table 4: Hepatic clearance of various opioids

Drug	Hepatic Clearance	Oral Bioavailability (approx.)
Morphine Pentazocine Buprenorphine Fentanyl	High	20-40% (variable)
Codeine Pethidine	Intermediate	50%
Methadone	Low	90%

Opioids undergo extensive metabolism. Metabolites may be active/toxic, e.g. Heroin, Codeine, Pethidine. Renal excretion is a minor route of elimination, but may be very important in the excretion of active metabolites, e.g. Pethidine, Morphine. There is considerable inter-patient variability in the metabolism of

opioids. Heroin is metabolised to morphine in the body (liver and brain) and is rapidly excreted in the urine after conjugation with glucuronic acid. Nearly 90 percent of the total urinary excretion of morphine occurs within 24 hours. The duration of action of heroin and morphine is about 4 hours.

Table 5: Doses and duration of action of various opioids

Compound	Dose (mg)		Duration of Action (hr.)
	Injected	Oral	
Morphine	10	60	4
Heroin	4	30	3-4
Methadone	10	20	6-24
Pethidine	100	300	3
Codeine	30	90	4
Dextropropoxyphene	—	200	8
Dihydrocodeine	15	45	4
Buprenorphine	60	180	3
Pentazocine	0.3	0.8 (sublingual)	7

Psychological effects:

Due to marked tolerance, the acute effects differ widely between naive and chronic users. Dependent users injecting heroin or morphine describe short lived (less than a minute) intense experience -"rush". It is described as a state of profound euphoria. There is also pain relief due to analgesia and a dreamlike state characterized by decreased responsiveness to the environment. These analgesic and sedative ef-

fects usually persist for hours outlasting the initial intense euphoria. It should be noted, however, that the euphoria is probably not an intrinsic property of the opiates. When given to a subject who has not previously experienced the effects of the drugs and who is not in pain, morphine and codeine will more commonly produce a subjectively unpleasant reaction. In the presence of pain or fear, the reaction of a patient to an opiate may be much less dysphoric, and in some people, the relief from anxiety

may be pleasurable enough to provoke a desire for repetition of the experience. Sedation is due to action in the brain stem. Reduced pain perception, is due to suppression of the spinal cord, mid brain and thalamus whereas euphoria is due to limbic system stimulation. Excitation with convulsions may occur at higher doses.

Physical effects

Gastrointestinal effects: Nausea and vomiting (stimulation of the chemoreceptor zone in the medulla), anorexia and constipation (decreased gastrointestinal motility).

Respiratory and cardiovascular effects: Respiratory depression and suppression of cough reflex. At higher doses, bradycardia and postural hypotension may occur. Pulmonary oedema (with intravenous use) cyanosis and hypothermia are also seen. Skin may be warm and flushed due to peripheral vasodilatation.

Other effects: Itching may occur due to histamine release. Users experience a delay in ejaculation (and may take it to treat premature ejaculation) but prolonged use may lead to impotence.

OPIOID INTOXICATION

Opiate intoxication is classically characterized by the triad of pinpoint pupils, depressed respiration and coma. The syndromic criteria for the diagnosis of opioid intoxication (DSM IV) are: Clinically significant maladaptive behavioural or psychological changes (initial euphoria followed by apathy, dysphoria, psychomotor agitation or retardation, impaired judgement or impaired social or occupation functioning) that develops during or shortly after opioid use. This is accompanied by pupillary constriction (or pupillary dilatation due to anoxia from severe overdose), slurred speech, and impairment in attention or memory and either

drowsiness or coma. Illusions may occur in the absence of delirium as also hallucinations with intact reality testing (the person knows that the hallucinations are induced by the substance and do not represent external reality).

A suicidal or accidental overdose of opioids is an emergency. If opioid overdose is suspected, naloxone must be immediately administered intravenously (0.4 mg). This is both diagnostic and therapeutic. If sensorium improves and pupils dilate it confirms the diagnosis of opioid intoxication. Such timely intervention can sometimes be life-saving.

Table 6: Summary of acute effects of opiates

Summary of acute effects of opiates	
Mental & Behavioural Effects	Physical Effects
Drowsiness Initial euphoria Apathy or dysphoria Impaired judgement Impaired performance Psychomotor agitation or retardation Impaired attention and memory Illusions or Hallucinations with insight	Pupillary constriction Slurred speech Slow respiration Slow pulse Stupor/coma Pupillary dilation (anoxic)

CANNABIS

Cannabis is derived from the plant *cannabis sativa*, which grows in the wild all around the world. It is used in various forms such as Bhang- paste of leaves of the plant or dried leaves

Ganja – dried flowering stem of the plant
Charas or hashish is extracted from the resin covering the plant.

Hash oil is made by extracting Cannabinoids from the resin by using organic solvents.

The active compounds in cannabis products are called Cannabinoids. Most potent among them is tetrahydrocannabinol (THC). The concentration of THC varies in different forms of cannabis products. Wild cannabis products have lower concentration whereas commercially produced cannabis products have higher concentration of THC. Marijuana cigarette is a relatively mild preparation from various parts of uncultivated plants and delivers, on an average, 2 to 5 mg of delta THC. Other preparations used for smoking are ganja, which is approximately three times more potent than marijuana, and charas, the pure resin (ten times stronger than marijuana). Liquid cannabis (hashish oil) is syrup extracted from cannabis resin with a non-aqueous solvent and is five times stronger than charas.

Table 7: THC concentration of Cannabis Products

Forms	THC content (extremely variable)
Marijuana	1 – 3 % THC
Ganja(cultivated)	6 – 20 % THC
Hashish (charas)	10 – 20 % THC
Hashish oil	15-30% THC (may be more)

Mode of use

Cannabis is used in several ways

1. Orally as:

(a) Milk based drink called Thandai is commonly used in North India especially on ceremonial occasions (Holi & Shivratri).

(b) Sweets

(c) Manoka, a dry slightly sweetish preparation consisting of bhang paste and other materials. This is also sold as Ayurvedic medicinal preparation in certain parts of North India.

(d) Bhang is also mixed with flour to make 'pakodas' or 'bhajji'.

In West, cannabis is also cooked in form of cakes and biscuits etc.

2. Smoking:

(a) In cigarettes

Dried bhang leaves, ganja or charas can be mixed with tobacco in cigarettes and smoked.

(b) Clay pipes

Ganja is filled in clay pipes and smoked. This is the most common method in religious settings and rural areas.

(c) Water pipes

Traditional hookah or modern 'bong'. In this, smoke passes through water before being inhaled.

Cannabis is unsuitable for intravenous use as it is relatively water insoluble and can lead to anaphylaxis due to undissolved particulate matter.

Cannabis is smoked in rural India, with social sanction, often in a group for relaxation and fellow feeling. Some smoke it in a religious context whereas others use it as an aphrodisiac. Like alcohol, cannabis too reduces inhibition and increases desire but does not enhance performance. Some users, nevertheless, claim to use it for the enhancement of sexual pleasure.

Absorption

In smoking, up to half of the active ingredients are absorbed rapidly into the blood across the alveoli exerting their full effects in a few minutes. This occurs only if it is smoked with deep inhalations and retention in the lungs for some time period. Smoked (inhaled) cannabis is about three times more potent than when ingested orally due to more rapid absorption from the lungs, avoidance of hepatic first-pass metabolism and the enhanced release of delta THC from the pyrolysis of THC acids. Blood

levels of THC peak within minutes though subjective intoxication peaks only by about half an hour. Acute effects persist for a couple of hours. THC concentration in blood is a poor guide to level of intoxication as it correlates only moderately with cannabis intoxication partly because of its lipid solubility. Additionally tolerance develops to many of the effects of cannabis. The pharmacological effects of orally ingested cannabis occur after 30 minutes, peak in 2-3 hours and last 3 to 6 hours.

THC is highly protein bound and less than one percent of the absorbed drug enters the brain. It crosses the placenta, enters breast milk and induces hepatic enzymes. The plasma half-life in naive subjects is twice (50 to 60 hrs) that of a habitual user. The more active metabolites of THC (e.g. 11- hydroxy THC) have half-lives much longer than 50 hours. Following a single smoke of cannabis, therefore, THC and its metabolites remain in the body up to a month. Persistent activity in the blood can cause long term adverse effects on cognitive functioning of habitual users even when they are not apparently intoxicated. Likewise, the residual effects of intoxication may continue for several days. The hangover from acute intoxication is demonstrable with impairment on neuropsychological and driving/flight simulator tests up to even 48 hours after intoxication.

Psychological effects

Cannabis exerts the same diffuse depression of the CNS as alcohol and barbiturates. Besides sedation, it can also cause a paradoxical excitement due to disinhibition. A distinction must therefore be made between the pharmacologic effect of CNS depression and the manifest behaviour of excitement. The manifest behaviour in the individual, sedation or excitement, depends upon his personality, mental set and the setting. There may be a dreamy state with an increased tendency to fantasize and to accept suggestions. Large enough doses

cause a loss of consciousness (general anaesthesia). Animals when given lethal doses die of respiratory depression.

As the blood level of THC rises, there may be a state of euphoria and well being (high) and a dreamy, hypnagogic (hallucinations just prior to falling asleep) state of enjoyment. This is generally followed by a period of drowsiness. It is accompanied by ataxia and impaired performance. Even relatively modest amounts of cannabis can prolong reaction time and impair coordination and make the operation of heavy machinery hazardous. Dexterity and hand steadiness are both adversely affected. Alcohol, which is often concomitantly used, aggravates these adverse effects. Increased sensory acuity, which is largely subjective, does not compensate for the impaired psychomotor performance that places the cannabis user at risk. The tolerance developed by regular users to the adverse effect on psychomotor performance cannot be regarded as protective enough. The recognition and acquisition processes involved in the storages of short-term (hours to days) memory are the most affected, whereas long-term (months to years) memory is largely unaffected. The preferential concentration and action of THC in the hippocampus accords with and explains these effects. The EEG effects are similar to that seen with sedatives – slowing of frequency, increased alpha and decreased beta electrical activity.

Other psychological effects include perceptual and sensory distortions. Capacity for depth perception declines and scenes appear to have greater depth. Sounds and colours may become more intense alongwith derealization (what is seen or heard has an air of unreality) and depersonalization (ones own body feels unreal). Subjective sense of time seems to be much slower than it actually is. Dysphoria, restlessness, fear and even panic may spoil the experience (“bad trip”). Delirium occurs as a complication only rarely in neurologically intact

individuals. In such cases, symptoms of delirium, psychosis, or anxiety seldom persist beyond 48 hrs after acute cannabis intoxication. If they do so, the probability is high that they are a continuation of pre-existing psychopathology. The acute psychotic reaction is self-limiting, generally polymorphous and stormy. An acute organic state, phenomenologically indistinguishable from delirium, may follow cannabis use (generally at a high dose - 250 micrograms/kg of THC). Altered brain amine levels and/or inhibition of cholinergic transmission may be responsible for the same. Emotional turmoil, excitement, paranoid (unwarranted suspicion) or hypomanic symptoms and hallucinations may predominate. There may be driven activity (subject knows that one's activities are meaningless, yet is unable to control them). Hallucinations are vivid, well formed and commonly visual.

Physical effects:

Gastrointestinal Effects

Physical effects of acute low dose cannabis (50 micrograms/kg of delta-9-THC) include dry mouth, thirst, increased appetite and constipation.

Cardiovascular effects

Cardiovascular effects include rise in blood pressure and tachycardia. The increase in heart rate of upto 50 percent over baseline occurs within a few minutes and persists for a few hours. It also causes vasodilatation and redening of conjunctivae which is a characteristic sign of cannabis use. Vasodilatation may lead to postural hypotension and fainting. The earliest indication of intoxication in naive users is a feeling of "light-headedness." Most of these cardiovascular changes are clinically inconsequential except that they can magnify anxiety and contribute to the panic (sudden, intense fear) attacks sometimes experienced by them. However these effects may lead to serious cardiac complications in individuals with pre ex-

isting heart disease.

Respiratory system

Cannabis smoke contains carbon monoxide and carcinogens similar to those in cigarette smoke. Smoking a cannabis cigarette leads to about five fold increase in carboxy-hemoglobin concentration and three fold greater inhalation of tar and retention of tar in respiratory tract. This happens mainly because cannabis is smoked with deep and prolonged inhalation. Cannabis leads to irritation of the bronchial mucosa from smoking and a mild bronchoconstriction followed by bronchodilation.

Ophthalmic effects

Decreased intraocular pressure, and rarely photophobia, nystagmus and conjunctival injection are acute effects of low dose of cannabis on eyes. Higher doses (250 microgram/kg of THC) produce ptosis and miosis.

Diagnosis of cannabis intoxication

The syndrome criteria for the diagnosis of cannabis intoxication (DSM IV) are:

Clinically significant maladaptive behavioural or psychological changes (e.g., impaired motor coordination, euphoria, anxiety, sensation of slowed time, impaired judgement, social withdrawal) that developing during or shortly after cannabis intake and two (or more) of characteristic signs (conjunctival injection, increased appetite, dry mouth, tachycardia) developing within two hours of cannabis use. Illusions may occur in the absence of delirium as also hallucinations with intact reality testing.

Usually mood alterations and perceptual distortions are inconsequential and do not require anything more than reassurance. However, in a "bad trip" with psychotic excitement, prompt relief may be obtained with parenteral haloperidol (5-10mg). If psychotic disturbance persists beyond 1 or 2 hours referral to a psychiatrist is advised.

Table 8: Summary of acute effects of cannabis

Mental & Behavioural Effects	Physical Effects
Drowsiness (at high doses) Euphoria Anxiety Suspiciousness Expectations of harm Sensation of slowed time Social withdrawal Impaired judgement Illusions & hallucinations with insight	Red eyes Dry mouth Thirst Increased appetite Tachycardia (or Bradycardia at high doses) Light headedness (Postural hypotension)

To recapitulate, this chapter helps the medical officer to perform his role as an educator, as a medical expert in medico-legal cases, as a diagnostician and as a therapist. Alcohol, opiates and cannabis exert profound mental and physical effects. These effects are influenced by prior experience, pattern of use, physiological, psychological and psychosocial factors. The medical officer should consciously include these aspects while taking history and examining the patients. Whenever intoxication is suspected, suitable action will aid accurate diagnosis and prompt treatment. Taking care of the unwanted acute effects is an important task in the overall care of drug and alcohol dependent individuals.

Suggested Reading:

1. Adams IB and Martin BR. Cannabis: pharmacology and toxicology in animals and humans. *Addiction*, 1996; 91:1585-1614.
2. American Psychiatric Association (1994) *Diagnostic and Statistical Manual of Mental Disorders* (fourth edition). APA: Washington, DC.
3. Frances, RJ, Mille SI (1998): *Clinical Text-book of Addictive Disorders*. Guilford Press.
4. Lowinson JH, Ruiz P, Millman RB, Langrod JG (1997). *Substance Abuse: A comprehensive text book* Lippincott Williams & Wilkins.
5. Miller, NS (1991): *The Pharmacology of Alcohol and Drugs of Abuse and Addiction*. Springer-Verlag: New York.

Suggested slides for OHP

Slide 1

Factors influencing Acute Effects of Alcohol, Opioids and Cannabis

- Prior Experience (Occasional/Regular/Dependent)
- Pattern of use (Oral/injected/inhaled)
- Physiological (Genetic Predisposition)
- Psychosocial (Mental Set/Social Ambience)

Slide 2

Determinants of Blood Alcohol Concentration

- Quantity
- Concentration (Window Effect)
- Body Fat (Women)
- Addition of carbonated beverages
- Empty stomach
- Body weight (Men)
- Carbohydrate food

Slide 3

Alcohol Concentration & Drinks

- | | |
|---------|--------|
| Beers | 4-8% |
| Wines | 12% |
| Whisky | 40% |
| Illicit | 35-50% |

1 Unit= 10gm Absolute alcohol

In 70kg person 1 Unit gives blood levels of 15-20 mg/dl

Slide 4

Blood Alcohol Level <80mg/dl

- Euphoria
- Relaxed feeling
- Talks freely
- Clumsy movements
- Decreased alertness but unaware
- Normal speech

Slide 5

Blood Alcohol Level 80-100mg/dl

- Noisy and loud speech

Moody

Impaired judgement

Poor driving skills

EEG slowing

Slide 6

Blood Alcohol Level 100-200 mg/dl

Blurred vision

Unsteady gait

Incoordination

Slurred speech

Aggressive

Quarrelsome

Slide 7

Very High Blood Alcohol Levels

Level (mg/dl)	Effect
200-300	Amnesia / Blackout
300-350	Coma
>350	May lead to death

Slide 8

Alcohol: Pharmacokinetics

Onset of Effects <15 Minutes

Diffusion into alveolar air (proportional to blood levels)

Major metabolism in liver

Urine excretion 2-4%

Slide 9

Alcohol: CVS Effects

Smaller dose decreased BP

Larger dose increased BP

Initial vasodilatation (relieves anginal pain and feeling of warmth)

Tachycardia

Slide 10

Alcohol: GIT & Other Effects

Increased gastric acidity

Increased acid peptic disease
Hemetemesis
Low doses increased respiratory rate
Large dose depressant
Facilitates diuresis.

Slide 11

Diagnosing Alcohol Intoxication

Inappropriate behaviour
Impaired Judgement
Labile Mood
Slurred speech, incoordination, Ataxia, Nystagmus,
Lowered sensorium on examination
h/o recent alcohol ingestion

Breath Analyzer/Blood Alcohol Level

Slide 12

Opiates & their use

Natural – Opium, Morphine
Synthetic – Heroin, Methadone
Medical Use & Non medical abuse
Oral, injectable, inhaled (chasing)

Slide 13

Opiates: Absorption and elimination

Absorption through stomach/duodenum/lungs
Hepatic Glucuronidation
Urinary excretion
Most elimination in < 24 hours

Slide 14

Diagnosing Opiate Intoxication

Symptoms

Euphoria, Apathy, dysphoria
Psychomotor changes
Impaired judgement

Signs

Miosis, drowsiness
Slurred speech
Lowered sensorium

Naltrexone 0.4 mg Intravenous; Diagnostic and therapeutic effect

Slide 15

Cannabis Preparations

Plant - Cannabis Sativa
Marijuana Cigarette – 2-5 mg of THC
Ganja – Flowering tops of female plant
Charas/hashish – Pure resin (10 times more potent)
Hash oil - extract of Cannabinoids in organic solvents (50 times more potent)
Bhang – orally consumed

Slide 16

Cannabis:

Rapid absorption after smoking
Crosses placenta, present in milk
Long half life – upto 50 hours
Impaired neuropsychological performance upto 48 hours after last smoke

Slide 17

Diagnosing Cannabis Intoxication

Symptoms

Impaired motor coordination
Euphoria/anxiety/dysphoria
Sensation of slowed time
Poor judgement
Social withdrawal

Signs

Conjunctival injection
Dry mouth & appetite
Tachycardia

H/O Recent (2-3Hrs) Cannabis Use

Symptomatic Relief-Haloperidol Use

Health Hazards of Long Term Alcohol, Opioid and Cannabis Use

K Srinivasan, KS Chandramauli

Summary

Alcohol abuse and abuse of illicit drugs are a major health problem and its management calls for a concerted effort from all sections of the medical community. An effort has been made in this chapter to familiarize the clinician with the possible medical complications of alcohol and drug abuse. A drug abuser's first contact with the health system might be because of a physical complication and the general practitioner is at a vantage position to identify the problem early and offer help to the individual and his family. In order to provide comprehensive health care, a practitioner might have to liaise with other medical experts and he will need to establish contact with local drug treatment centres and non – governmental organizations, which offer rehabilitation and long term help to drug abusers. Most patients who present to a primary health centre do so with a relatively minor complication or early in the course of a chronic medical complication resulting from drug abuse. The physical complications in majority of these patients improve with abstinence from alcohol or drug use.

Introduction

Community surveys, hospital based studies and mortality indices all suggest an increased prevalence of alcohol and drug abuse in contemporary society. People who abuse alcohol are frequent users of the health care system. It is estimated that alcoholism is about 1.5 times more prevalent than diabetes in the community. Unfortunately, less than 20 % of such patients are identified and offered treatment.

A similar trend is seen in the increased prevalence of abuse of drugs, such as heroin, with its attendant health risks. Thus, it is clear that alcohol and drug abuse related problems are major national health concerns. General practitioners and primary health care givers have a key role to play in the early identification and treatment of such problems.

Health Hazards of Long Term Alcohol Use (Table 1)

Daily drinking of alcohol is associated with a wide range of medical complications.

Table –1 Diseases Associated with Alcohol Use

Organ System	Disease
Gastrointestinal system	Fatty liver, Alcoholic Hepatitis, Cirrhosis, Esophagitis, Acute gastritis, Pancreatitis, Malabsorption
Nutritional deficiencies	Thiamine, Pyridoxine, Vitamin A, Folic acid, Ascorbic acid
Haematological disorders	Anaemia, Leucopenia, Thrombocytopenia
Cardiovascular system	Cardiomyopathy, Hypertension
Central nervous system	Wernicke- Korsakoffs syndrome, Dementia, Cerebellar degeneration, Peripheral neuropathy, Myopathy, Head injury
Metabolic disorders	Ketoacidosis, Hypoglycaemia, Hypocalcemia, Hypomagnesemia
Miscellaneous	Fetal alcohol syndrome, Osteoporosis, Tuberculosis, Psoriasis, Domestic & traffic accidents
Cancers	Oral, Esophagus, Colon, Hepatocellular, Breast (women)

GASTROINTESTINAL SYSTEM

1. Alcoholic Liver Disease

Alcoholic liver disease refers to a spectrum of clinical conditions: Fatty liver, Alcoholic hepatitis and Cirrhosis. Fatty liver is often associated with moderate consumption of alcohol, while alcoholic hepatitis and cirrhosis are usually seen in heavy drinkers. Daily heavy drinking places most individuals at a great risk to develop liver disease. Women who drink daily develop cirrhosis much earlier than men. Continuous daily drinking is more likely to lead to liver damage than intermittent drinking. It must be stressed that a person need not be physically dependent on alcohol to develop liver disease.

Fatty Liver

Patients with fatty liver are usually asymptomatic. The clinical features and investigations necessary to diagnose fatty liver are given below (Table 2). On abstaining from alcohol, clinical symptoms and liver function tests become normal. Complete abstinence from alcohol must be emphasised as the condition is totally reversible.

Table 2: Fatty Liver

Fatty Liver	Clinical Features
Symptoms	Often asymptomatic
Signs	Hepatomegaly
Investigations	Elevated AST, ALT, Bilirubin
Treatment	Abstinence
Prognosis	Completely reversible with abstinence

Alcoholic hepatitis

Patients with alcohol induced hepatitis can manifest a wide range of clinical features (Table-3).

Most patients with alcoholic hepatitis improve with abstinence and require minimal medical intervention. However, in some, the onset may be fulminant and in such cases the short term mortality may be as high as 20-60 %. The clinical picture in these patients is one of florid hepatic failure and they should be referred to a hospital for further treatment. Treatment is generally supportive. An adequate nutrition and fluid electrolyte balance needs to be maintained. Nasogastric feeding becomes necessary only in severely ill patients. Treatment of complications necessitates referral to a hospital. Glucocorticoids are useful in patients with severe disease. Following abstinence, the clinical symptoms resolve in about six weeks time. However, in those individuals who continue to drink, alcoholic hepatitis may progress to cirrhosis. Poor prognostic factors are

- very high levels of bilirubin
- prolonged prothrombin time that is unresponsive to Vitamin K and
- presence of encephalopathy.

Table – 3: Alcoholic hepatitis

Symptoms	Anorexia, nausea, vomiting, pain abdomen, fever
Signs	Icterus, tender hepatomegaly
Investigations	Elevated AST, ALT & bilirubin, prolonged prothombin time
Complications	Fulminant hepatic failure, ascites, encephalopathy, gastrointestinal bleed, coagulopathy
Treatment	Supportive, Glucocorticoids
Prognosis	In the absence of complications reversible with abstinence

Presence of complications would require referral to a hospital.

Cirrhosis (Table 4, 5)

About 8-39% of subjects who abuse alcohol daily develop cirrhosis. Onset of the clinical syndrome of cirrhosis is often insidious. The clinical signs and symptoms of cirrhosis are presented in **Table – 4**. As cirrhosis of liver is often accompanied by various complications (**Table – 4**), patients suspected of cirrhosis should be referred to a hospital for an initial evaluation and subsequent treatment can be carried out in a primary health care setting based on the advice of the specialist.

Table – 4 Liver Cirrhosis : Features

Symptoms	Anorexia, weight loss, abdominal discomfort, distension of abdomen
Signs	Jaundice, spider naevi, clubbing, parotid enlargement, palmar erythema, gynaecomastia, testicular atrophy, Dupuytren's contracture, distended veins over abdomen, hepatomegaly or shrunken liver, splenomegaly, ascites
Complications	Ascites, variceal bleed, hepatic encephalopathy, spontaneous bacterial peritonitis, hepatic failure, renal failure

Patients to be referred to hospital for initial evaluation when cirrhosis is suspected.

The investigations that are necessary in cirrhosis are dictated by the presence of associated complications and are listed in **Table – 5**

Table – 5 Cirrhosis : Investigations

Liver function tests	Serum bilirubin, AST, ALT, (not diagnostic) may be elevated, prothrombin time prolonged, serum albumin low
Liver biopsy	Diagnostic
Abdominal ultrasound	Useful non – invasive test for evaluation of cirrhosis
Endoscopy	Diagnosis of varices and evaluation of hematemesis
Ascitic fluid analysis	Diagnosis of ascites and bacterial peritonitis

Treatment of cirrhosis includes a complete abstinence from alcohol with good nutritional and vitamin supplementation.

Table 6 – Cirrhosis: Treatment

Abstinence from alcohol
Good nutrition : 2000 – 3000 calories / day
Protein: 1 gm/kg, if no encephalopathy
Vitamin supplementation particularly thiamine and folate
Treatment of associated complications in a hospital setting
Initial assessment and treatment in a hospital setting

The management of associated complications would require referral to a hospital and such patients can later be followed up in a primary health centre based on the advice of a specialist.

Hepatic Encephalopathy

Hepatic encephalopathy can occur in patients with alcoholic hepatitis and /or cirrhosis. **Table – 7** lists the clinical features and the abnormal

findings on laboratory investigations in cases of acute hepatic encephalopathy. Treatment of acute hepatic encephalopathy must be carried out in an inpatient hospital setting under the care of a specialist.

Table – 7 Hepatic Encephalopathy: Clinical features

Symptoms	Agitation, mood swings, confusion, disorientation, disturbed sleep, altered sensorium, coma
Signs	Flapping tremor, Hyperreflexia, coma
Precipitating factors	G.I. bleed, infection, increased protein intake, use of sedatives, Electrolyte imbalance
Investigations	Elevated levels of serum ammonia, abnormal liver function tests, prolonged PT, abnormal EEG
Immediate measures	Low protein diet / supplement carbohydrates, Bowel wash, syrup lactulose, Antibiotics : Amoxycillin; Later referral to a specialist care in a hospital setup

Variceal Bleed

Clinical manifestations and management of variceal bleed are listed in **Table –8**

Table – 8 Variceal bleed: Clinical features and management

Symptoms of signs	Hematemesis, malena, worsening ascites, encephalopathy, hypotension
Immediate measures	Vital signs record IV fluids : Normal saline, Hemmacel if hypotension

If facilities available	Ryles tube – Continuous aspiration Refer to tertiary care centre
	Vasopressors for hypotension, Blood transfusion Vasopressin, somatostatin infusions Sengstaken tube

In summary, the management of alcohol liver disease is directed towards the treatment of the associated complications. However, the most important element in the treatment process is to help the patient to stop drinking.

2. Oesophagus

Alcohol alters the oesophageal motility resulting in defective oesophageal clearance. What is more important, however, is that chronic alcohol use reduces the oesophageal sphincter pressure leading to reflux oesophagitis. These patients improve with symptomatic treatment and abstinence. Occasionally, due to severe retching following an alcoholic binge, an individual might develop a tear in the lower end of the oesophagus resulting in haematemesis (Mallory – Weiss Syndrome) and such patients would require referral to a hospital for further management.

3. Stomach

Alcohol delays gastric emptying and disrupts the mucosal barrier resulting in gastritis. Its role in the development of chronic gastritis, however, remains doubtful. Following a bout of heavy drinking, haemorrhagic gastritis might develop resulting in gastrointestinal bleeding.

4. Small Intestine

Contrary to its effect on the oesophagus and stomach, alcohol increases the intestinal motility leading to diarrhoea. This effect, combined with derangement of the villous archi-

ture, results in decreased absorption of water, sodium, glucose, aminoacids, folic acid and thiamine. Among these, folate deficiency is the most common clinical manifestation.

5. Pancreas

The association between alcohol use and pancreatitis is well known. The clinical signs and symptoms of acute pancreatitis are listed in **Table – 9**. Pain in pancreatitis can be acutely brought on by a drinking binge. Patients suspected of pancreatitis should be referred to a specialist for evaluation and treatment.

Table – 9 Acute Pancreatitis: features

Symptoms	Abdominal pain radiating to back, nausea, vomiting
Signs	Tenderness in upper abdomen
Investigations	Elevated serum amylase, X-Ray abdomen, Ultra sound abdomen
Complications	Coagulopathy, shock, pancreatic abscess, pancreatic pseudocyst
Treatment	Supportive, IV fluids, NPO, NG aspiration, referral for complication

Features of chronic pancreatitis include recurrent pain abdomen, diabetes mellitus and malabsorption

NUTRITIONAL DEFICIENCIES

Alcohol has a direct appetite suppressant effect. In addition, because of its high caloric content, it is often substituted for food. Alcohol also interferes with the absorption of various nutrients. As a result, individuals who drink large amounts daily present with easy fatigability, lethargy and weight loss. Underlying

these symptoms is a state of protein calorie malnutrition. Multiple vitamin deficiencies are frequently associated with chronic alcohol use (**Table – 10**). After initial treatment and correction of the depleted body stores of various vitamins, it is essential to continue the patients on a maintenance dose till the patient starts taking a normal diet.

Table 10. Alcohol Abuse: Nutritional Deficiencies

Substance	Signs and Symptoms
Protein calorie malnutrition	Weight loss, lethargy, fatigue
Vit B1 deficiency	Beriberi, Wernicke – Korsakoff syndrome
Vit B2 deficiency	Pellagra
Vit B6 deficiency	Peripheral neuropathy
Vit A deficiency	Night blindness, keratomalacia
Vit C deficiency	Scurvy

Treatment comprises of high calorie, high protein diet and vitamin supplements.

HAEMATOLOGICAL DISORDERS

Apart from the effects of associated nutritional deficiencies, alcohol, due to a direct depressant action on the bone marrow, can cause anaemia, leucopenia and thrombocytopenia. Anemia can also be secondary to an acute or chronic blood loss from the gastrointestinal tract and hypersplenism. Coagulopathies due to diminished production of vitamin K dependent factors might complicate the picture in chronic liver disease and such cases would need detailed evaluation and treatment in a hospital setting.

CARDIOVASCULAR SYSTEM

Alcohol directly affects the heart musculature

resulting in the development of alcoholic cardiomyopathy. This condition is seen after many years of heavy drinking (>10 yrs). Alcoholic cardiomyopathy may present with cardiac failure and arrhythmias. Mural thrombi may be present in patients with chronic congestive failure. There is a strong association between moderate to heavy consumption of alcohol and hypertension. This association is clinically relevant in middle aged hypertensives. Eliciting history of alcohol abuse is important when treating a hypertensive patient. Alcohol interferes with antihypertensive therapy and heavy drinkers may fail to respond to standard medical treatment. Alcoholic hypertensive may become normotensive following abstinence.

Table 11 – Alcohol Abuse: Cardiovascular Complications

- Hypertension
- Cardiomyopathy – chronic congestive failure, mural thrombi, arrhythmias

Will need specialist evaluation for initiation of treatment.

NERVOUS SYSTEM

Chronic alcohol use can produce a significant alteration in the functioning of both central and peripheral nervous system (Table 12). Some of the complications are due to a coexisting thiamine deficiency, while a direct neurotoxic effect is also responsible for many of the manifestations.

Table 12 – Alcohol Abuse: Neurological Manifestation

- Peripheral neuropathy
- Wernicke – Korsakoff syndrome
- Cerebellar degeneration
- Dementia
- Myopathy
- Cerebro-Vascular accidents

Will need specialist evaluation and treatment.

Wernicke – Korsakoff Syndrome

Alcohol associated thiamine deficiency is responsible for Wernicke – Korsakoff syndrome (Table 13). Thiamine deficiency in alcoholism results from inadequate intake of thiamine, interference with its absorption from the gastrointestinal tract and impairment of its storage in the liver. The clinical presentation of Wernicke's encephalopathy and its treatment are presented in Table – 13. With therapy, ocular signs usually resolve quite rapidly. The psychological symptoms take a longer time to recede. In spite of treatment, the gait difficulty may persist in up to 50% of patients. If prompt treatment is not instituted, mortality occurs in about 20% of cases of Wernicke's encephalopathy. With treatment, as the acute neurological symptoms subside, the memory difficulties may become apparent. This picture, referred to as Korsakoff syndrome, often follows the acute Wernicke's syndrome. It is characterized by an inability to remember immediate past events and also difficulty in retaining newly learnt material. Studies have shown that only about 25% of patients with Korsakoff syndrome respond to treatment with thiamine. Among the rest, the memory deficits tend to persist.

Table – 13 Wernicke – Korsakoff Syndrome : Clinical features and Therapy

Clinical features

Ocular muscle paralysis

Strabismus, gaze paralysis,

Nystagmus

Ataxia, confusion, drowsiness

Therapy: Thiamine 50mg i.v. + 50mg i.m stat and 50 mg i.m. daily till patient recovers followed by oral supplementation.

Sequelae: Deficit in recent memory and learning, Psychosis, Persisting memory deficits in spite of treatment with thiamine. (may be permanent)

Treatment of Wernicke's encephalopathy is a medical emergency and involves prompt correction of thiamine deficiency. Initially parenteral administration of thiamine is necessary. This is to be followed by oral supplementation of thiamine for several weeks. Acute glucose load, in the form of an intravenous glucose drip, must be avoided in alcoholic patients as the glucose load can precipitate a Wernicke's encephalopathy. When glucose infusion becomes a necessity, it must be preceded by adequate thiamine supplementation.

Alcoholic Dementia

Memory difficulties, inattentiveness and an inability to maintain concentration are commonly seen in chronic alcoholics. Occasionally, these might progress on to frank dementia characterised by personal and social deterioration, memory lapses and difficulty in carrying out every day tasks. There is a decline in intellectual ability. Alcoholic dementia generally appears after many years of heavy drinking. CT scan may reveal cerebral atrophy. Abstinence from alcohol leads to a reversal of both, the cognitive deficit and the radiological abnormality. It is important to remember that cognitive impairment in chronic alcoholics might interfere with their ability to comply with treatment regimens.

Alcoholic Cerebellar Degeneration

Alcoholic cerebellar degeneration is characterised by ataxia affecting the trunk and lower limbs. The upper extremities are affected less often than the lower limbs. Patients present with a broad based stance and gait difficulty. These symptoms become more prominent during acute binges or alcohol withdrawal states. The progression of the disease process is slow. The etiology is still largely unknown. Abstinence from alcohol and nutritional supplementation might result in some improvement over many months.

Peripheral Neuropathy

Peripheral neuropathy seen among alcoholics results from vitamin deficiencies, especially, thiamine, pyridoxine and pantothenic acid. The onset of the symptoms is insidious and the progress is slow. Typically, patients complain of pain, paraesthesias and weakness, with symptoms being generally more prominent in the lower extremities. Paraesthesias are particularly distressing. Symptoms are more striking in the distal part of the limbs (glove and stocking distribution) and progress proximally as the disease advances. On physical examination, there is loss or diminution of ankle jerks. Sensory examination reveals loss of superficial touch, position sense and vibratory sensation. These changes are usually symmetric. Treatment involves vitamin supplementation, along with physical therapy to preserve muscle strength. Recovery is slow. Tricyclic antidepressants and carbamazepine have been used to alleviate pain. Alcoholism might affect the autonomic nerves resulting in impotence, postural hypotension and bladder or bowel dysfunction.

Alcoholic Myopathy

Chronic use of alcohol is sometimes associated with progressive muscle weakness. Characteristically, the proximal group of muscles of the lower limbs is involved. Patients usually complain of difficulty in climbing staircases or walking on an uneven ground. On physical examination, subjects have difficulty in getting up from squatting position without support. Diagnosis is confirmed by muscle biopsy. Treatment consists of abstinence & physiotherapy.

Alcohol and Accidents

There is a three- fold increase in accident rate among alcoholics. Besides road traffic accidents, alcoholics are at a greater risk to be involved in accidents at home and at the work place. Head injury in an alcoholic is particularly common. It has been reported that more than 20% of accident related head injury is associated with

recent alcohol consumption in our country. An alcoholic who has had a head injury is a difficult patient to manage. Treatment of alcohol withdrawal syndrome with sedatives may interfere with the assessment of head injury. A closed head injury sustained during an intoxicated state may not be reported to a clinician and thus, a potentially treatable condition such as a subdural haematoma might be missed with disastrous consequences for the patient. Often alcoholic patients with head injury behave aggressively and this interferes with the evaluation and treatment process. Thus, a high index of suspicion is necessary in diagnosing head injury among alcoholics and, when in doubt, a CT scan must be ordered to rule out significant head injury. The presence of an altered level of sensorium, headache accompanied by vomiting, epileptic fits or the appearance of neurological signs such as papilloedema, hemiparesis and extensor plantar response are some of the obvious pointers to the presence of head injury. Patients with head injury must be referred to a neurosurgeon for proper assessment and treatment. It is important to remember that an altered state of sensorium in an alcoholic patient could be due to various other causes and thus calls for a detailed evaluation (Table – 14).

Table –14 Altered Sensorium in Alcoholics
Differential diagnosis and Treatment

Clinical condition	Treatment
Alcohol intoxication	No specific treatment
Coma due to heavy alcohol ingestion	Dialysis is life saving
Hypoglycaemia	I.V. glucose infusion with I.V. thiamine
Alcohol withdrawal	Benzodiazepine (diazepam)
Delirium tremens	CT scan and referral to a neurosurgeon
Head injury	Anticonvulsants and referral to a physician
Post –ictal state	Thiamine supplementation
Wernicke's Encephalopathy	

MISCELLANEOUS CLINICAL CONDITIONS:

Foetal alcohol syndrome

About one third of children born to mothers who continue to drink during pregnancy show features of foetal alcohol syndrome. Typically, these children have reduced body weight and height, are hyperactive and have subnormal intelligence. Their faces may be recognized by short palpebral fissures, short upturned noses, mid facial hypoplasia, low nasal bridge and a thin upper lip. Hence, it is advisable that pregnant women should abstain from alcohol.

Alcohol and Metabolic Effects

Alcohol can cause a wide variety of metabolic disturbances including ketoacidosis, hypomagnesemia, hypocalcemia, hypophosphatemia and hypoglycemia. Among these, ketoacidosis and hypoglycemia are frequently encountered during clinical practice.

Others

Alcohol can accelerate the development of osteoporosis, especially in women drinkers. Alcohol reduces bone mass. Recent studies have suggested a link between alcohol abuse and psoriasis. Finally, alcohol affects the immune system and lowers resistance to infection. Tuberculosis is frequently seen amongst alcoholics.

Health Hazards of Long Term Opiate and Multi Drug Abuse (Table – 15)

Opiates refer to a group of drugs derived from the poppy plant *Papaver somniferum* and to their synthetic and semisynthetic derivatives. The naturally occurring opiate plant alkaloids include morphine, thebaine and codeine. However, it is the synthetic and semi-synthetic derivatives of opiates such as heroin, pethidine, buprenorphine, pentazocine and methadone, which have attained notoriety because of their abuse potential. Among these, the abuse of

heroin (di-acetyl morphine) has assumed epidemic proportions in recent times. The various medical complications that arise due to long term use of heroin are related to the mode of administration rather than the direct effect of these drugs. Besides, the presence of impurities in the street sample of heroin might lead to additional medical problems. Regular use of drugs like heroin often results in social deterioration, neglect of personal hygiene and a decline in living standards. Consequently, they suffer from various nutritional deficiencies and are more prone to develop infections. Studies have shown that mortality rates are high among regular drug users with death resulting from overdose, complications due to the use of non-sterile injecting procedures, serious accidents due to falls and Human – Immuno Deficiency Virus infection.

Table – 15 Opiate abuse: Medical complications

Mechanism	Medical complication
Related to mode of self administration of drug – parenteral	Cellulitis, thrombophlebitis, endocarditis, septicaemia, hepatitis B and C, AIDS, pulmonary hypertension
Related to mode of self administration of drug – inhalation (chasing)	Chronic bronchitis, respiratory infections
Socio – economic decline in living standards	Nutritional deficiencies, multiple vitamin deficiencies
Poor immune status	Recurrent infections, pulmonary tuberculosis
Miscellaneous	Overdose (accidental, deliberate) accidental injury during intoxicated state

Cellulitis

Cellulitis refers to a spreading infection of the subcutaneous tissue. In an intravenous drug user, cellulitis results from the use of contaminated needles and this can develop into an abscess. Occasionally, sterile abscesses can occur as a result of the irritant effects of the impurities present in the injected drug. Swabs from the wound should be taken (if possible) for bacteriological culture. Appropriate antibiotic therapy should be initiated. Abscess needs to be drained and in cellulitis, the affected part must be rested in an elevated position, if possible.

Thrombophlebitis

The irritant effect of the additives in the injectable drug can cause thrombophlebitis. Severe thrombophlebitis leads to venous obstruction with consequent edema of the affected limb. Treatment involves resting the affected limb in an elevated position. Anticoagulants are useful if venous thrombosis is present. Crepe bandage and elastic stockings help to alleviate oedema after the acute stage is controlled.

Endocarditis

In endocarditis, the heart valves get infected. The masses of blood clot and bacteria might then embolize to other organs where they act as septic foci of infection. In general, endocarditis develops on damaged heart valve, but among parenteral drug abusers, it can develop in a healthy heart. The major source of infection is the contaminated needle which introduces the bacteria directly into the venous blood. These reach the right side of the heart. Consequently, tricuspid valves are commonly affected in intravenous drug abusers. The presence of high grade fever with cardiac murmurs should alert the clinician to a possible diagnosis of endocarditis. It must be remembered that right sided endocarditis may present without murmurs as the infection can develop even with a

normal valve. Among patients with right sided endocarditis, pulmonary complications (pneumonia, embolism) because of septic emboli into the lungs are commonly seen. Patients suspected of endocarditis must be initially evaluated by a specialist but can be followed up in primary health care centre once the acute phase is over.

Septicaemia

Septicaemia should be considered in any intravenous drug abuser who presents in a toxic condition with high grade fever. A localized infection due to non-sterile injection technique may develop into septicaemia with widespread organ damage and multiorgan failure. Patients with septicaemia are very ill with fever, hypotension, mental confusion and impaired sensorium. Septicaemia is a serious medical event and prompt intervention is necessary. Diagnosis is confirmed by blood culture and the patient is best treated under the care of a specialist.

Hepatitis

Hepatitis is commonly encountered in parenteral drug abusers as they often share needles and thus spread infection from one to another. Amongst the various subtypes of infective hepatitis, Hepatitis B and Hepatitis C are more likely to be associated with parenteral drug abuse. Patients with acute hepatitis present with malaise, loss of appetite, nausea and low grade fever. On physical examination of the patient, icterus is usually seen and may be accompanied by an enlarged, tender liver. The liver function tests are abnormal with raised serum bilirubin, AST and ALT.

Hepatitis B is associated with a long incubation period (2-6 months) and during this asymptomatic stage the individual is capable of infecting others. Hepatitis B infection is confirmed by the presence of HBsAg in the blood. Treatment is mainly supportive. Majority of patients recover completely. Some patients

might develop complications such as hepatic encephalopathy and or coagulopathy which will necessitate referral to a hospital. Some patients remain as carriers (HBsAg +ve with normal LFT). Some patients develop chronic active hepatitis (HBsAg +ve and abnormal LFT persisting for more than 6 months) which may progress to cirrhosis or hepatocellular carcinoma.

Hepatitis C virus infection usually occurs following blood transfusion but has also been reported in intravenous drug abusers. Hepatitis C can manifest either as an acute hepatitis (uncommon) which resolves over 5-12 weeks or can go on to a chronic stage directly resulting in some cases in the development of cirrhosis. The diagnosis of hepatitis C rests on a positive anti HCV test. No specific treatment is necessary in the acute phase.

Acquired Immune Deficiency Syndrome (AIDS)

Intravenous drug abusers (IDUS) are a high risk group to develop AIDS. They often share infected needles and acquire the infection. In various treatment centers about 10 –560 per thousand samples are positive for HIV and in Manipur, 50 percent of IDUS are HIV positive. Nationally, it has been estimated that about 8 percent acquire the infection through injecting drug use and sexual contact accounted for nearly 75 per cent infections. Patients with HIV infection at the stage of seroconversion, might develop flu like symptoms. After a variable period, usually around 10 years, patients become symptomatic. Persistent lymphadenopathy, weight loss, fever and diarrhea may be the initial symptoms. As immunosuppression progresses, opportunistic infections appear. Candidiasis, Tuberculosis, Pneumocystis carinii pneumonia & cryptococcal meningitis are the common secondary infections seen in out patients. Treatment is available for most of the opportunistic

infections. However, HIV infection is not curable currently. Prevention remains the best strategy.

Preventive measures begin with HIV testing of drug abusers. These include education regarding transmission, manifestation of HIV infection and the implication of a positive and negative test result. The patient must be assured of complete confidentiality regarding all aspects of the HIV test during pre-test counselling. During post-test counselling, results of the test are discussed with the patient. Even in the face of a negative test result reduction of risk factors should be emphasized. Psychological impact of a positive result should not be underestimated and patients must be given time to express their feelings adequately and precaution against infecting others emphasized during counselling.

Pulmonary Complications

Occasionally an intravenous drug user may present to a physician with features of pulmonary hypertension. Particulate matters in the drug get trapped in the pulmonary circulation leading to formation granulomas and inflammatory exudates which might occlude pulmonary arterioles and result in the development of pulmonary hypertension. Chronic bronchitis may result from regular use of heroin when it is inhaled (chased) or smoked. There is also an increased risk of pulmonary tuberculosis among regular users of heroin due to altered immune status and poor living conditions associated with social deterioration. Various toxic substances such as arsenic and rat poison are often found in street samples of heroin and when inhaled might lead to medical complications.

Overdose

Drug abusers may inject themselves with large doses of opiates either accidentally or as an at-

tempt to commit suicide. They are brought to the emergency service in an unresponsive state. Naloxone given intravenously (0.4mg) serves both a diagnostic and a therapeutic purpose in suspected cases of opiate overdose. Patients with opiate overdose respond quickly to naloxone and the dose can be repeated till the level of sensorium improves or pupils dilate. Blood pressure and respiratory rate must be closely monitored during the treatment of opiate poisoning. It must be remembered that naloxone is a short acting opiate antagonist and the patient may slip back into unconsciousness once the drug effect wears off. In a regular drug user withdrawal syndrome may be precipitated by naloxone.

In conclusion, patients who are regular intravenous drug abusers run the risk of developing multiple infections due to unhygienic injecting practice. To get the patient to give up intravenous drug use should be the therapeutic endeavour. Harm reduction programmes aimed at decreasing the chances of medical complications like HIV have encouraged various alternatives such as the needle exchange program, where in the addicts are provided with clean sterile needles.

Health Hazards of Long Term Cannabis use

Cannabis is derived from the Indian hemp plant *cannabis sativa*. The plant grows in many parts of the country and is used widely as an intoxicant. Various forms of Cannabis are available and their potency is related to the content of the active ingredient 'Tetrahydrocannabinol' (THC). Chronic cannabis use is not associated with any significant medical complications. However, regular use of cannabis must be discouraged, as there is greater likelihood that the individual might come into contact with drugs with far greater health consequences such as heroin.

Table 16 – Reversible Medical Condition following Abstinence from Alcohol and Drug Use

- Fatty liver
- Uncomplicated alcoholic hepatitis
- Nutrition deficiencies
- Vitamin deficiencies (except Korsakoff's syndrome)
- Hypertension (some patients become normotensive following abstinence from alcohol)
- Peripheral neuropathy (subjective symptoms with no objective loss of sensation)
- Alcoholic dementia (early stages)
- Metabolic abnormalities
- Infections, local and systemic (except AIDS & Hepatitis B and C)

Many such patients are helped by simple advice focusing on the need to abstain from alcohol and drug use. However, clinicians often have a pessimistic and cynical attitude towards these individuals because of their life styles and frequent relapses into earlier patterns of drinking and drug taking. This negative concern must be removed by the fact that even a brief period of abstinence gives damaged tissues time to heal and a chance for recovery. Further, treatment offers a drug free life to the individual.

Suggested Reading

Alcohol

1. Barnes HN, Aronson MD and Delbanco TL, eds. *Alcoholism: A Guide for the Primary Care Physician*. Springer Verlag, New York, 1987.
2. Edwards G, Peters TJ, eds. *British Medical Bulletin; Alcohol and Alcohol Problems*. 1994;50:1-234
3. Sherlock S. Alcohol and the Liver. In: *Diseases of the Liver and Biliary System*. Eighth ed; Blackwell Scientific Publications, Oxford, 1989;425-448.
4. Victor M, Adams RD and Collins GH. *The Wernicke-korsakoff Syndrome*. Blackwell Scientific Publications, Oxford, 1971.

Opiate Abuse

1. Banks A and Waller, TAN. *Drug Misuse: A Practical Handdook for General Practioners*. Blackwell Scientific Publications, Oxford, 1988:103-143.
2. Ghodse H. *Drug and Addictive Behaviour: A Guide to Treatment*. Blackwell Scientific Publications, Oxford, 1989.

Suggested slides for OHP

Slide 1

Individuals who abuse alcohol and drugs are frequent users of health care system

Less than 20 % of such patients are identified and offered treatment.

Slide 2

Diseases associated with alcohol abuse

Organ system	Diseases
Gastrointestinal system	Fatty liver, Alcohol Hepatitis, Cirrhosis, Oesophagitis, Acute Gastritis, Malabsorption Pancreatitis, Hepatocellular carcinoma
Cardiovascular system	Cardiomyopathy, Hypertension
Central nervous system	Wernicke- Korsakoff's syndrome, Dementia, Cerebellar Degeneration, Peripheral Neuropathy, Myopathy
Nutritional deficiencies	Thiamine, Pyridoxine, Folic acid, Ascorbic Acid deficiency
Haematological disorders	Anaemia, Leucopenia, Thrombocytopenia
Metabolic	Ketoacidosis, Hypoglycaemia, Hypocalcaemia, Hypomagnesemia
Miscellaneous	Fetal alcohol syndrome, Osteoporosis, psoriasis, Tuberculosis

Slide 4

Treatment has two components.

Treatment of the associated medical complications

Simple advice regarding complete abstinence from alcohol is useful in most patients

Some individuals require referral to a specialized de-addiction service.

Slide 5

Medical complications associated with opiate abuse

Mechanism	Medical complications
Related to mode of self administration of drug : parenteral	Cellulitis, Thrombophlebitis, Endocarditis, Septicaemia, Hepatitis B and C, AIDS, Pulmonary hypertension
Related to mode of self administration of drug : smoking/chasing	Chronic bronchitis, Respiratory infections
Decline in living standards	Nutritional deficiencies, Multiple vitamin deficiencies Poor immune status, Recurrent infections, Pulmonary tuberculosis
Miscellaneous	Drug overdose, Accidental injury while intoxicated

Slide 6

Reversible medical conditions following abstinence from alcohol and drug abuse

- Fatty liver
- Uncomplicated alcoholic hepatitis
- Nutrition deficiencies
- Vitamin deficiencies (except Korsakoff's syndrome)
- Hypertension (normotensive following abstinence in some cases)
- Peripheral neuritis (subjective symptoms with no objective loss of sensation)
- Alcohol dementia (early stages)
- Metabolic abnormalities

Slide 7

Close interaction among GDMOs, staff of department of medicine and other specialists.

Linkages with NGOs and de-addiction centers necessary for optimal health care.

Treatment Principles and Issues in Management of Substance Use Disorder – An Overview

6

Rajat Ray, Arindam Mondal

Summary:

Treatment for substance use disorder can be done in a variety of settings with a variety of clinical modalities. A combination of pharmacological and non-pharmacological (psychosocial) interventions yields most favourable treatment outcome. The treatment process is enhanced when clinicians match clinical interventions with patients' motivation for change and other factors. Treatment of such patients requires well-planned strategy and co-ordinated effort. The treatment goal could either be abstinence or harm reduction.

In the national context, it is important to integrate the treatment of these patients with the general health care. Thus, general duty medical officers and para-medical staff have a very significant role to play. The majority of patients can be treated at the primary care level and do not require hospitalisation or intensive treatment. Treatment in the OPD, community clinic and general medical setting is possible and cost-effective. Some may require complex and multiple interventions. They are best referred to specialised de-addiction centres.

Introduction

The general principles of treatment for all drugs including alcohol are similar. However, treatments for specific substances may differ as the problems associated with drug abuse and medicines needed are different. Further pre-treatment variables and severity of addiction vary significantly from person to person and from one substance to another. Drug and alcohol

abuse are complex problems and have impact on the occupational, health, or social spheres of individuals. This has an important bearing on the treatment process.

There are several approaches to treat drug addiction. These include medications, psychosocial therapy (behaviour therapy, counselling, cognitive therapy, psychotherapy) or their combination. Behaviour therapies offer people strategies to cope with craving, prevent relapse, and help them deal with relapse, if it occurs. The most effective treatment combines therapies and other services for comprehensive management.

Treatment involves several categories of professionals. They are most commonly general physicians and psychiatrists, and often psychologists, counsellors and social workers. Community leaders, spiritual leaders and even lay volunteers and patients (ex-addicts) have an important role to play in the treatment process.

The present chapter discusses various treatment issues, treatment as a process and generalities from a medical perspective. Specific treatment issues are discussed in the subsequent chapters.

The current chapter discusses various issues as applicable to the medical model. According to this model, drug dependence is understood as a bio-behavioural condition and manifests as a chronic non-communicable disease, with specific symptoms and signs. Thus, affected individuals are considered to be medically ill. Hence, as with many diseases of the above na-

ture (viz. diabetes mellitus, arthritis and asthma), treatment can only modify and alter the course. Use of the term “cure” following treatment, as understood in traditional medical parlance and as applicable to infective diseases, is inappropriate. Many professionals, notably health specialists, accept the above concept.

Goals of Treatment

Treatment goals differ from patient to patient and over time and may need to be reframed as the treatment progresses. Traditionally, the primary goal of treatment was to achieve permanent abstinence. However, this goal may remain elusive and alternate goals have to be pursued for some. In this sub-group, intervention is directed towards decreasing the harmful consequences of continued drug use. Such an effort is practical and attainable, and is called “harm minimisation”. Strategies for harm minimisation are discussed later. The other goal pursues improvement of physical, psychosocial and occupational functioning.

Goals may also be classified as immediate, short-term and long-term goals. Immediate goals may be completion of detoxification, intervention of psychosocial and medical crisis. Short-term goals may include management of medical and psychiatric co-morbidity and re-integration with family. Long-term goals consist of prevention of relapse, re-integration into the society, occupational rehabilitation and improvement in overall quality of life.

Treatment Goals

Abstinence

Harm minimisation

Improvement of health, social, occupational functions

Improved quality of life.

Assessment

Treatment planning and appropriate interventions follow assessment. Assessment helps in developing a therapeutic relationship with the patient. This relationship is based on trust, empathy and a non-judgmental attitude.

Issues to consider in assessment:

- Drug Use and Treatment - Quantity and pattern of use of licit and illicit drugs; previous treatment, complications and severity of dependence.
- Medical & Psychiatric Problems - Medical and psychiatric problems related to drug use.
- Psychosocial Factors - Support; barriers, expectations & goals.
- Physical Assessment - Effects of drug, intoxication and withdrawal, general physical assessment.
- Laboratory Tests - Confirmation of drug use, screening for illnesses predisposed by the drug used; Investigation of abnormalities uncovered in assessment.
- Opportunities for Harm Reduction: Injecting behaviour; sexual behaviour and high-risk behaviour.

Issues In Assessment

Drug use and treatment

Medical & psychiatric Problems

Psychosocial factors responsible for continued drug use

Physical assessment

Laboratory tests

Opportunities for pursuing various treatment goals

Treatment Settings

Currently, most countries including India have established specialised treatment facilities to treat drug dependence disorder run by either government (GOs) or non-government organisations (NGOs). Most government treatment centres are part of a medical college/general hospital. However, many patients report to other settings including general medical OPD with ailments directly attributable to excess drug and alcohol consumption. Often they go undetected. It is important to identify these patients in the non-specialised settings and offer prompt treatment. The above arrangement is convenient to patients and cost effective too.

Most patients and their families including many professionals think that for treatment of drug dependence, one needs inpatient care. In fact, majority do not require admission. They do well on OPD treatment and through domiciliary care.

Inpatient care provides obvious advantages of restrictive care, more intensive patient contact, closer monitoring and usually enforces abstinence. Guidelines for OPD or in-patient treatment as practiced in our centre are provided (Annexure). Care can also be rendered through community clinics, psychiatric hospitals and prisons. Each of these has specific purpose to serve. Treatment from community clinic and exclusive OPD treatment needs a fair clinical trial before inpatient treatment is considered. Inpatient treatment is usually not the first line treatment.

Treatment Settings

Community clinic
Specialised De-addiction centre
Non-specialised settings viz. Medical OPD, Dispensary

Government & Non-Government centres
Psychiatric hospital
Prisons
OPD vs. Ward

Levels of Care

There are various levels of care, from the least complex to the most comprehensive intervention. Complex interventions need not necessarily be the most desirable. Often, brief and simple intervention would suffice. Various levels of care can be categorised as:

- Level 1: Acute intoxication, overdose and withdrawal symptoms are treated
- Level 2: Short term pharmacotherapy, brief interventions, community care and general measures of rehabilitation are rendered
- Level 3: This comprises multiple psychosocial interventions with or without pharmacotherapy. Treatment is often determined by individual's need.

Progress and outcome are closely monitored.

Levels of Care

- Level 1: Management of acute intoxication, overdose and withdrawal
- Level 2: Brief therapy and short term pharmacotherapy
- Level 3: Complex psychosocial therapy, long term pharmacotherapy and monitored follow-up

Personnel required at various levels

The treatment team consists of various categories of staff and is multidisciplinary in nature. The team comprises of doctors, nurses, psychologists, social workers, pre-clinical scientists, laboratory staff and others for support services.

The role of each team members is distinct and complementary. However, there are grey areas. Certain duties can be performed by more than one category of staff, especially after (in-service) training. To illustrate, a nurse can carry out the following activities besides providing nursing care and dispensing medicines:

- a) Obtaining drug use history from patients
- b) Assessment of patients
- c) Counselling the patient
- d) Counselling the relatives of the patient

These should be reinforced and opportunities should be provided for in-service training so as to encourage broader participation of various activities. These are even more evident in a community clinic where strict division of role should be discouraged.

Personnel

Multidisciplinary

Traditional hospital setting - Clarity of role, division of work

Community Clinic - Multiplicity of role

Phases/ Stages of Treatment

Comprehensive treatment of drug abuse comprises initial, middle and late phases. Phases of treatment are linked with the issue of levels of care (above). In the pre-treatment period acceptance of the problem by the patient occurs and the patient prepares himself for treatment. The peer group and family members play a significant role.

The **initial phase** is of detoxification, which usually lasts for 2-4 weeks. Here efforts are made to free the person of all intoxicants and attend to the immediate medical consequences of drug abuse. The **middle phase** is aimed at maintain-

ing a drug free status and initiates the process of reintegration into the society. It may last for 3-6 months. During the **late phase**, a healthy life style and alternate coping strategies are taught. Usually treatment is multi-modal, which includes pharmacological and non-pharmacological therapy.

Treatment Phases

Initial	2 to 4 weeks
Middle Phase	3 to 6 months
Late Phase	>6 months

Treatment Modalities

Certain basic principles of management are common, irrespective of the nature of substance being abused. In this chapter the focus is on commonalties and general principles of management rather than issues that are specific to a particular substance.

Broadly speaking, there are two modalities: pharmacotherapy and psychosocial therapy. Goals of pharmacotherapy are reversal of acute effects (intoxication and overdose), amelioration of withdrawal symptoms, decline of craving, prevention of relapse and restoration of normal physiological functions. Currently, various pharmacological agents are available for the above purposes.

Treatment Modalities- 1

Medicines	Reversal of acute effects, overdose & toxicity
(Agonist, Antagonist, Deterrents & Others)	Detoxification
	Decline of craving
	Prevent relapse
	Restoration of health damage

General physicians or specialists from other disciplines are more often engaged in providing treatment for toxicity and organ damage.

Specialists from addiction medicine provide long-term care. Both can carry out detoxification.

Detoxification is the initial step in drug abuse intervention. Various long-term medications like agonist, antagonist and deterrents are used subsequently. These compounds promote abstinence and minimise relapse. However, a simple pharmacological answer to treat substance use disorder is still elusive. Thus they have to be supplemented with various forms of psychological and social interventions. These include single session counselling and brief therapies. In tertiary care settings, more complex therapies are carried out to promote sobriety and drug free healthy life style. These are adjuncts to pharmacotherapy and important for aftercare and rehabilitation.

Treatment Modalities- 2

Psychological & Social Therapy	Single session Brief Counselling Other complex therapies
-----------------------------------	--

Other common tasks are building an improved doctor-patient relationship, therapeutic alliance and improved communication with the patient and his/her relatives. Negotiated treatment to enhance motivation is very effective to improve treatment compliance. Treatment efforts, progress, adherence to treatment need to be assessed. Sometimes, treatment failure requires alternate treatment strategies.

Treatment Modalities - 3

Doctor-patient relationship Therapeutic alliance Enhancement of motivation Improved treatment compliance

Achieving permanent abstinence is a slow process. Patients go through short periods of ab-

stinence and a reduction in drug consumption before becoming totally drug free. Considerable patience is required on part of the patient, family members and the treating team in the process of treatment.

Following improvement, treatment is terminated in a phased fashion. It is important to decide about the length of treatment. Obviously, treatment cannot go on indefinitely. Treatment should be terminated in a planned manner.

Relapse Prevention

This involves strategies, which help the patient to maintain the necessary changes in their drug taking behaviour over time. These strategies are used in the middle and late stages of treatment. Family support is encouraged. The basic aim in Relapse Prevention is helping patients to:

- Identify high-risk relapse factors and develop strategies to deal with them
- Understand relapse as a process
- Understand and deal with cues related to drug and alcohol use and craving
- Deal with social pressure to use drugs and alcohol
- Develop and enhance a supportive social network
- Develop methods of coping with negative emotional states
- Learn methods to cope with cognitive distortion
- Work towards a balanced lifestyle

In addition, the patients should be assessed for presence of psychiatric disorder and the need for regular follow-up is emphasised.

Treatment Resistance

Resistance to treatment is a barrier one has to overcome fairly often. This may happen in the initial phase of substance abuse when patients

deny or minimise their substance use and its consequences. Among patients receiving treatment, patient with additional psychiatric illnesses such as personality disorders and those with minimal socio-occupational dysfunction offer the maximum resistance to treatment.

Though many alcohol and drug dependent individuals ultimately reach formal treatment settings, many remain untreated. Such patients can be helped by “concerned others” such as a family member, friend, co-worker, religious or community leaders to initiate contact with a treatment agency for help. When such a patient does contact the treatment provider, Motivational interviewing is the single most important step in breaking the resistance to treatment.

Network Therapy

Network therapy is a multi-modal approach to office-based rehabilitation in which specific family members and friends are enlisted to provide ongoing support and promote attitude change. It is complementary to other therapies. It has 3 critical tasks:

- a) Maintaining abstinence: The network offers a safe place with trusted family and friends who help the patient stay in therapy and avoid cues that can lead to relapse,
- b) Caring for the network: An unique therapeutic instrument, the network stays involved in enhancing the patient’s coping skills, offering common sense and a positive team attitude,
- c) Securing future behaviour: It structures the clinical situation to limit the possibility of relapse.

Other Approaches to Treatment

Self Help Approach: In this approach, people with similar problems unite to form a group for mutual help. These groups are called ‘self-help’ groups. These groups are voluntary and self-sufficient and provide mutual assistance to

all its members. Self-help groups like “Alcoholic Anonymous” (AA) and “Narcotic Anonymous” (NA) have congregations in most cities. Additionally, ‘self-help’ groups for family members, friends and children of drug and alcohol abusers have been developed, viz. Al Anon, Al Teen etc.

Social Correctional Approach: According to this approach, drug and alcohol abuse is seen as a social deviance and residential programmes are offered as a correctional method. Therapeutic Community (TC) is the most well known of the facilities offered under this concept.

Workplace based Intervention: Substance abuse problems in the workplace and their cost to the industry are difficult to estimate and is usually underestimated. Also, the ultimate goal in the treatment of substance abuse is employment. Of late, Governments have acknowledged these issues and are adopting corrective measures. Though the main focus is on alcohol and nicotine dependence, use of other drugs is also addressed. Employee’s Assistance Programme (EAP) identifies and resolves productivity problems associated with employees impaired by personal problems, including alcohol and drug abuse. It offers assessment, referral and follow-up services for mental health, alcohol and other drug related problems.

Integration with General Health Care: For many patients, the general medical setting is the first point of contact in the treatment of drug dependence. A proportion of these patients can be effectively treated in these settings, e.g. dispensary, medical and surgical outpatient services. Treatment in such settings has several advantages,

- a) Being cost-effective,
- b) Increased convenience for patients,
- c) Less stigma and
- d) Medical infrastructure already in place.

General duty medical officers can treat these

patients adequately provided they have received training and have liaison with specialised (de-addiction) treatment centres.

In India, treatment facilities have been established at medical colleges, district level hospitals and community health centres. Training of staff of these centres has led to increase in knowledge, skill to treat and change in attitude among various health personnel.

Services possible in these settings are:

- Emergency care for toxicity, overdose
- Management of withdrawal
- Treatment of associated health damage
- Linkages with other programme viz. control of Tuberculosis, HIV/AIDS etc
- Referral to specialised treatment centres following detoxification

Integration with General Health Care

Setting	Medical College, district hospital, CHC
Services	Emergency care, detoxification, referral to other centres
Integration	Other health programmes e.g. Tuberculosis, HIV/AIDS control
Training of several categories of staff	

From a public health perspective, effective treatment strategies are:

- Facilities for treatment in various settings
- Energetic and vigorous outpatient treatment
- Establishment of a referral system from primary care to tertiary care hospital
- Integration with other health programmes as discussed earlier
- Interaction with community leaders and utilisation of community resources for effective drug abuse control

Laboratory Services

Laboratory tests have an important role to play in assessment and treatment. Confirmation of use of particular drugs, detection of sporadic use and relapse, assessment for co-morbid infectious diseases, assessment of physical complications and monitoring of blood parameters as prerequisite for medical therapy are the common situations where laboratory services are required. Detection of substances being abused is important even from the legal aspect.

In most instances, self-report and collateral report by family members about extent and nature of current drug use pattern would suffice. However, when in doubt, monitoring is called for. Commonly qualitative methods like Thin Layer Chromatography (TLC) or Enzyme Multiplied Immunoassay Test (EMIT) are used, and can be confirmed by Gas Liquid Chromatography (GLC). These methods can detect common drugs like opiates, cannabis, benzodiazepines and anti-histaminics in biological samples like urine and blood. Alcohol can be estimated quantitatively in blood and breath. Breath-analysers are now commercially available.

Other laboratory tests are required in the assessment of the effects of drugs on various organ systems, e.g. altered liver function in chronic alcohol use; in acute management, e.g. Delirium tremens or in monitoring of treatment programmes, e.g. Liver function before and during therapy with medications like Disulfiram and Naltrexone. Additional tests include haemogram, blood counts, urine examination, Chest X-Ray, tests for Hepatitis B virus and HIV, and sputum for Acid Fast Bacillus (AFB) to assess the health status of the patient.

Outcome Measures

Traditionally treatment success was measured by abstinence. Today most clinicians feel that drug use/ abstinence should not be the sole

criteria to assess outcome. Hence there is more emphasis on the patient's well being, beliefs about drinking and drug use, readiness to change, social functioning and social support. Improvement should be seen in total functioning of the person. Thus, any after-care programme should attend to these areas as well. Current approaches to treatment of alcohol and drug-related problems reflect a continuum of treatment.

Outcome

Chronic relapsing disorder: frequent relapse
- up to 80% within three months

Harm reduction:

- Reduce adverse health, social and economic consequences without necessarily eliminating drug use
- Shift from more harmful to less harmful substance
- Shift from more harmful to less harmful route of intake eg. Injection to Oral

Harm Minimisation

Harm minimisation is an important principle in the management and intervention of substance use disorder. Here, abstinence is not the highest or most immediate priority. Emphasis is placed on reducing many of the problems associated with alcohol and drug use, and not just focusing on substance use per se. Harm minimisation strategies address the overall health and well being of the individual and the community at large.

The central idea in the concept of harm minimisation is to reduce adverse health, social and economic consequences of drug use without necessarily eliminating drug use. The principle of such a strategy acknowledges that there is a broad spectrum of damage and the risks are hierarchical (less severe to most severe). Thus the most damaging consequences should be given priority in management.

Various measures to achieve this are:

- Determination of targeted harm, prioritisation and limit setting
- Imparting knowledge regarding adverse health consequences
- Decrease transmission of communicable diseases related to drug use
- Minimisation of hazardous drug taking situations
- Alternate substitute (agonist) medicines

Many strategies can be initiated. These include:

- Comprehensive drug education programme for high risk behaviour
- Easy accessibility to substance abuse management services
- Reduction of hazardous drinking and drug taking
- Education regarding impairment of performance following drug use
- Clarification of doubts and myths regarding substance abuse
- Establishment of fixed point of services
- Specific steps to minimise adverse health consequences viz. avoidance of needle sharing, use of bleach to clean syringes, etc.

Harm Minimisation

Determination of priority

Reduce adverse health consequences

Decrease transmission of communicable diseases

Education about adverse effects.

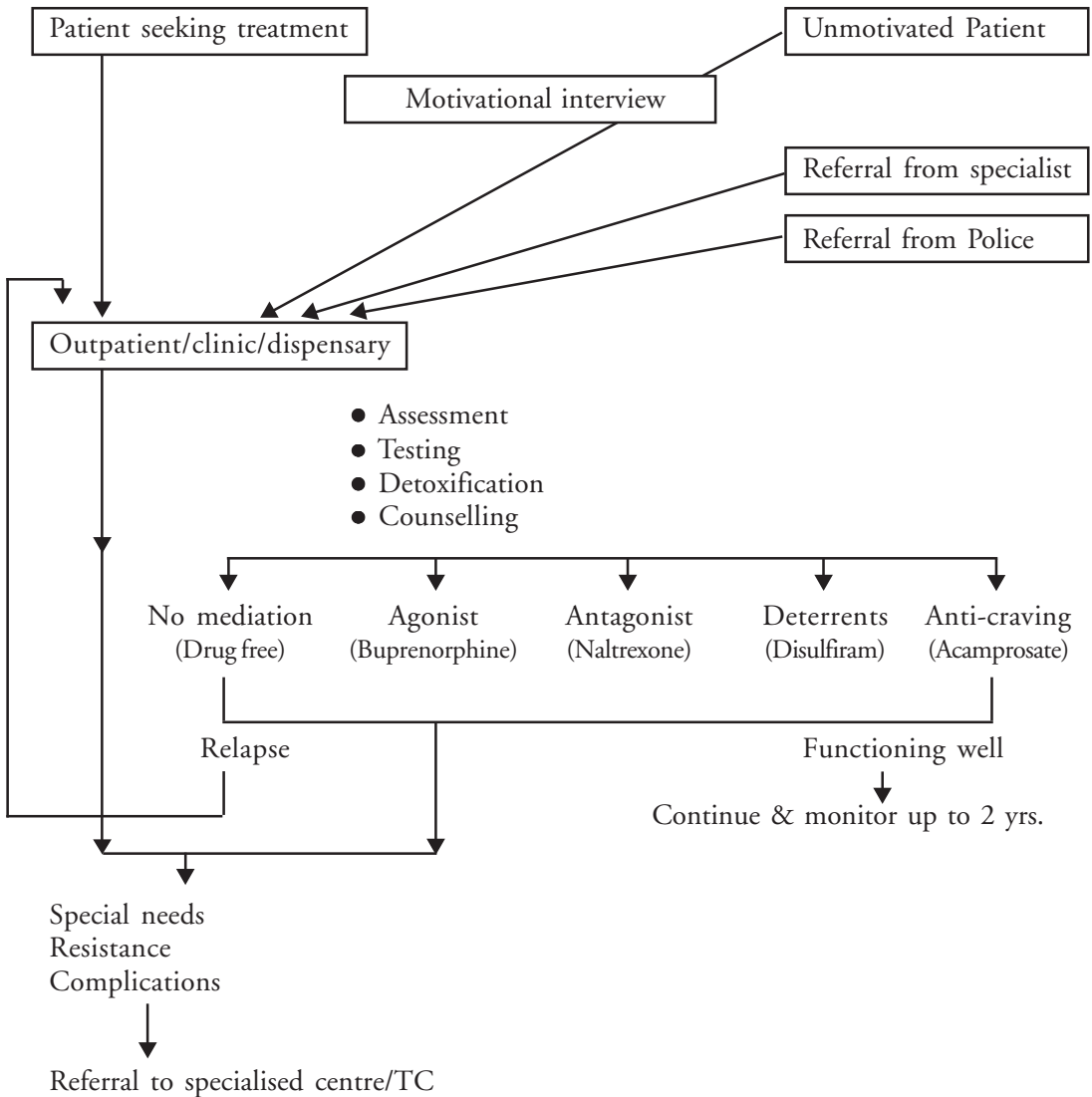
Avoiding hazardous drug taking situation

Substitution of illicit substances with licit medicines to prevent relapse

Successful programmes need active community participation. Another essential component of such an activity is the partnership with other agencies involved in control of drug abuse viz. NGO, Police, Judiciary, Social Welfare.

The following flow chart explains the range of issues and suggests steps to decide upon the various treatment options.

Treatment Decision Tree



Other issues

Even though we have useful medicines, clinicians have used these only sparingly. Many are sceptical about use of medications to treat substance dependence. This is more so as the field is crowded with non-medical experts viz. social activists, lay volunteers and ex-addicts, who perceive drug dependence as a moral problem. Medicines are used sparingly and even when used, the dose/duration is inadequate. There is a need to make clinicians aware of the effi-

cacy of medicines in the management of substance abuse.

It is not the intention of this chapter to suggest a simple pharmacological answer to treat substance dependence. Medications must be combined with psychosocial therapies. Simple steps like supervised and contractual pharmacotherapy can enhance efficacy of medicines. These will ensure treatment adherence and minimise dropouts.

Suggested Reading

1. American Psychiatric Association. Practice Guidelines for the Treatment of Patients with Substance Abuse Disorders: Alcohol, Cocaine, Opioids. American Journal of Psychiatry, 1995, 152 (Suppl.): 1-59
2. Galanter M and Kleber HD, eds. The American Psychiatric Publishing Textbook of Substance Abuse Treatment. 3rd ed. American Psychiatric Publishing Inc. Washington, DC, 2004.
3. Lowinson JH, Ruiz P, Millman RB and Langrod JG - eds. Substance Abuse-A Comprehensive Textbook. 3rd edition. Williams & Wilkins, Baltimore, 1997.
4. Miller NS and Gold MS. Pharmacological Therapies for Drugs and Alcohol Addictions. Marcel Dekker Inc. New York, 1995.
5. Shuckit MA. Drug and Alcohol Abuse: Clinical Guide to Diagnosis and Treatment. Plenum Press. New York, 1995.

Annexure

Guidelines for Treatment Environments

A. Indications for In-Patient Treatment

1. Severe withdrawal states e.g. delirium tremens,
2. Injecting Drug Users with complications and multiple drug use.
3. Serious health damage related to drug/ alcohol use e.g. multiple abscesses, overdose, Wernicke's encephalopathy, dementia symptom complex, liver cirrhosis, and cardiovascular system involvement.
4. Obvious psychopathology that can possibly be managed in drug/alcohol treatment unit e.g. affective disorder, psychosis.
5. Geographical distance from the centre.
6. Failure of outpatient treatment.
7. Definite possibility of a relapse.
8. Crisis in "Social support" system, patient or family member(s) asking for "restrictive care".
9. Intoxicated states (not overdose or suicidal

attempts).

10. Academic and Research reasons.

(Florid psychosis and active suicidal intent are more suitable for management in a general psychiatry ward/ hospital).

B. Relative Contraindications for Inpatient Treatment

1. Obvious Antisocial personality disorder or behaviour likely to cause major interpersonal problems on the ward.
2. Significant criminal record.
3. Two or more instances of premature discharge from the "treatment units".
4. Several unsuccessful/ aborted treatment attempts at various other "treatment units".

C. Indications for Intensive Outpatient Treatment:

1. Mild or moderate dependence.
2. No previous treatment attempt.
3. Good social support system.
4. Absence of significant health damage.
5. Geographical proximity (within 5 km).

Suggested slides for OHP

Slide 1 Treatment goals

Abstinence
Harm minimisation
Improvement of health, social, occupational functions
Improvement of quality of life

Slide 2 Issues in assessment

Drug use and treatment
Medical & psychiatric problems
Psychosocial factors
Physical assessment
Laboratory tests
Opportunities for harm reduction

Slide 3 Treatment settings

Community clinic
Specialised de-addiction centre
Non-specialised settings viz. Medical OPD, dispensary
Government & non-government centres
Psychiatric hospital
Prisons
OPD vs. Ward

Slide 4 Levels of care

Level 1: management of acute intoxication, overdose and withdrawal
Level 2: brief therapy and short-term pharmacotherapy
Level 3: complex psychosocial therapy, long term pharmacotherapy and monitored follow-up

Slide 5 Personnel

Multidisciplinary
Traditional hospital setting - clarity of role, division of work
Community clinic - multiplicity of role

Slide 6 Treatment phases

Initial & middle phases	Mostly medical, pharmacotherapy
Late phase	Mostly psychosocial

Slide 7. Standard Treatment - 1

Medicines

Reversal of acute effects
Detoxification
Decline of craving
Prevent relapse
Restoration of health damage

Long-term medication

Agonist, antagonist, deterrents & others.

Slide 8 Standard Treatment - 2

Psychological & Social Therapy

Single session
Brief Counselling
Other complex therapies

Slide 9 Standard Treatment - 3

Doctor-patient relationship
Therapeutic alliance
Enhancement of motivation
Improved treatment compliance

Slide 10 Harm Minimisation

Determination of priority
Reduce adverse health consequences
Decrease transmission of communicable diseases
Education on drug taking and impairment of performance
Avoiding hazardous drug taking situation
Substitute long-term medicines

Slide 11 Integration with General Health Care

Setting	Medical College, district hospital, CHC
Services	Emergency care, detoxification, referral to other centres
Integration	Other health programmes e.g. Tuberculosis, HIV/AIDS control
Training of several categories of staff	

Slide 12 Outcome after treatment

Frequent relapse - up to 80% within three months
Chronic relapsing disorder

Harm reduction:

- Reduce adverse health, social and economic consequences without necessarily eliminating drug use
- More harmful to less harmful substance use
- More harmful to less harmful route of intake Eg. Injection to Oral

Slide 13 Strategies for harm reduction

Comprehensive drug education

Wide-ranging services

Early identification and intervention

Community support

Decrease transmission of communicable disease (drug related)

Minimise harmful drug taking situations

Substitute medication

Target, priority, limit setting, public policy

Slide 14 Action plan for harm reduction

Knowledge on minimising health damage

Responsible drinking

Education-performance following drug taking

Clarify doubts & myths

Establish fixed point of service

Encourage people to come forward for treatment (hidden phenomena).

Slide 15 Public health model

Multi level treatment (primary-tertiary care)

Rigorous OPD treatment

Early identification

Establish referral system

Manpower development

Integration with general health care

Integration with other parallel programme

I.E.C.

Monitoring

Pharmacotherapy of Substance Use Disorder



Rakesh Lal

Summary

Pharmacotherapeutic intervention has an important role to play in the management of substance abuse. It is important not only in the acute phase (detoxification), but also in the long term management (relapse prevention). Further, pharmacotherapeutic intervention is important for management of psychiatric and medical comorbidity and sequelae.

This chapter provides details of medicines used for detoxification of various substances (alcohol, opioid, sedative-hypnotic medications and nicotine) and also long term management strategies (deterrent, substitution, antagonist and anticraving agents). Merits and demerits of each of these methods are also discussed.

Introduction

The primary goal of treatment in substance abuse disorders is to help the patient achieve and maintain abstinence and the management of complications. Along with various psychosocial interventions, pharmacotherapy has an important role to play in the prevention of relapse.

Development of an effective treatment is based on assessment findings. The selection of treatment setting will depend on the treatment goals in the immediate, short-term and long term frames. These treatment goals would be determined by severity of disorders, the patient's current condition and motivation, as well as the presence of physical and/or psychiatric comorbidity.

The primary goal of treatment in substance

abuse disorders is to help the patient achieve and maintain abstinence and the management of complications. Along with various psychosocial interventions, pharmacotherapy has an important role to play in the prevention of relapse.

Treatment Settings

Pharmacotherapeutic intervention may be carried out in a wide variety of hospital and non-hospital residential and community settings. The hospital settings include specialized treatment centres for substance use disorders, psychiatric hospitals or centres, and psychiatric medical services in general hospitals

There is a widespread belief that treatment of a substance abuse patient can only be carried out in an in-patient setting. Though in-patient care has the advantage of 'restrictive care', continuous monitoring and a more intensive contact with the treating team, the outpatient treatment has the merits of being closer to natural settings, an increased family involvement and is more cost-effective. Research data does not support the belief about the superiority of inpatient treatment over outpatient treatment.

Goals of Treatment

Immediate goals can be detoxification, treatment of acute medical sequelae and crisis interventions; short term goals usually target treatment of comorbid medical or psychiatric conditions, maintaining abstinence, family reintegration and vocational placement; the long term goals focus on the larger issues of relapse prevention, occupational rehabilitation, social

reintegration, abstinent life style and improvement of quality of life. Pharmacotherapy plays an important role in all phases of treatment.

Phase of Treatment

The detoxification phase being considered as treatment is in itself a common misconception, not only in the patients and their families but also in health professionals. Detoxification is merely the first phase of treatment. The detoxification phase usually runs from 2-4 weeks, followed by the active treatment phase during which the short-term goals are focused upon and the plan for the long-term goals are made. This phase runs from 3-12 months or more, and involves the process of choosing from amongst the many pharmacological and psychosocial modalities of treatment. The post-treatment or after-care phase focuses on the long-term objectives being realized and can be seen to continue for 3-5 years or even longer. In this phase too, pharmacotherapy has proved to be beneficial.

Detoxification

This is the initial phase of treatment of substance dependence and includes treatment of withdrawal symptoms, assessment of health and psychosocial complications with treatment of those requiring acute intervention, and building up of a therapeutic relationship between the patient and treating team. Pharmacotherapy has a primary role in this phase of treatment.

Detoxification is done by abrupt cessation of the substance and prescription of specific agents to reduce withdrawal symptoms or by gradually tapering off the substance being abused. The purpose is to minimize subjective and objective discomfort as this is an important reason for relapse.

Methods of detoxification

The methods of detoxification include:

1. Gradual reduction of the substance in decreasing amounts, and
2. Abrupt cessation of the substance of abuse and administration of specific medication which,
 - a. have cross tolerance to the substance of use: e.g. benzodiazepine for alcohol and, buprenorphine for opioid withdrawal,
 - b. have some specific pharmacological properties to suppress withdrawal, e.g. carbamazepine for alcohol withdrawal, clonidine for opiate withdrawal.
 - c. Provide general symptomatic relief, e.g. hypnotics (benzodiazepine as well as non-benzodiazepines, anti-emetics, antidiarrheals etc).

By and large, abrupt total cessation of the primary drug of dependence and control of withdrawal syndrome to a tolerable level by suitable medication is the widely accepted method.

Use of antipsychotic or antiepileptic agents is not recommended to control withdrawal, though they may be required to treat comorbid psychiatric seizure disorders. Similarly use of IV fluids and parenteral drugs to control withdrawal is not recommended, until there are specific indications, e.g. presence of severe dehydration, delirium tremens.

Doses of medicines for detoxification

Doses of medicines should be decided according to the expected severity of withdrawal syndrome, which will vary according to the substance abused (its potency, half life), the time elapsed since the last dose, severity of dependence (duration, consumption, route of administration etc) the concomitant use of other drugs, the presence of general medical or psychiatric disorder and individual biological and psychological variables.

The aim is to make the experience of withdrawal state tolerable rather than to suppress all symptoms of withdrawal. The principle 'least possible amount of medicines for the shortest possible time' should be followed as majority of the drugs used for detoxification themselves have moderate to high abuse liability. One may need to modify the dosage schedule according to the withdrawal symptoms which need to be assessed continuously during detoxification.

Duration of detoxification

Usually alcohol detoxification can be completed in 7-10 days and opioid detoxification requires 2-3 weeks. However, the duration will depend on severity of dependence, drugs of dependence (its half life), drugs used for detoxification (their half life). This will be longer in elderly patients, and debilitated and medically or surgically ill patients. Management of protracted withdrawal takes longer duration (week or months, even up to 6 months) and various non pharmacological methods like cognitive behavior therapy, relaxation therapy may need to be used.

Detoxification of individual substances

A. Alcohol withdrawal

Benzodiazepines are the drugs of choice in management of alcohol withdrawal. Usually daily doses of 20-60 mg of diazepam or 40-120 mg of chlordiazepoxide are required. The use of antipsychotic or antiepileptic, except carbamazepine, has no role. Patients with any of the clinical features of Wernicke's syndrome must be treated immediately with intravenous thiamine HCl, 100 mg twice in a day, for the first five days. Parenteral administration of thiamine in every patient is not necessary, but oral administration of thiamine in all the patients for prevention of Wernicke's syndrome is justified. Carbamazepine has been found to be effective in place of benzodiazepines. Loading dose of diazepam has occasionally been

used, but has not proven to be more effective.

Delirium tremens (DT) or impending DT should be treated as an emergency (20-25% mortality in untreated cases and 5-10% mortality even with treatment). Immediate hospitalization is indicated. Treatment of choice is intravenous diazepam, which needs to be given in doses of 10 mg every 20 minutes till patient is sedated or signs and symptoms of withdrawal subside significantly. Patient may require further doses of diazepam (oral or intravenous), depending upon the withdrawal symptoms that may reappear subsequently up to two weeks. Supportive treatment comprises of parenteral thiamine in all patients, and correction of fluid depletion and electrolyte imbalances. The environment needs to be protective and an effort should be made to orient the patient. Sensory stimuli should be minimised in case of a delirious patient. With treatment, the features of DT are usually controlled within 2-3 days, though patient usually requires inpatient treatment for another week.

B. Opioid withdrawal

The starting dose of medication needs to be decided according to amount of opioid consumed by a patient in the 24 hour period, converted into equivalent doses of compound used for detoxification. Subsequent doses needs to be adjusted according to the severity of withdrawal symptoms which peak during 3rd to 7th day in case of heroin. Usually the doses required are 1.2-4.0 mg buprenorphine or 6-12 capsules of dextropropoxyphene initially and tapered off after the third day. Usually, detoxification medicines are required for 2-3 weeks. Certain withdrawal symptoms like insomnia, restlessness and mild body aches persist even after 3 weeks, and can be managed symptomatically by sedatives and non-narcotic analgesics as well as non-pharmacological treatments like relaxation therapy etc.

In accelerated detoxification, low doses of naltrexone are given to precipitate withdrawal symptoms and clonidine in usual or higher doses than those used in hypertension is used to control symptoms. This method reduces the detoxification period to 4-5 days.

C. Sedative-hypnotic withdrawal

Sedative hypnotic withdrawal is managed by gradual tapering of the substance of dependence. In cases of mild to moderate dependence, an outpatient detoxification by tapering of the drug, with weekly reduction in doses can be carried out in well motivated patients. In patients with severe dependence, particularly with dependence on short acting benzodiazepines, indoor detoxification is preferred. In indoor setting, the drugs can be tapered off at a rate of 10% a day. In patients dependent on short or intermediately acting benzodiazepine (oxazepam, alprazolam etc), risk of withdrawal seizures should be kept in mind and to prevent the seizures, detoxification is started with equivalent doses of long acting benzodiazepines, which then should be tapered off as

usual. Usually, detoxification in indoor setting is over within 2 weeks; however, sometimes, protracted withdrawal requires longer detoxification medication. In cases where only insomnia persists, non-benzodiazepine hypnotics like zopiclone alone or with relaxation exercises, should be tried.

D. Nicotine withdrawal

There is no specific medication for nicotine withdrawal symptoms. It is possible to tide over this period with psychological intervention, with or without benzodiazepines for a period of week or so. Use of nicotine chewing gum makes the detoxification easier and this may be used for long as a maintenance agent.

E. Multiple substance withdrawal

In patients, where dependence to more than one substance has been clearly identified, the specific medication for each category of the substance of dependence should be given. Frequently, patient requires inpatient treatment and the period of detoxification is longer than in patients with single substance dependence.

Summary of Detoxification Agents				
Category of medication	Opiate withdrawal	Alcohol withdrawal	BDZ withdrawal	Nicotine withdrawal
1. Medicines which exhibit cross tolerant	Tincture opium Morphine Dextropropoxyphene Buprenorphine	Oral benzodiazepines (Diazepam Chlordiazepoxide Oxazepam)	Long acting benzodiazepines	Nicotine gum, Nicotine transdermal patches
2. Medicines having no cross tolerance but suppresses specific withdrawal syndromes	Alpha – 2 adrenergic agonists e.g. clonidine	Carbamazepine Beta -Blockers	-	-
3. General symptomatic medications	Antidiarrheals Hypnotics	-	-	-
4. Medicines for complicated withdrawal	-	Injection benzodiazepines in DT, seizures	-	-

Long-term Pharmacological Treatment

This is intended to help patients maintain abstinence after completion of detoxification, with the use of medically prescribed drugs.

Based on the mechanism which operates for maintenance of abstinence, the pharmacological agents used in long term treatment can be classified in four categories;

Pharmacological Agents for Long-term Treatment

A.Deterrent agents:	Disulfiram, citrated calcium carbimide, metronidazole, and compounds like nitrefezole
B.Substitution agents:	Methadone, LAAM, buprenorphine, morphine, nicotine replacement (nasal solution, gum, dermal patch).
C.Antagonist agents:	Naltrexone
D.Anticraving agents:	Fluoxetine, Acamprosate

A. Deterrent agents

Alcohol sensitizing drugs act through definite chemical mechanisms to deter the person from drinking and cause an unpleasant reaction if the patient does take alcohol in any form while he is taking the deterrent agent.

The most prominent example in this category is disulfiram (tetraethyl thiuram disulfide). The other agents have been used in some geographical regions at times, but have not gained wider acceptance.

Disulfiram

Mechanism of action: Disulfiram and its active metabolites irreversibly inhibit the activity of aldehyde dehydrogenase (ALDH), the

enzyme that metabolizes acetaldehyde, the first metabolic breakdown product of alcohol. In the presence of disulfiram, alcohol use results in the accumulation of toxic levels of acetaldehyde in liver and systemic blood circulation, which causes a host of unpleasant signs and symptoms which are potentially fatal. The acetaldehyde syndrome, as a result of the effect of disulfiram treated individuals when they consume alcohol, has been termed as disulfiram ethanol reaction (DER).

It should be remembered that disulfiram does not reduce craving primarily.

Side effects and adverse reactions: The commonly experienced side effects are of drowsiness and gastric irritation. The adverse effects which occur most commonly with use of disulfiram are hepatotoxicity, peripheral neuropathy, skin reactions and psychosis. The safety of disulfiram, estimated on the number of reactions reported, corresponds to an intermediate rate of adverse reaction (1 per 200-2000 treatment year). The death rate with disulfiram is estimated at 1 per 25,000 treatment years.

Contraindications: Many of the adverse reactions of disulfiram therapy are also long term health complications of alcohol use and must be considered as contraindications for disulfiram therapy. Hepatic dysfunction, peripheral neuropathy, and psychosis are the common relative contraindications. The other relative contraindication includes presence of cognitive deficits because of the inability to understand and remember the consequences of alcohol use while on disulfiram. Use in first trimester of pregnancy is the only absolute contraindication.

Clinical regimen: Disulfiram should always be given after obtaining informed consent and after baseline investigations for monitoring the

side effects. The usual dose is 250 mg/day; however due to metabolic differences, some patients may require a higher dose of 500-750 mg/day to experience DER. It is generally dispensed in a single daily dose in the morning but may be given in divided doses to avoid unpleasant gastrointestinal side effects.

Supervised disulfiram therapy: Disulfiram works well when its use is supervised as it ensures better compliance. Supervision also ensures that the possibility of DER is reduced. Unsupervised use in well motivated patients is also in practice widely, but several randomized controlled trials have shown that disulfiram can make clinically significant contribution to treatment outcome only if its administration is carefully supervised.

Education of the patient and supervisor: Disulfiram therapy should be initiated only after the patient and the supervisor has been informed about the rationale for its use as well as the necessary precautions with disulfiram use. An informed consent of patient is a necessary prerequisite. Patient and family members should be educated about the signs and symptoms of DER, and the actions required to be taken if they notice these signs or symptoms.

It should be explained that DER can occur with alcohol intake even in small doses. It is a good practice that the patients be provided small cards containing the sign and symptoms of DER and necessary first aid methods in case of occurrence of DER. Generally, DER does not occur in the first week of disulfiram use and if alcohol is consumed after 5-7 days of stopping disulfiram, but can occur even up to two weeks after stopping disulfiram.

Ethanol challenge test: A challenge test by administering a small dose of ethyl alcohol to the patient in controlled conditions in hospital setting, has been recommended by some

clinicians based on the premise that actual experience of the DER is likely to be more effective than the mere cognitive awareness of DER. The clinical opinion varies considerably about the usefulness of such an ethanol challenge and definitive research information is lacking. It is recommended that the option of undergoing a challenge test should be with the patient.

For the ethanol challenge test, alcohol is administered, generally in the form of spirits (like whisky or rum) which have approximately 40% volume by volume content of absolute ethyl alcohol, starting with 15 ml and further supplements of 15 ml every 15 minutes up to a maximum of 90 ml. The patient's vital signs should be closely monitored all through the test. An intravenous line should be maintained for vasopressor administration consequent to a precipitous fall in the blood pressure. If it is not possible to achieve a significant DER with 250 mg of disulfiram, the dose can be increased to 500 mg and the challenge test be repeated. The dose may be required to be increased to 750 mg in some cases to obtain a good DER.

Treatment of DER:

The fall in blood pressure should be controlled on a priority basis. If DER is mild, assurance and oral fluids suffice. In patients with moderate or severe DER, intravenous fluids and, in some patients, dopamine infusion is necessary to control the severe hypotension.

The use of 4-methyl-pyrazole, which blocks formation at acetaldehyde, has been found to be successful but is still not common in clinical practice.

B. Substitution agents

Substitution maintenance programs derive their philosophy from the methadone maintenance program, initiated by Dole and Nyswander in 1964, as an experiment with six

heroin addicts. It was suggested that high frequency of relapse in heroin addicts is due to intense craving for narcotic and it might be appropriate to target at rehabilitation rather than abstinence in these patients. It was recommended that narcotic medication, if used in these patients to satisfy their craving, will help in controlling illicit drug use and related behavior thereby making them accessible to rehabilitation. Methadone is the most commonly used substitution agent for opioid dependent patients in the US and Europe

In India, substitution maintenance program had been practiced through the opium registry, wherein registered opium addicts were disbursed a certain amount of tincture opium till it was discontinued in 1959. In the period of heroin dependence in India, there has been no officially approved substitution maintenance program and the treatment has mainly focused on the goal of total abstinence and helping the patients achieve a life style free of any substance use.

However, in spite of the recognition of substance dependence as a chronic disease which is not amenable to 'cure', many people, including psychiatrists and physicians, do not feel comfortable with the idea of maintenance therapy with substitution agents even though substitution with morphine, raw opium or buprenorphine which is prescribed medically, has been practiced in one or other form in various centres in this country

The reservations have been about the moral and ethical issues involved in such a treatment strategy and about the sociopolitical considerations of the expense involved in making the lifestyle of these addicts more comfortable by providing another addictive drug.

It is important that the merits and demerits of

the substitution maintenance programs be understood for making appropriate choices in individual patients as well as for larger policy decisions in the context of each region or country.

The merits of and arguments in support of substitution maintenance treatment are:

- i. Reduction in illicit drug consumption.
- ii. Avoidance of medical complications of impurities in street preparations, and the complications of parenteral administration and overdose.
- iii. Better nutritional and health status.
- iv. Decrease in criminal behavior.
- v. Improvement in social behavior and psychological well being.
- vi. Increased productivity
- vii. Cost effectiveness.

When using substitution agents, care should be exercised to prevent illicit diversion and concomitant use of illicit substances.

Criteria for patient selection

- i. Severe dependence of long duration, with significant psychosocial disability.
- ii. Past record of unsuccessful treatment attempts (at least three).
- iii. High risk of relapse
- iv. Preferably older than 25 years.
- v. Minimal criminal involvement

Substance used for long term maintenance therapy

1. Opioid agonists
 - a. Methadone and LAAM (Levo-alpha-acetylmethadol) are the two compounds most

commonly used abroad but are not available in our country. Both have a long half life and are medically safe

- b. Morphine: This has been found to be most effective in doses of 60mg daily. A higher dose is needed sometimes to control craving and withdrawal symptoms. A dose of upto 180mg – 240 mg can be administered and the effects last for upto 12 – 24 hours. Strict monitoring is required as morphine produces chemical dependence and the patient may try to escalate the dose, use other narcotics concomitantly or even divert the prescribed morphine to the illicit market.

2. Opiate partial agonists

Buprenorphine, a partial receptor agonist produces sub-maximal effect in maximally effective doses. It also has Kappa opioid receptor antagonistic properties. Although it has a short plasma half life of three hours, its duration of action has been longer, due to its slow dissociation from opioid receptors. This prolonged action of buprenorphine makes it effective when dispensed in once daily dosage or even on alternate days. Side effects of buprenorphine are sedation, drowsiness and constipation. Tolerance to these effects can be expected to develop during continued buprenorphine therapy. No apparent health risk has been reported in studies involving long term buprenorphine therapy. Due to partial agonist property, there is a ceiling effect on the side effects, reducing the risk of severe drug induced respiratory depression.

Due to all these properties and evidence from clinical trials, there has been a strong recommendation about the use of buprenorphine as a maintenance agent in case of opioid dependence. The dosage schedule is 2-8 mg/day. There has been a concern about increasing sub-

lingual and parenteral use of buprenorphine which enhances the risk of illicit channelisation of buprenorphine dispensed as a maintenance agent. A combination product containing buprenorphine and naloxone for sublingual use is in the experimental stages and may become a promising agent for opioid substitution therapy.

Maintenance therapy in other substance use disorders

1. Nicotine replacement: Use of nicotine replacement with gums or patches, is based essentially on the principle of substitution therapy and has been found to be useful.
2. Oral substitution in parenteral substance users: In broader terms, the substitution of a more harmful route by a less harmful route (e.g. oral) without changing the substance of abuse can be termed as substitution therapy. It will minimize the harmful consequences of use.

C Antagonist agents

Opioid antagonists are substances that bind to opioid receptors but do not produce morphine like effects. If an individual stabilized on opiate antagonist consumes an opiate agonist like heroin, he will not experience the euphoric effects as the opioid receptors are already occupied and hence not available for the opiate agonist. In this manner, over time, drug seeking behavior becomes extinct. This phenomenon helps the patient in achieving a drug free life style.

Various antagonists (naloxone, cyclazocine and naltrexone) had been tried but were not found suitable due to their short half life, severe side effects or lack of effectiveness through oral administration. However, the introduction of naltrexone in the early 1980s, which is effective orally, with long duration of action and mini-

mal side effects, has revolutionized this approach.

Naltrexone, available as 50 mg tablets, is well absorbed from the GI tract. Although its plasma half life is about 6-8 hours, effective receptor blockade is sustained for 48-72 hours. There are three common schedules for administration: daily (50 mg/day), thrice a week (100 mg on Mondays and Wednesdays, and 150 mg on Fridays) and twice a week (150 mg on Mondays and 200 mg on Thursdays).

The daily dose regimen is generally preferred over the other regimens. Naltrexone therapy should be started, only after detoxification has been completed, which can be confirmed by naloxone challenge test in case of doubt. This is necessary as there is a risk of precipitation of severe withdrawal features if the patient has consumed an opioid in the past 2-3 days. The common side effects of naltrexone are mild opiate withdrawal like symptoms (nausea, abdominal pain, dyspepsia), skin rash and derangement in liver function test in obese persons. The only important contraindication of naltrexone therapy is the presence of hepatic failure; minor degree of liver dysfunction is not a contraindication. Base line liver function tests are mandatory before starting naltrexone therapy. The duration of naltrexone therapy has been recommended to be at least 6-12 months, but longer duration may often be necessary.

Since naltrexone does not give a 'high' and is devoid of reinforcing properties, there is a high dropout rate. Naltrexone therapy is beneficial in patients with a high level of motivation.

D. Anticraving agents

Certain classes of medicines have been found to be useful in reducing craving, an important reason for relapse. They do not have a signifi-

cant effect in reducing withdrawal symptoms.

Naltrexone

- There is some evidence that naltrexone reduces craving and enhances abstinence in alcohol-dependent subjects.
- There is good evidence that naltrexone reduces relapse and number of drinking days in alcohol-dependent subjects.
- Naltrexone was found to be most efficacious with a daily dosing of 50mg. If logistics do not permit then 100mg on alternate days or 150mg every third day has also been used.

Acamprosate

- Trials of acamprosate in alcohol dependence are large but limited to Western populations, primarily European.
- There is good evidence that acamprosate enhances abstinence and reduces drinking days in alcohol-dependent subjects.
- There is good evidence that acamprosate is reasonably well tolerated and without any serious harmful effects.
- Depending on the body weight, 4-6 tablets a day in three divided doses has been found to be therapeutic.

Serotonergic Agents

- There are several controlled clinical trials of serotonergic agents in primary alcoholics without comorbid mood or anxiety disorders.
- There is minimal evidence on the efficacy of serotonergic agents for treatment of the core symptoms of alcohol dependence.
- There is some evidence on the efficacy of serotonergic agents for the treatment of alcohol-dependent symptoms in patients

with comorbid mood or anxiety disorders, although the data are limited.

Lithium

- There are limited studies on the effects of lithium in primary alcoholics without comorbid mood disorders.
- There is evidence that lithium is not efficacious in the treatment of the core symptoms of alcohol dependence.
- There is minimal evidence for efficacy of lithium for the treatment of alcohol-dependent symptoms in patients with comorbid depression.

Suggested Reading

1. Galanter M, Kleber HD, eds. The American Psychiatric Press Textbook of Substance Abuse Treatment, American Psychiatric Press, Washington D.C., 1999.
2. Lowinson J, Ruiz P, Millman R, Langrod J, eds. Substance abuse: A Comprehensive Textbook, 4th edn. Baltimore, Lippincott Williams and Wilkins, 2005.
3. McGrady BS. & Epstein E, eds. Addictions: A Comprehensive Guidebook. New York: Oxford University Press, 1999:477-498.
4. Mood Disorders. Diagnostic and Statistical Manual of Mental Disorders, Fourth edn, (DSM-IV), Text Revision. American Psychiatric Association, 2000: 297-343.

Suggested slides for OHP

Slide 1:

Goals of treatment

Immediate

- Detoxification

- Acute psychiatric and medical complications

- Crisis intervention

Long term

- Co morbidity

- Relapse prevention

- Rehabilitation

Slide 2:

Pharmacological

Psychological

Sociological

Treatment settings

Hospital

- Specialized

- Psychiatric

- General hospital

Non-hospital

Residential

Community

Inpatient

- Restrictive care

- Continuous monitoring

- Intensive contact

- Emergency

Outpatient

- Cost effective

- Natural surrounding

- Family involvement

Slide 3:

Detoxification

- Gradual reduction

- Abrupt cessation using

 - Cross-tolerant medicines

 - Withdrawal suppressant

 - Symptomatic relief

Dosing of medicines depends on

- Potency and half-life of substance used

- Time since last intake

- Severity of dependence

- Presence of co morbidity

Slide 4: Alcohol

Benzodiazepines (diazepam: 20 – 60 mg; chlordiazepoxide: 40 – 120 mg)

Thiamine 100 mg bid

Carbamazepine

Delirium tremens

10 – 25 % mortality

Intravenous diazepam 10 mg every 20 minutes till sedated

Thiamine 100 mg

Minimize sensory stimuli

Slide 5: Opioids

1.2 to 2.4 mg of buprenorphine

6 to 12 capsules of dextropropoxyphene

Taper after 3rd day

Sedative – hypnotic

Gradual tapering (10% daily)

Nicotine

Non-specific, symptomatic

Slide 6:

Summary of Detoxification Agents				
Category of medication	Opiate withdrawal	Alcohol withdrawal	BDZ withdrawal	Nicotine withdrawal
1. Medicines which exhibit cross tolerant	Tincture opium Morphine Dextropropoxyphene Buprenorphine	Oral benzodiazepines (Diazepam Chlordiazepoxide Oxazepam)	Long acting benzodiazepines	Nicotine gum, Nicotine transdermal patches
2. Medicines having no cross tolerance but suppresses specific withdrawal syndromes	Alpha – 2 adrenergic agonists e.g. clonidine	Carbamazepine Beta -Blockers	-	-
3. General symptomatic medications	Antidiarrheals Hypnotics	-	-	-
4. Medicines for complicated withdrawal	-	Injection benzodiazepines in DT, seizures	-	-

Slide 7:

A. Deterrent agents:	Disulfiram, citrated calcium carbimide, metronidazole, and compounds like nitrefezole
B. Substitution agents:	Methadone, LAAM, buprenorphine, morphine, nicotine replacement (nasal solution, gum, dermal patch).
C. Antagonist agents:	Naltrexone
D. Anticraving agents:	Fluoxetine, Acamprosate

Slide 8:

Disulfiram

Dose: 250 – 750 mg/day

Inhibits aldehyde dehydrogenase (increase aldehyde level)

Contraindications

- Refusal of consent
- Hepatic dysfunction
- Peripheral neuropathy
- Psychosis
- Cognitive deficits
- Pregnancy

Slide 9:

Merits of substitution

Reduction in illicit drug consumption.

Avoidance of medical complications of impurities in street preparations, and the complications of parenteral ad-

ministration and overdose.

Better nutritional and health status, with regular monitoring.

Decrease in criminal behavior.

Improvement in social behavior and psychological well being.

Increased productivity

Slide 10: Long-term maintenance

Opioids

Agonists

Methadone

LAAM

Morphine

Partial agonist

Buprenorphine

Antagonist

Naltrexone

Nicotine

Substitution with nicotine chewing gum

Alcohol

Anticraving

Naltrexone

Acamprosate

Serotonergic agents

Lithium

Deterrent

Disulfiram

Long-Term Treatment of Opioid Dependence Syndrome

8

Anju Dhawan, Amardeep Kumar

Summary

Opiate dependence is a chronic, relapsing disorder and requires multiple treatment episodes. Moreover many drug users do not seek treatment until they are into a lifestyle committed to drug use and criminal activity. Thus, though complete abstinence is the ultimate treatment goal, it is difficult for many patients. The alternative goal of harm minimization is achievable and desirable for many patients. The goals of treatment require the patients to be on long-term pharmacological treatment. This is an integral part of a comprehensive treatment plan which also includes psychosocial and medical interventions to reduce the use of other drugs, to decrease the transmission of HIV, Hepatitis B, C and other sexually transmitted diseases. One also needs to impart necessary support to the patients and skills for better integration in the society. The long-term pharmacological treatment is of two types- antagonist treatment and agonist maintenance. Antagonist treatment follows the complete abstinence approach while agonist maintenance follows the harm minimization approach. The long-term antagonist treatment helps in maintaining complete abstinence by extinction of drug seeking behaviour by blocking the effects of opioid over a significant period of time. The basic principle in agonist maintenance treatment is to substitute illicit, medically unsafe and short-acting opiate with a medically safer, long-acting agonist of known potency, purity and dosage. The approved antagonist agent is naltrexone while the agonist agents approved for treatment are methadone, LAAM and buprenorphine. Both

type of treatments have limitations. Thus efforts are being made to develop newer modes of delivery of medications so that compliance can be improved and illicit diversion can be reduced. To reduce the risk of illicit diversion (misuse), combination tablets of buprenorphine and naloxone has been developed which will soon be available in India. Similarly to enhance the compliance with naltrexone, depot preparation has been developed which are in phase III clinical trials. Better modes of psychosocial interventions are also being developed to improve the treatment outcome. There is no fixed optimal duration of long-term pharmacological treatment. The decision to terminate the pharmacological treatment should be based on the treatment goals and should be a joint decision of treating team, patients and their family members.

Introduction

Opiate dependence is a chronic relapsing disorder and single episode of treatment seldom leads to long term abstinence from drugs. Majority of heroin addicts relapse within the first year of treatment; mostly within the first three months. Numerous studies conducted during the past 35 years have demonstrated that, once initiated, drug use often escalates to more severe levels, with repeated cycles of cessation and resumption. Thus, long-term treatment is needed for opiate dependent individuals. Though complete abstinence is the ultimate goal of the long-term treatment, it may be a difficult option for many patients in whom the alternative goal of harm minimization is

achievable and desirable. Depending upon the goals of the treatment, various long-term treatment strategies have been developed. These strategies include various pharmacological, psychosocial and medical interventions.

Pharmacological interventions are an integral part of long-term treatment. To be effective, an ideal long-term pharmacological agent should be able to produce blockade of externally administered opioids, reduce craving, should not be liable to abuse and be safe, non-toxic and free of side-effects. Along with these, its acceptability among patients should be good and its duration of action should be long so that multiple administrations are not required. Two kinds of pharmacological agents for long-term treatment are:

- a) opioid antagonist treatment - naltrexone and
- b) opioid agonist maintenance treatment such as methadone, LAAM (levo- acetyl methadol), buprenorphine.

Studies have shown that the effectiveness of long-term pharmacological treatment is powerfully influenced by the quality of additional services provided. Thus, psychosocial and medical intervention remains an important part of adjunctive treatment along with pharmacological interventions.

A) Antagonist therapy

The underlying principle of antagonist treatment in opioid dependent individuals is that it blocks the euphoric effects of opioids. Naltrexone is an opioid antagonist which is safe, non-toxic, has no abuse liability, no dependence potential, a long duration of action (24 hours) and does not produce withdrawal symptoms on cessation. Thus it promises to be an effective agent for maintaining complete abstinence. This gradually leads to the extinction

of drug seeking behaviour and prevents the re-establishment of physical dependence. Patients taking naltrexone experience less craving in the presence of opioid-related cues, presumably because on a cognitive basis they are aware that they will be unable to experience the effects of opioids. The limitation of long-term naltrexone treatment is low compliance and a high drop-out rate. Since it does not produce euphoria, a high level of motivation is required for compliance with naltrexone. Available studies have found that 30 to 40 percent patients maintain abstinence at 1-year follow up if there is a good social support and active involvement of immediate family.

B) Opiate agonist therapy

Opiate substitution or maintenance on an agonist drug is well accepted as an effective harm minimization treatment strategy. The basic principle of agonist maintenance treatment is to substitute an illicit, medically unsafe, short acting opiate with a medically safe, long acting agonist of known potency, purity and dosage. Agonist maintenance eliminates drug hunger and produces cross-tolerance so that the person does not experience any withdrawal symptoms and there is no craving for the drug he was abusing. When combined with psychosocial interventions it minimizes dysfunction, helps the patient become productive and improves self-esteem and personal dignity.

Specific primary and secondary goals of long-acting opioid agonist pharmacotherapy are-

Primary goal is "significant reduction or cessation of illicit opiate use" with "a related goal of voluntary retention in treatment for an adequate duration".

The secondary goals include:

- Reduction or cessation of alcohol and polydrug abuse.

- Reduction of exposure to diseases transmitted by unsterile injection equipment (in parenteral drug abusers) such as hepatitis B, C, and HIV infection.
- Reduced criminality and antisocial behaviors.
- Improvement in socio-occupational functioning.

Achievement of these goals was correlated with the duration of retention in treatment. Treatment lasting less than 90 days usually had little or no impact in behavioral change. A 6-month retention rate with an agonist was correlated with long term improvement.

Harm minimization approach using opiate agonists has its own drawbacks. These include the risk of abuse (including toxicity) and dependence on opiate agonist medications, diversion of medications for illicit use and emergence of opioid withdrawal symptoms when these medications are stopped.

Experience in some treatment centres has also suggested that in some patients it has been possible to shift a patient from opiate agonist maintenance to an antagonist drug at a suitable time in the course of treatment.

Comprehensive treatment

Patients with opiate dependence usually have concomitant psychological, social and health problems. An essential component of long-term maintenance treatment is the availability and inclusion of a comprehensive range of services to assist individuals to reduce their concomitant health and psychological problems. These would include pharmacological and psychosocial interventions to reduce use of other drugs (including alcohol and tobacco); interventions to reduce risks associated with hepatitis A, B and C and HIV viruses; medical, psy-

chiatric and psychological assessment and care; crisis intervention; social and economic assistance; vocational and family assistance. Brief, supportive and problem-oriented counselling can add to the effectiveness of treatment for patients with current life problems. Cognitive-behavioural therapy, motivational interviewing, relapse prevention counselling and social skills training are some approaches that can be employed.

A comprehensive treatment plan should be formulated early in treatment. The treatment plan should set out the services to be provided. Services should include dose review and adjustments (for long-term agonist maintenance treatment), setting and reviewing treatment goals, monitoring of progress and harm reduction interventions (e.g. advice on reducing risks of contracting or spreading hepatitis and HIV infection). Supportive or social skills training, focussed counselling, assistance with vocational difficulties (e.g. linking with training or employment services), assistance in reducing concurrent drug use and assessment of suitability for gradual withdrawal from treatment is also given. The nursing staff or a social scientist can be trained to conduct several of these assessments.

Such a treatment plan should be reviewed every three months with the patient. Completion of activities and progress against goals should be noted. All members of the treating team should be involved in the decision making process and subsequent review. Based on the progress of the patient, treatment plans and objectives may need to be revised more than once.

Long-term pharmacological treatment agents

Various agents have been used for the long-term pharmacological treatment of opioid dependent individuals. These include both agonist and antagonistic medicines.

Long-term pharmacological agents for opioid dependence.

Opioid antagonist- Naltrexone.

Agonist opioids- Methadone, LAAM, Buprenorphine, Sustained release morphine

Antagonist agents-

Naltrexone- It is an opioid antagonist synthesized in 1965 and approved in USA for long-term treatment of detoxified opioid dependent patients in 1984. Naltrexone selectively competes with exogenously ingested opioids for central nervous system (CNS) and non-CNS opioid receptors and blocks their activity. This blockade lasts for up to 72 hours after naltrexone administration and prevents reinforcement from opioid use. This blockade can have positive psychological consequences including reduced craving related to reduced immediate effects of opioid (cognitive basis of action) and deconditioning/extinction of cue-related craving as patients are exposed to several cues formerly associated with opioid use while being protected from opioid effects (classical and operant learning basis of action). It is orally effective and when given three times a week (100mg on 1st and 3rd day and 150mg on 5th day), it completely blocks the effects of substantial doses of heroin. The opioid antagonist properties of naltrexone do not appear to be subject to development of tolerance, as potency has been demonstrated even after maintenance for 1 year or more. Naltrexone does not have opioid agonist properties, and thus patients neither obtain a high after use nor is it associated with significant withdrawal symptoms if use is discontinued. However, some patients continue to complain of adverse effects or opioid withdrawal effects for several weeks. Another issue of concern is that patients may be more sensitive to lower doses of opioids once naltrexone is discontinued, because of the loss

of tolerance to exogenous opioids, thus increasing the risk of overdosage and related complications.

In carefully selected patients who are well motivated, naltrexone can be used as a maintenance medication. The followings are useful guidelines for selecting the patients suitable for long-term treatment with naltrexone as followed in western countries –

- High motivation
- Short duration of opioid use
- Professionals like doctors, dentists etc.
- No co-morbid psychopathology
- Good social support

Clinical experience at NDDTC, AIIMS suggests that it can probably be used in a wider subgroup of opioid dependent patients.

As a nonscheduled medication without psychoactive or addictive properties, naltrexone can be administered as a maintenance treatment in a range of medical settings without any governmental regulations. Since diversion is not an issue, take-home medications can be provided with no special precautions. However, lack of initial patient acceptance and subsequent medication noncompliance limits the utility of naltrexone for opioid dependence. Naltrexone should be administered only after complete abstinence from opioids for a sufficiently long duration that ensures complete washout of the illicit as well as prescribed opioids. Hence, patients must start treatment with a goal of achieving total opioid abstinence and a willingness to undergo detoxification. Studies have shown that most patients from unselected populations drop out within first three months of treatment. Greater success has been achieved with patients motivated for adherence to treatment with individual counseling and involvement of family members.

Depot preparation of naltrexone is currently in phase-III clinical trials and have shown adequate blockade of externally administered opioids for 30 days with a single injection. This will be helpful in ensuring compliance in near future.

NALTREXONE

- Opioid antagonist
- Goal of treatment- complete abstinence
- Daily dose - 50mg/day
- Thrice/week dispensing (100 mg each on 1st and 3rd day and 150 mg on 5th day)
- No tolerance, no abuse and dependence potential.
- Poor compliance and high drop-out from treatment
- Enhanced compliance - Depot naltrexone (phase III clinical trials)

Agonist Maintenance Agents-

Agonist agents for the maintenance treatment of opioid dependence are-

Methadone

Methadone is the most extensively used and studied agent for maintenance treatment in many countries. It was introduced in mid 1960s by Dole and Nyswander at the Rockefeller Institute, USA. They found methadone to be effective in producing cross-tolerance and blockade of the effect of externally administered narcotic. In other words, a person stabilized on methadone would not experience the acute effects, including euphoria following the use of heroin. To date there have been over 500 research trials looking at various aspects of methadone treatment. Together they form a large body of evidence in favour of the effectiveness of methadone maintenance. It has been shown that 60mg of methadone is the lowest effective dose. Methadone was found to

be a favorable drug as it has a long duration of action (24 hours) requiring once daily administration, is safe and non-toxic with minimal side effects. Individuals need to attend specialty clinics (methadone clinics) daily where they receive their dose in a supervised manner to prevent the misuse of the medication. Studies have shown that as part of a broader programme of support and rehabilitation, methadone maintenance treatment reduces illicit opiate use, criminal activity, mortality and morbidity (including HIV infection) and improves psychosocial functioning. *The major factor known to be involved with better outcome is the duration of treatment (retention in treatment)*. Retention in treatment in turn is related to factors such as adequate dose, flexibility of dosing, well-trained staff, positive relationships between staff and patients and therefore these factors are associated with a favourable outcome.

Methadone maintenance still has some limitations. Opioid dependent individuals need to attend the methadone clinics daily leading to significant inconvenience. Apart from this, the stigma attached to attending such speciality clinics is another cause of concern. The risk of abuse and dependence also exists. Patients relapse soon after leaving treatment and use of other drugs may continue even on methadone. Studies have shown that after leaving the treatment programme, significant numbers relapse (70 percent at 1 year) and indulge in various criminal activities.

LAAM

LAAM is a derivative of methadone developed in the 1940s in Germany as an analgesic. It was approved as a maintenance treatment agent for opioid dependence in USA in 1993. LAAM has a long duration of action and can be given once every 2-3 days. It has been found to be safe and efficacious. Some studies have shown

it to be equivalent to methadone in suppressing illicit opioid use and encouraging productive activity. The drawback however, is related to the cumulative toxicity of LAAM and its metabolites. There are reports of arrhythmias (Torsades de Pointes) in some patients. LAAM is more complex pharmacologically than methadone and its use demands a more skilled clinician than methadone.

Buprenorphine

The search for a better alternative to above mentioned agents lead to use of buprenorphine for the long-term treatment of opioid dependent individuals. Buprenorphine is a semi-synthetic opium alkaloid derivative of thebaine. It is a long acting, highly lipophilic opiate. It is generally administered as sublingual tablet (S.L) or as a liquid. Bio-availability after sublingual administration is approximately 50%. Peak concentration occurs within 2 hours of sublingual administration. Elimination half-life of sublingual buprenorphine is approximately 27 hours. It is 25-30 times more potent than morphine (in analgesic action). About 0.4-0.6 mg S.L is equi-analgesic to 10 mg morphine given intravenously. It is a partial *mu* agonist and antagonist of *kappa*. It produces analgesia and other central nervous system effects that are qualitatively similar to those of morphine. Buprenorphine can be substituted for morphine or heroin and suppresses symptoms of *mu* agonist withdrawal. The effects are slower in onset and longer lasting than morphine. It dissociates slowly from the opiate receptors thus having a long duration of action. Some studies have shown that it can be used every alternate day or once in three days. Buprenorphine exhibits a ceiling effect, most noticeably in its respiratory depression and euphoriant effect which accords the medication a high degree of clinical safety. It has found high acceptability amongst patients. The above mentioned properties (frequency of dosing, safety, acceptabil-

ity) generally suggest it to be a safe and effective medication.

The efficacy of buprenorphine has been compared with methadone. Several studies have compared different doses of buprenorphine to methadone. These have confirmed that buprenorphine produces an opiate agonist effect similar to methadone. Many have recommended 8 mg of buprenorphine per day, however, it has been also reported that the difference between efficacy of 4 mg and 8 mg daily dose of buprenorphine is marginal.

It has been suggested from the clinical experience at the NDDTC, AIIMS that opiate dependent individuals who may be suitable for buprenorphine are a subgroup of opiate dependent patients who fulfil the following requirements-

Suitability

Above 21 years of age
Regular opiate use for at least 3 years
Proof of at least 2 unsuccessful attempts to achieve abstinence following treatment from recognised treatment centres
Certification by a Medical Officer
Willingness to give body fluids to check illicit drug consumption on demand

However, long-term maintenance treatment with buprenorphine has got its own drawbacks. Withdrawal symptoms do occur following the abrupt withdrawal of this medication, but the symptoms are milder than those of methadone. The risk of abuse and dependence does exist, although lower than methadone. There have also been reports of injecting the tablets of buprenorphine through intravenous or intramuscular route by dissolving the tablets. To reduce this serious risk, supervised dispensing has been advocated. Along with this, to combat the problem, a buprenorphine-naloxone

combination tablet has been developed. The rationale has been that when used by opiate addicts by the intended route (sublingual), the buprenorphine-naloxone tablet would yield desirable effects; i.e. buprenorphine would be adequately absorbed and act as a maintenance drug, while naloxone would not be absorbed adequately by the sublingual or oral routes. However, if the buprenorphine-naloxone tablets were diverted for misuse and dissolved for use by the i.m/i.v route, naloxone would become active and produce/precipitate opiate withdrawal symptoms, which are distressful to the patient and hence would discourage such use. Studies have also tried to arrive at the best dosing ratios of such a combination tablet. Some earlier studies suggested that dose combinations at 2:1 and 4:1 ratios may be useful in treating opiate dependence (Buprenorphine: Naloxone). Later studies suggest a ratio of 4:1. Such a tablet is also likely to provide for greater patient autonomy in the form of weekly or fortnightly (as opposed to daily or alternate-daily) visits to the treatment centre and make a provision for 'take-home' medications, thus providing patients with more time for vocational/rehabilitative activities. *Buprenorphine-naloxone combination tablet would soon be available in India.*

BUPRENORPHINE

- Partial opioid agonist
- Clinically safe
- Dose - 4-8 mg/day
- Frequency - Every 3rd day possible
- Dependence potential - less than methadone. Abuse potential present
- Possible safeguard from abuse - Combination buprenorphine and naloxone tablets

Due to the high treatment cost with the abovementioned medications (buprenorphine and naltrexone which are available in India)

and poor availability in all parts of country, some other agonist medications are also being tried for these patients.

Sustained release Morphine (MS CONTIN)

This medication is being routinely used in the treatment of cancer pain. Compared with short acting, immediate release morphine, MS Contin has the advantage of 12-hour dosage, decreased sleep disturbance and increased medication compliance. MS Contin has been recently tried for opioid dependent patients for maintenance programme at the NDDTC, AIIMS. However, the risk of abuse and dependence exists as with other agonist drugs. Clinical experience with sustained release morphine as opioid agonist maintenance agent is limited.

To summarize, all the agonist agents help the opioid-dependent individuals by minimizing the harm (physical, psychosocial) caused by the use of illicit opioids while the individuals are still on an opioid agonist drug that has abuse and dependence potential.

Termination of long-term pharmacological treatment

Patients should remain in treatment for the minimum time it takes to achieve their agreed treatment goals. The length of time required for treatment will vary amongst individuals. Regular reviews will assist in determining need for continued treatment. There is no fixed optimal duration of pharmacological treatment and removing people from treatment too early may result in very poor outcomes, including high rates of relapse into illicit opiate use and a consequent increased risk of overdose. Setting an arbitrary duration of treatment and withdrawing treatment at that endpoint is not recommended. The treatment approach should include working towards goals which prepare a patient to live well without pharmacological

treatment. An important objective of maintenance treatment is the successful withdrawal from maintenance agent combined with continued good functioning, including good health and social functioning. Planning for successful withdrawal from maintenance treatment should commence from the initiation of treatment. The decision to withdraw voluntarily from long-term pharmacological treatment should be a joint decision of the patient and the prescribing doctor, with information contributed by the social worker or nursing staff who may be evaluating the psychosocial functioning of the patient. When all agree about the timing and method of withdrawal, patients tend to be more successful in continuing abstinence.

The elements of treatment that assist patients to complete withdrawal from an agonist drug successfully include a flexible approach to dose reduction and individualizing reduction of

medication. A slower rate of reduction would be desirable if relapse is likely. After withdrawal from agonist maintenance, patient may require more frequent supportive, skill oriented and relapse prevention counseling, more frequent monitoring and review, access to residential programme if necessary (residential withdrawal or rehabilitation programme) and increased involvement of significant others (including family).

Counseling, continuing case management and structured group programme are all likely to assist outcome after completion of pharmacological treatment. The staff should remain involved in the care of patients who have voluntarily withdrawn from pharmacological treatment for up to a few months after completion of treatment. In case of relapse, the patient should have easy access back into treatment. Treatment should be offered expeditiously and without recrimination.

Suggested Reading

1. Blaine JD, ed. Buprenorphine, Alternative Treatment for Opioid Dependence. NIDA Research Monograph 121. US Department of Health and Human Services Washington D.C, 1992.
2. Effective Medical Treatment of Heroin Addiction- Program and Abstracts. Office of the Director, National Institute of Health, 1997.
3. Ray R, Dhawan A. Oral Buprenorphine Substitution Therapy. Report submitted to UNODC, ROSA, 2004.
4. Reisine T, Pasternak G. Opioid Analgesics and Antagonists. In: Goodman & Gillman's, The Pharmacological basis of Therapeutics 9th edn. (Harman JG and Leimboid LE, Eds in chief). Mc Graw-Hill, New York, 1996, 521-556.
5. Lowinson J H, Payte J T, Salsitz E, Joseph H, Marion I J, Dole V P Methadone Maintenance. In: JH Lowinson, P Ruiz, RB Millman, JG Langrod (eds.) Substance Abuse- A Comprehensive Textbook- third edition, Williams and Wilkins, USA, Maryland, 1997.
6. Jaffe JH, Jaffe AB. Opioid related disorders. In: BJ Sadock, VA Sadock (eds.) Comprehensive Textbook of Psychiatry- seventh edition, Lippincott Williams & Wilkins, 2000.

Suggested slides for OHP

Slide 1

- Opioid dependence- Chronic relapsing disorder
- Risk of relapse high within the 1st year of t/t
- Long-term t/t needed for majority of opiate dependent individuals
- Various strategies for long-term t/t has been developed in the form of comprehensive t/t plan

Slide 2

- Comprehensive t/t plan- various pharmacological, psychosocial and medical interventions
- Concept of long-term t/t
- complete abstinence using opiate antagonist
- Harm minimization using opiate agonist
- Pharmacological agents for long-term t/t-
Opioid antagonist- Naltrexone
Opioid agonist- Methadone, LAAM, Buprenorphine, Sustained release Morphine

Slide 3

NALTREXONE

- Opioid antagonist
- Goal of treatment- complete abstinence
- Daily dose- 50mg/day
- Thrice/week dispensing (100 mg each on week-days and 150 mg on weekends)
- No tolerance, No abuse and dependence potential.
- Poor compliance and high drop-out from treatment.
- Enhanced compliance- Depot naltrexone (phase III clinical trials)
- Suitability for long-term treatment with naltrexone
 - High motivation
 - Short duration of opioid use
 - Professionals like doctors, dentists etc.
 - No co-morbid psychopathology
 - Good social support

Slide 4

BUPRENORPHINE

- Partial opioid agonist
- Clinically safe
- Dose- 4-8 mg/day
- Frequency- Every 3rd day possible
- Dependence potential- less than methadone
- Abuse potential present
- Possible safeguards from abuse- Combination buprenorphine and naloxone tablets
- Suitability for long-term treatment with buprenorphine

Above 21 years of age

Regular opiate use for at least 3 years

Proof of at least 2 unsuccessful attempts to achieve abstinence following treatment from recognised treatment centres

Certification by a Medical Officer

Willingness to give body fluids to check illicit drug consumption on demand

Slide 5

- Termination of long-term t/t
- No fixed optimal duration of long-term t/t
- Decision to terminate t/t
 - Based on agreed t/t goals
 - Joint decision of treating team, patients and their family members

Psychosocial Treatment in Substance Use Disorder

Renuka Jena

Summary

The management of substance use goes beyond pharmacology. Clinical and academic experience reflects the significance of psychosocial interventions in addition to the pharmacological treatment. Motivational interviewing, motivation enhancement, counseling and relapse prevention have been used with success in short and long term management of substance use. Brief intervention has shown significant results in alcohol and nicotine abuse in busy outpatient and primary care settings. The chapter focuses on various psychosocial modalities useful in substance use.

Introduction

The use of substances that alter mood, behavior, or cognition has been a part of human life across numerous social contexts throughout history. Invariably, there are some individuals whose use of such substances may lead to abuse and eventual psychological, social or physical harm. Although some people use drugs safely, most encounter problems.

Assessment

Before embarking on a treatment program, a sound assessment is required that will determine the choice of treatment - goal and content. Information should be attained on the evolution of drug/alcohol intake, family history, patterns of current use, degree of dependency, the extent of drug and alcohol related problems, reinforcement parameters maintaining the behavior, and the opportunities within

the client's environment for developing more adaptive responses. It is also important to assess the extent of any co-existing psychopathology.

There are numerous scales that have been developed for the assessment of various aspects of drug and alcohol abuse. These instruments are very general and assess a number of variables from a conceptually distinct area e.g., craving, outcome and efficacy expectations.

The assessment process will assist the therapist in tailoring a treatment program to the needs of the individual as well as elucidating on the most appropriate treatment goal. Gossop (1996) has provided examples of treatment goals which include:

- (i) Reduction of psychosocial or physical problems either directly or indirectly related to the drug problem.
- (ii) Reduction of risky behavior associated with the use of the drug.
- (iii) Attainment of controlled or nondependent use.
- (iv) Attainment of abstinence from the problem drug.
- (v) Attainment of abstinence from all drugs.

The issue of controlled use rather than abstinence has been debated at length for many years. Whatever the treatment goal, a key issue is the client's commitment to implementing real and permanent change in his pattern of drug or alcohol use. The following section will

review some models that assist in this decision-making process.

The stages of change

Psychotherapists have long been interested in the process of change. Pettony (1981) noted that most therapeutically induced change in cognition, affect, or behavior involves an initial destructuring with resistance being a central feature, an intermediate stage of conversion and a final stage of restructuring.

The idea of transitional stages or dispositional states within addiction literature has been developed by various authors. Tuchfeld (1976) proposed a two stage model of change. The first is when defensive avoidance becomes untenable and a commitment to change is made. The second is one of maintenance of a new behavioral repertoire, which is characterized by personal vigilance and during which time the individual develops coping strategies to attenuate the possibility of relapse.

The most influential model of change has been the transtheoretical model of Prochaska and Di Clemente (1984). This has helped rationalize the diversity of psychological interventions and place them in the context of the evolution of personal change.

The stages proposed are precontemplation, contemplation, preparation, action and maintenance along with the issue of relapse or recurrence. Essentially during precontemplation individuals do not feel impelled to do anything about their behavior, perhaps as a result of denial or selective exposure to information. As they become aware a problem exists, they enter the contemplation stage which is characterized by conflict and dissonance. Preparation is defined as a time when the individual drug user formulates action plans and is serious about his or her intention to alter behavior. Action is a period when overt changes are made, after

which successful individuals enter the maintenance stage when new behaviors are strengthened and consolidated. The individual who does not relapse during this stage eventually exits the change system to termination, or in other words favorable long-term outcome. Most people do not immediately sustain the new changes they are attempting to make, and a return to substance use occurs known as relapse.

It has been observed that progression through the stages follow a cyclical pattern. People may move back from action to contemplation and precontemplation before eventually achieving long-term resolution of the problem. Stages of Change questionnaire and the 12 item Readiness to Change scale have been developed to assess the stages of change for drug abusers.

The model of change does provide a structure to help us match different interventions with albeit, the arbitrarily, defined stages. Miller (1983) suggested that motivational interviewing is most useful for individuals in the contemplation stage, although it can prove beneficial for individuals in all stages of change. Behavioral and cognitive interventions can be optimally applied in the preparation and maintenance stages.

Psychologically based treatment methods

Motivational Interviewing

Motivational interviewing (MI) originally accounted by Miller (1983) saw motivational problems as a result of the therapist/client dialogue, with the behavior of the therapist influencing the expectations, attributions, and behavior of the client. During MI the individual is encouraged to reach his or her own decision about change, while the role of the therapist is simply to facilitate this process through clarification, advice when appropriate, accurate feedback, and empathy. The aim of the therapy is

to increase cognitive dissonance until a critical mass of motivation has been achieved and the individual is ready to move from pre-contemplation to action. At this point commitment to real behavior change is a likely outcome. Motivational interviewers operationally define motivation as the probability that a person will enter into, continue, and adhere to a specific change strategy and there is a strong emphasis on ambivalence resolution and the decisional balance. Essentially the client begins to present his or her own argument for change rather than being directed by a coercive therapist, while it is the therapist's role to set in place the optimum conditions for change.

Motivational enhancement

The multidimensional nature of motivation is highlighted by the three critical elements that a person is ready, willing and able to change. One can be able to change, but not willing. The willing component involves the importance a person places on changing and the ready component represents the final step in which the person finally decides to change a particular behavior. To instill motivation for change is to help the client become ready, willing and able. The motivational style of counseling is useful not only to instill motivation initially, but throughout the process of treatment in the preparation, action, and maintenance stages as well.

Appropriate motivational strategies for each stage of change (Miller 1999) could be as follows:

Precontemplation: Establish rapport, build trust. Raise doubts or concerns in the person about substance using pattern. Explore the meaning of vents that brought the patient to treatment or the results of previous treatment. Elicit the patient's perception of the problem. Give factual information about the risk of sub-

stance use. Provide personalized feedback about assessment findings. Explore the pros and cons of substance use. Examine the discrepancies between the patient and others perception of the problem behavior. Express concern and keep the door open.

Contemplation: Normalize ambivalence; help the patient tip the decisional balance scale towards change by eliciting and weighing pros and cons of substance use and change. Change extrinsic and intrinsic motivation. Examine the patient's personal values in relation to change. Emphasize the choice of responsibility and self-efficacy. Elicit self motivational statements of intent and commitment. Elicit ideas regarding perceived self efficacy and expectations towards treatment. Summarize self motivational statements.

Preparation: Clarify the patient's own goal and strategies for change. Offer a menu of options. With permission, offer advice. Negotiate a change or treatment plan and behavior contract. Counter and lower barriers to change. Help the patient enlist social support. Explore treatment expectancies and the patient's role. Elicit what has worked in the past for him or others whom he knows. Assist the patient to negotiate finances, child care, work or other barriers. Have the person publicly announce plans to change.

Action: Engage the patient in treatment and reinforce the importance of remaining in recovery. Support a realistic view of change through small steps. Acknowledge difficulties for the person in early stages of change. Help in identifying high risk situation and develop appropriate coping strategies to overcome them. Assist in finding new reinforcers of the change. Help in assessing whether the person has strong family and social support.

Maintenance: Help in identifying and sample

drug free sources of pleasure. Support life style change. Affirm person's resolve and self efficacy. Assist in practicing the use of new coping strategies to avoid return to drug use. Maintain supportive contact. Develop a 'fire-escape' plan if the patient resumes substance use. Review long term goals.

In summary, motivational enhancement is a client centred, directive therapeutic style to resolve ambivalence and promote greater commitment to change.

Relapse Prevention

Substance abuse has long been seen as a chronic, relapsing condition hence relapse management is an important issue in the treatment of addictive behaviors. Relapse prevention is a generic term for a variety of approaches to the treatment of drug and alcohol abuse, primarily aimed at those in the maintenance stage of change.

Though relapse has been viewed differently by various authors, the most common view is that while a lapse is an occasional slip, a relapse is a return to the original pattern of intake. Relapse has also been systematically approached from what has been called a psychobiological perspective. Central to these models is the idea that relapse is precipitated by craving, which results in loss of control. Craving can be seen as a cognitive interpretation of the feelings of arousal associated with drug-related stimuli. Researchers have also found that relapse is more likely in individuals who had few coping resources and who have encountered a relatively large number of risk situations.

The model by Marlatt and Gordon presented relapse prevention as a set of principles broadly based on social learning theory. In this program, individuals are taught to recognize the possibility of relapse. Essentially the client con-

structs a personal behavioral analysis and receives training in specific coping strategies. These can include broad-based skills training (behavioral rehearsal, assertiveness training), cognitive reframing (coping imaginary, reframing reactions to lapse), and lifestyle interventions (relaxation and exercise enhancement). Clients are taught to recognize early warning signals and made aware of apparently irrelevant decisions that can increase the possibility of relapse. Emphasis is placed on the modification of cognitive distortions and the challenging of faulty beliefs or dysfunctional assumptions. The abstinence violation effect is a distorted redefinition of lapse as relapse, so undermining the effectiveness of future coping behavior. The Marlatt and Gordon relapse prevention program is therefore a combination of skills training, self-management, and cognitive interventions and the client is encouraged to practice these strategies using rehearsal, role-play and homework tasks.

The relapse prevention model of Annis and Davis(1989) draws more explicitly on self-efficacy theory. The emphasis of this approach is on performance based methods, notably the exposure to increasingly high-risk situations with continuing self-monitoring of efficacy expectations. In guiding the client through the high- risk situations four factors are taken into account. First, the situation is challenging; second, to succeed in mastering the situation a moderate degree of effort is needed; third, the client is responsible and external help is kept to a minimum; and fourth, the success is described as part of improved performance.

Moser and Annis (!995) have emphasized the role of coping strategies in their cognitive behavioral model of relapse. They demonstrate that the survival of relapse is strongly related to the number and type of coping strategies employed. Avoidance strategies are less effective in preventing relapse than active strategies,

such as carrying out alternative activities, seeking support from others, positive self-talk, and cognitive problem-solving.

In summary self-efficacy expectation, or the belief that addictive behavior can be changed by mobilizing personal resources, is the most powerful predictor of intention and subsequent behavioral control. Training in coping skills is not enough, people must use the skills at the right time for them to be effective. As the practice of these coping skills improves self-efficacy so they are utilized effectively in real-life risk situation.

12 step facilitation therapy

Among the contemporary multimodal treatment packages for alcohol abuse, Alcoholics Anonymous is a community self-help group founded by Bill Wilson and Dr. Bob Smith in 1935. The principles of change described by AA are based on a religious organization in the Protestant tradition which emphasized self-examination, the public admission of character deficits, restitution, pledge taking and bible reading. The AA belief system is articulated in the 12 steps mediated by fellowship meetings conducted by formerly drug-dependent persons, which include the requirement of a searching personal inventory, commitment to a greater power, making amends to other people, and carrying the message to other alcoholics. It also takes in to account motivation enhancement by proximal goals, role modeling, relapse management in terms of alternative activity and new social networks. AA emphasizes that helping other members is an essential component of one's own recovery. With about 9000 AA groups across 134 countries including India, the AA is the world's largest self-help group. Depending upon the type of drug abuse, there are other self-help groups like the Narcotics Anonymous (NA), Cocaine Anonymous.

Therapeutic community

Therapeutic communities (TCs) and social model recovery programs emphasize on giving back to the community a way to facilitate one's own and others' recovery. Experienced residents help orient new residents, take on job responsibilities to maintain the facility, and volunteer to participate in a residents' council or client government that helps manage program operations. Descriptions of social model recovery homes have described an ethic of volunteerism as a hallmark of that modality. In TC treatment, the role modeling for other clients during daily activities and treatment groups is an essential component of one's treatment.

Network Therapy

Three key elements are introduced into the Network Therapy technique. The first is cognitive behavioral approach to relapse prevention. Emphasis in this approach is placed on triggers to relapse and behavioral techniques for avoiding them. Second, support of the patient's natural social network is engaged in treatment e.g., peer support, family, friends and spouses. Third, drug-free rehabilitation is provided by mobilization of resources.

Family and Marital Therapy

Family therapy is appropriate and helpful throughout the process of recovery. The model follows different stages. One generally starts by working with the most motivated family member or members, convening other family members when needed. The problem is defined and a contract negotiated. The case for a chemical-free life, with the involvement of family members is then established. The crisis faced by family members when they go through the change is managed and help given in stabilizing the family. Family reorganization and recovery is

the next stage where the roles are balanced and assistance is given in couple or family issues of power and control. The family unit is helped to achieve closeness and intimacy. Treatment comes to an end when client and therapist(s) mutually agree to stop meeting regularly.

Brief Intervention

Brief intervention is a short counseling session focused on helping a person change a specific behavior. BI has proven to be effective in the management of individual with hazardous and harmful drug or alcohol use. The consistent features in BI have been summarized by Miller and Sanchez (1993) using the acronym FRAMES: Feedback, Responsibility, Advice, Menu of options, Empathy and Self-efficacy (confidence for change). The provision of giving personally relevant feedback after assessment such as individual's drug use and problems and associated personal risks is a key component of brief intervention. Personal responsibility is emphasized so as to bring about change in behavior. Advice about changing the drug taking behavior is given in a nonjudgemental manner. Alternative strategies to cut down or stop their substance use are given. Empathic counseling and understanding approach to encourage the patient's confidence so as to promote self-efficacy in their behavior is used.

Efficacy of different therapies

There is good evidence on the effectiveness of psychological approaches for addictive behavior. Moos, Finney and Crankie (1990) in their review concluded that treatment leads to substantial improvement in drinking behavior while acknowledging the importance of individual and social factors in the determination of outcome. Bien, Miller and Torigan (1993) in their review concluded that there are remarkably few differences between brief and extended interventions for treatment-seeking alcoholics.

Most treatment reviews discuss treatment intensity and the need for treatment matching. The interventions planned for all types of drug problems need to be tailored to the individuals' needs and circumstances. Project MATCH Research group (1997) was the largest treatment trial on alcoholics randomly assigned to one of the three treatment modalities namely 12-step facilitation (TSF), cognitive behavioral coping skills and motivation enhancement therapy. The results indicated significant and sustained improvement in all three types of interventions.

Extensive studies have documented the efficacy of Brief Interventions by physicians and other health care providers for substance users. In their studies, Edwards et al (1977) and Wallace et al (1988) show that alcohol use decreased with BI. The studies conducted by Senft et al (1977) and Wilk et al (1997) also supported the efficacy of BI among alcohol users. Apart from playing a major role in reducing alcohol consumption, BI also helps the cigarette users as shown in a number of studies.

Research supports the integration of motivational interviewing modules into programs to reduce attrition, enhance patients' participation in treatment and to increase the achievement and maintenance of positive behavioral outcomes.

In 1974 the National Institute on Alcohol Abuse and Alcoholism recognized family therapy as "one of the outstanding current advances in the area of psychotherapy" for alcoholism (Stanton & Heath). The most updated reviews of the research on marital and family treatment for alcoholism (Farrell, 1992) have concluded that family and marital treatment produces better marital and drinking outcomes than non-family methods.

Conclusion

Most of the interventions described in the chapter have been offered to users of a range of substances. It is important to understand that the main component of any intervention is the cognitive and behavioral changes that accrue irrespective of the preferred drug of abuse. Research shows relapse prevention procedures are clearly useful for smokers, moderately effective for alcohol abusers, and have some variable effect, as a treatment for cocaine abuse. While treatment based on psychological approaches have been shown to be effective, no specific treatment approach has emerged as being con-

sistently superior to the others.

In the primary care setting the need for brief interventions and motivational interviewing would be a useful technique since many patients enter these programs unwillingly or at best with motivation to deal with the immediate crisis and placate those responsible for getting them into treatment. The issue of cost effectiveness of treatment is discussed at length rather than the need of the individual. Thus it has been emphasized that it would be best to remind the treatment providers that it would be justified to work on the need for caring of this population rather than cost-benefit analysis.

Suggested Reading:

1. Annis HM. and Davis CS. Relapse prevention. In: RK Hester and WR Miller (Eds), *Handbook of Alcoholism Treatment Approaches: Effective alternatives*. New York: Pergamon, 1989: 137-148.
2. Bien TH, Miller WR, Tonigan JS. Brief interventions for alcohol problems. A review. *Addictions*; 1993;88:315-33.
3. Davidson R, Rollnick S, and MacEwan I. *Counselling Problem Drinkers*, London: Routledge, 1991.
4. Davidson RJ. The Treatment of Substance Abuse and Dependence. In: A Bellack & M.Hersen, eds, *Comprehensive Clinical Psychology*. Elsevier Science, Oxford, 1998, 567-585
5. Gossop M. Cognitive and Behavioral Treatments for The Substance Misuse. In: G Edwards & C Dare, eds., *Psychotherapy, Psychological Treatments and Addiction*. Cambridge, UK: Cambridge University Press, 1996, 139-157.
6. Marlatt GA and Gordon JR. Relapse prevention: Maintenance strategies in the treatment of addiction behaviour. New York: Guilford, 1985.
7. Miller WR. Motivational Interviewing with Problem Drinkers. *Behavioural Psychotherapy*, 1983,11:147-172.
8. O'Farrell TJ. Families and Alcohol Problems: An Overview of Treatment Research. *J Fam Psychol*; 1992,5:339-359.
9. Rollnick S, Heather N, and Bell A. Negotiating Behaviour Change in Medical Setting. The development of brief motivation interviewing. *Journal of Mental Health*, 1992,1:25-27.
10. Stanton MD & Heath W. Family and Marital Therapy. In: Lowinson JH, Ruiz P, Millman RB & Langrod JG., eds. *Substance Abuse: A Comprehensive Textbook*. Maryland USA: Williams & Wilkins, 1992.
11. Tuchfeld B. Changes in the pattern of alcohol use without the aid of formal treatment. Research Triangle Park, NC; Research Triangle Institute, 1976.

Suggested slides for OHP

Slide 1: Substance use alters mood, cognition, behaviour
Assessment essential prior to psychosocial treatment

Slide 2: Psychotherapists work to influence the process of change
Involves- destructuring with resistance
-conversion
-restructuring

Slide 3: Transtheoretical model most acceptable and widely used
Various psychosocial interventions affect these stages
Contemplation-Motivational Interviewing
Preparation & Maintenance- Behavioural & cognitive techniques

Slide 4: Motivational interviewing- influences behaviour & expectation
-client reaches his/her own decision
-therapist facilitates the transition
-eventually enhances motivation to change

Slide 5: Motivational Enhancement
Sets the process of change at various stages
Resolves ambivalence
Requires-rapport, empathy, nonjudgmental attitudes
-feedback, facilitation
-emphasis on responsibility & action
-identification of high risk situations
-developing coping skills
-enlisting social & family support

Slide 6: Relapse Prevention
Essential for long term abstinence
Involves-lapse
-transitional process
-occasional slip
-relapse
-loss of control
-return to original pattern of intake
Requires client –to understand the risk of relapse
-identify high risk situations
-use cognitive, behavioural techniques & life style modification

Slide 7: Self help groups (e.g. NA, AA)
Involves- self examination, restitution, pledge taking
-role modeling, relapse prevention, new social networks

Slide 8: Therapeutic Community
Emphasizes one's own & others recovery
Role modeling for other clients influences change

Slide 9: Family & Marital Therapy
Help in the process of recovery
One family member takes control
Establishes the need for substance free life

Community-based Treatment of Substance Use Disorder

10

HK Sharma

Summary

The drug scenario in the country has changed significantly in the last few decades. This has necessitated redefining and broadening of goals along with innovation in drug treatment and settings. Community based treatment and emphasis on a preventive approach are important measures to reach various vulnerable groups. These individuals often do not seek help due to financial constraints and social stigma. In this approach, treatment is made available to alcohol/drug affected individuals and afflicted families closer to their homes. This chapter discusses the rationale, approaches, strategies and interventions that can be applied in the context of community based treatment.

Need and rationale for Community-based treatment:

The drug scenario in the country has changed rapidly in the last few decades. There has been a gradual shift from plant products to alien and potent drugs, a change in the route of intake, early age of initiation and a diminishing of urban and rural differences in drug preferences. Consequently, drug abuse related complications have also shown a change. These developments call for redefining and broadening of goals and innovation in drug treatment and settings. Community based treatment and prevention approach emerged as a key strategy to reach vulnerable groups. The rationale behind the approach is that treatment process is brought closer to alcohol/drug affected individuals and afflicted families, who may not be able to avail these facilities on account of social stigma and

host of other factors. The outsourcing of services can foster community development and broader responses at the grass-root level. It also facilitates family and community participation and identification of multi-stake holders who can address larger issues related to availability and control of substance abuse.

The advantage of community-based treatment is that flexibility can be maintained in delivery of services. It addresses both the individual's behavior as well as the socio-cultural context that define norms relating to a particular behavior. These services are proving useful as an instrument for behavior change and assists the community to cope with harmful behaviors or situations. These services help in focusing on personal health (drug affected individuals), improve social function and reduce threat to public health (HIV/AIDS) and public safety (drunken driving, violence, crime etc.). There is a significant improvement in the treatment outcome when social and environmental factors are taken into consideration, and social support mechanisms enlisted in after care and social reintegration of patients.

In the West, the community-based treatment has assumed a great significance in the criminal justice system for drug related offences including drunken driving and serious felonies. Correctional measures are being provided in the prison or Drug Treatment Alternatives to prison programme. After the release, they are facilitated to join treatment/rehabilitation services at community to be part of mainstream life. The modality is being implemented at

small scale in the prison setting in our country and there is a need for widening of these services at district level as the number of drug offenders are increasing.

The community-based treatment/intervention has another distinct advantage. The use of existing community infrastructure and mobilization of resources and manpower on voluntary basis makes these services less costly vis-à-vis institutional services. The health care practitioner plays a key role in the treatment process.

The present chapter covers some of the salient features of community based treatment, approaches and strategies, establishment of these services in different settings, concept of community mobilization and intervention programme at grass-root level.

(2) Treatment goals

The National Institute on Drug Abuse (NIDA, USA) stresses that while the ultimate goal of all drug abuse treatment is to enable the abuser or addict to achieve lasting abstinence, there are important immediate goals as well. These are:

- To reduce drug use,
- Improve the patient's ability to function, and
- To minimize the medical and social complications of drug abuse.

The envisaged goals of community-based treatment remain the same but the emphasis is on:

- Detoxification of a selected group of alcohol and drug dependents in a locality/catchment area.
- Re-establishment of family bonds and re-integration of detoxified persons with their community.

- Creation of awareness in the community of the existence of alcohol and other problems in their environment.
- Development of a sense of responsibility on the part of the public and voluntary organizations in supporting the process of treatment and rehabilitation.
- Encouragement to the clients to commence rehabilitation with confidence

(3) Approaches:

Different approaches can be visualized in the context of community-based treatment in the field of substance abuse. These include both non-participatory (concerned authorities delivering services to the community) to participatory (grass-root involvement for appropriate action). Community-based treatment approaches seek to mobilize the elements of mutual support and common interest that characterize a natural community.

The main approaches to community mobilization are "bottom-up" and "top-down". The former includes grass-root strategies, developed and implemented by community members. In the top-down approach, outside experts and/or self-selected community leaders formulate strategies in delivering services. Each approach has its own strength and weakness. Under grass-roots approach, a wide spectrum of community members and institutions are involved to increase a sense of ownership but they may not have experience or expertise to design and implement effective intervention strategies. In the top-down approach outside experience and expertise play a vital role but may not reflect the community's true concerns, interests and socio-cultural sensitivity. A comprehensive community-based is more appropriate where essential elements of both the approaches are incorporated. The essential elements are expe-

rience and expertise of the former and multi-sectoral inclusion, organizational linkages and mechanisms of enabling and support. The multi-sectoral approach reflects level of community involvement, organizational linkages denotes collaboration of different agencies and institutions; while enabling and support give leverage to access and control of resources.

(4) Organizations/ Resources that can be mobilized:

Community mobilization is an important process where members of a community identify a need, garner support and bring people together to facilitate a programme. It brings concerned individuals, institutions, non-government organizations, government bodies, and media outlets behind the development and implementation of a programme. When community mobilization works it is a very empowering exercise.

The following steps are suggested:

- (i) **Formation of core group:** The first step in this direction is formation of a core group of representatives from different walk of life, including health/welfare personnel, religious leaders, parent's groups, business and trade group, educators, trade unions, women/youth groups, enforcement personnel and local officials. The group helps in assessment of problems, need assessment and formulation of local action plan.
- (ii) **Community support:** After detoxification and stabilization phase, the community resources are required in after care and rehabilitation of treated patients. The activities may range from creating drug free zones for marginalized groups, social acceptance and reintegration. The community volunteers, ex-users and family members and core group and community based organizations (CBOs) play a significant role.

(iii) **Larger community:** The continuum care needs support from larger community both financially and for provision of manpower. A cadre of community level workers or volunteers would be ideally placed to help individuals and families in distress. The 'naturally occurring' support network of volunteers and CBO's and neighborhood families can be an asset in identifying secondary signs of alcohol/drug abuse like child abuse, domestic violence and economic hardships in affected families and in initiating remedial steps. Likewise, these groups also help in building social pressure against undesirable and anti-social elements.

(iv) **Institutional network: Government agencies:** In a given community, a large number of central and state agencies operate in different spheres and their available resources can provide a big platform for community intervention. Institutions like school, colleges and vocational training, and health and welfare care units may be identified in the community and also outside the boundaries of the community. A number of welfare agencies focusing on problems of child, youth and women, environmental and economic development can become part of community network and support to deal with substance abuse problem.

(5) Strategies to be adopted:

The intervention/ treatment strategies are worked out at various levels. These are:

- (i) **Organized treatment,** rehabilitation and reintegration for physical/psychological dependence on drugs. (Continuum treatment services in community set up.) These include:
 - **Detoxification** is a 5 to 30 day treatment

intended to wean the user from his or her substance. This can be done in a hospital-like setting or in a community-based program. Residential settings usually treat patients for 14 to 28 days.

- **Outpatient.** Frequently alcohol/drug dependence is treated in an outpatient setting. Some people receive care in *day treatment* programs, where they attend treatment for part of the day but spend the night at home.
- **Self-Help Groups** are another form of outpatient treatment. *Twelve-step programs* are available at some places and are run by group members. Popular among these are Alcoholics Anonymous (AA) and Narcotics Anonymous (NA).
- **Group treatment** has been identified by some clinicians as the treatment of choice. This method tends to be effective because it uses peer feedback, modeling, confrontation, and support. Group treatment can also be used to teach coping and interpersonal skills.
- **Maintenance treatment**, has been used on an outpatient basis. This involves using medicines (e.g., antabuse, naltrexone, buprenorphine, morphine) to reduce a person's physical need for substances or create an unpleasant effect if he uses it.
- **Family treatment** focuses on stabilizing the family and helping them set boundaries with the substance user.
- **Outpatient counseling/therapy:** The goal is to help the patient gain insight into their substance-using behaviors, address problem behaviors, teach social skills, and provide support.
- **Brief Intervention:** Brief intervention by primary care providers is helpful to problematic alcohol users/ heavy drinkers. The brief intervention consists of brief

advice sessions by physicians/ therapist focusing on harmful aspect, recognition of problems/ risk situations and management.

- (ii) **Preventive/protective measures:** Along with secondary/tertiary preventions, the community based treatment services also emerge as a viable platform for primary prevention measures for school/ college youth through institutional network. Issues such as drunken driving, accidents/injury and availability of illicit drugs become part of community intervention and social action.

6. Treatment Settings:

Various settings have been adopted in treatment of substance abuse at community level. These include delivery of services from a hospital (Civil/District or specialized institute/ de-addiction center), establishment of community clinic/drop-in-center, field post and mobile clinic.

- (a) **Centre Based Treatment extending to community:** A drug affected community/specific groups are adopted by De-Addiction Centre/ Medical Institute/ College and substance abusers are referred to these services for detoxification and management of concurrent illness. After completion of a treatment regime and psychosocial treatment, the patients are sent back to their community and a community team monitors, involves the family to prevent relapse and manages other problems including any crisis.

(b) Community Based Treatment at District Level

In this regard Civil/District hospital provides treatment services and medical colleges/ institutions and the Ministry of Health act as agencies for execution, advice and monitoring. The district bodies do the

actual implementation. Each district can have a local coordination committee to carry out various activities. By and large, the district committees are headed by District Magistrates. The various activities being carried out are

- a) survey to assess the magnitude of the problem
- b) delivery of treatment and aftercare services
- c) community awareness building
- d) health education
- e) integration with other parallel programmes of the government and
- f) integration with supply reduction activities.

Another feature of district level programme can be formulation of district coordination committee, which suggests the action plan/ programme activities.

(C) Community Clinic/Outreach Services:

The outreach services are set up in the natural milieu. Its broad objectives are:

- To identify majority of drug dependents in main catchment areas and adjoining localities and to initiate the process of pre-treatment counseling (clarify myths and misconceptions associated with drug abuse.
- To focus on health and social consequences of socially sanctioned drugs like alcohol and tobacco as well as illicit drugs such as heroin and psychotropic drugs in their environment and suggest possible remedial steps.
- To provide low-cost treatment services within community.
- To facilitate formation of local support groups (youth, women, etc.) as well as self-help groups (AA, NA, etc.)

The physical infrastructure is provided by

the community or organized by the community and the core team for treatment is provided by the service delivery team of De-Addiction Center/ Institutions or hospitals.

- (d) **Camp Approach** : Camp approach emerged as a key approach in the context of opium and alcohol treatment, especially in the rural areas. It involves identification of all drug dependent persons living in a locality, mobilization of ex-users and volunteers for assistance in the detoxification camp, use of premise (community center, empty schools or other institutional premises) for 10-14days. Even after detoxification process, care providers maintain contact fairly over a long period of time to assure that momentum is not lost and community continues its vigilance and helps in relapse prevention.

- (e) **Field Post**: The field post approach is generally used to make an access to hard-to reach populations - truck drivers, migrants, sex workers, street children and homeless people. It is also an useful tool for targeting risk behavior- ID use practices, unprotected sex and HIV/AIDS. The outreach team gains alliance with key people. After gaining access to hidden population, risk reduction interventions can be carried out to target their risky behavior. The approach helps in making regular and close contact with at risk population and helps in identifying drug users, who can be trained as peer counselors and help in implementing harm reduction activities.

Essential Elements:

- Identification of drug dependent persons through social network and multiple entry points.
- Rehabilitation before detoxification: The social fabrics in developing countries facilitate process of rehabilitation before

detoxification through spreading message of optimism and de-mystification of drugs.

- Involvement of family, ex-users and volunteers
- Detoxification in natural setting/ group detoxification
- Vigilant Groups

(7) Intervention, mobilization and education of appropriate individuals

Broad- based steps:

- Identification of people who have risk factors
- Build protective factors by giving healthy prevention messages;
- Participation in community and other activities;
- Home visits and follow-up;
- Social reintegration of cured drug addicts
- Advocacy with government officials on policy matters
- Promotion on healthy lifestyle

Establishment/running of CBT services:

Selection of community (ies):

The problem of substance abuse may not be evenly distributed in a given population. In this regard, needs and resources assessment is one of the important steps in planning of activities ranging from early intervention, treatment/rehabilitation or specific target oriented programmes. The target groups in a community is selected on various indicators, viz.

- Severity of drug problems
- Drug related health and social problems
- Concentration of vulnerable groups in a given population (school dropouts, migrant

workers, homeless, sex workers etc.)

- Underprivileged/ slum population
- High rate of consumption of legal drugs (alcohol, pharmaceutical products)
- Drug trafficking routes/networks
- Diversion from legal opium cultivation
- International border areas/points

Treatment package:

The treatment package comprises of outpatient/ home detoxification, free distribution of medicines and psychosocial intervention. The functioning of the staff at these services is generally participatory to perform a wide range of activities. The medical staff provides medical assessment, physical examination, pharmacotherapeutic services and clinical supervision. The other staff (social workers, nursing staff etc.) carries out assessments, individual, group and family counseling, education of patients and their families. They make periodic home visits for the registered patients and also motivate others to seek assistance at the clinic. They also help in community mobilization, linkages with other programme developers and other resource persons. The core staff can be further strengthened by community volunteers and ex-addicts in carrying out various intervention programmes.

Awareness/education/mass campaign:

Education plays a significant role in creating awareness about treatment services, clarifying myths and misconceptions about substance abuse. These can be disseminated through formal and informal channels involving family, peers, social organizations and interest groups. At an individual level, simple handouts, pamphlets or set of booklets can be developed or procured. The patient related information on 'treatment compliance', detoxification and "short and long term maintenance" steps in 'recovery' and 'social integration' in simple

terms should be made freely available. The second set of material can be developed for affected families and resource persons.

Community mobilization:

Important steps:

- To form a core group/ team: It is important to form a group that is representative of community (geographic community or a community of like-minded people or people joined by a common interest).
- Establishment of action plan: According to the need and resources to achieve goals. This step helps in developing some structure to meet the objectives.
- Spread the message to reach as many members of the community as possible about available/future services.
- A strong media campaign aimed at getting ongoing coverage about an issue/group, radio programs, offering a spokesperson to be a guest and addressing other groups.
- The resources available to the community to achieve these goals should be identified and assessed. Goals should be modified and clarified as these services progress and gains more information about the substance abuse problem.
- To sustain momentum, keep the public informed and continue to gather information to ensure community members are involved in the problem-solving process.
- Continue to expand group/coalition/partnerships.

(8) Cost effectiveness

One of the main advantages of the community-based treatment is a low cost strategy in comparison to hospital or specialized services. The experiences of establishing and running

these services both in India and abroad has shown that the cost of medicine dispensed, core staff salary and infrastructure cost of running community clinic/out reach services is almost one-third to that of hospital based or specialized services. The cost borne by the alcohol/drug dependent and his family on procurement of substances, transportation scale down considerably when a person gets registered for de-addiction services and continues to follow-up for a reasonable period. This helps in reduction of internal (private) cost on the part of individual and his family.

The community-based treatment run over a long period of time helps in reduction of intangible cost borne by the society in terms of crime, road traffic accidents, worksite mishaps, injury and loss of productivity. There is a corresponding decrease in family burden and disorganization when community takes collective decisions and social action. These services galvanize the concerned people to stem undesirable behavior.

(9) Integration of services with existing services:

The inter-sectoral partnership between different organizations dealing with health, social welfare, education has led to a forward movement in the management of substance abuse in community setting. The collation can take place and the manpower of these services can be utilized through various mechanisms. The information dissemination, training and short term orientation courses can help in pre-treatment process as well as in recovery, after care and social reintegration of treated patients.

The service delivery network can involve local NGOs, self-government bodies (Panchayat, Zila Parishad), office of the district administration, District Magistrate (DM), Sub-Divisional Officer (SDO), Block Development Of-

fices (BDO), Community Development Officer (CDO) and personnel engaged in agriculture extension and rural development. In urban areas state/central government agencies like urban basic service, ICDS, municipal bodies and health and welfare care network and resources can be tapped to strengthen the ser-

vices at community level. The enforcement officials, (Superintendent of Police), office of the Deputy Narcotics Commissioner (DNC) can be part of community based intervention treatment. The emphasis is to involve officials from both demand and supply reduction activities at the district level.

Suggested Reading:

1. Galanter M, Kleber HD, eds. Textbook of Substance Abuse Treatment. American Psychiatric Publishing, Inc. Washington, DC, 2004.
2. Community Action to Prevent Alcohol Problems. WHO Regional Office for Europe, Copenhagen, 1999.
3. A community Prevention Trial to Reduce Alcohol-Involved Trauma. *Addiction*, 92, Supplement 2, June, 1997.
4. Economic and Social Commission for Asia and Pacific. Approaches to community-based HIV/AIDS prevention in ESCAP region. United Nations, New York, 1998.
5. Economic and Social Commission for Asia and Pacific. Community-Based Drug Demand Reduction and HIV/AIDS Prevention, A manual for planners, practitioners, trainers and evaluators. United Nations, New York, 1995.
6. Nadkarni VV, ed. Drug Abuse Demand Reduction: Focus on Community Based Approaches. Bombay, 1992.

Suggested slides for OHP

Slide : 1

Need and rationale for Community-based treatment (CBT):

- Changing drug scenario- broadening of goals/ methods of drug treatment.
- CBT approach emerged key strategy
- Reaching to un reached and other vulnerable groups
- Helps to overcome stigma and isolation of alcohol/ drug affected individuals/ families
- The outsourcing foster community development
- Broader responses at the grass-root level.
- Cost effective and economic

Slide 2

Advantages:

- Flexibility in delivery of services.
- Addresses individual's behavior and the socio-cultural context.
- Other community infrastructure/ manpower costly
- Health care practitioner(government/ private sectors) play a key role
- CBT useful skill for behavior change
- Enables the community to cope with harmful behaviors/ situations.

Slide: 3

Approaches:

- Non-participatory (concerned authorities delivering services to the community)
- Participatory (grass-root involvement for appropriate action).
- Seek to mobilize the elements of mutual support
- Common interest that characterize natural community.
- Bottom-up: grass-root strategies developed and implemented by community members.
- Top-down approach: outside experts/self-selected community leaders formulate strategies

Slide: 4

Community Mobilization

Key points:

- Core group: representative of community (geographic community/ like minded people or people.
- Establishment of action plan:
- Spread the message and reach as many members of the community.
- Staging a public event, function or a meeting.
- Advertising in local papers
- Utilizing free community announcements through media outlets
- To sustain momentum, keep the public informed and continue to gather information.
- Continue to expand group/coalition/partnerships alcohol/ drug sellers or their patrons.

Slide: 5

Strategies to be adopted

- (i) **Organized treatment**, rehabilitation and reintegration for physical/psychological dependence on drugs. (Continuum treatment services in community set up.) These include:
 - Out patient:
 - Day care treatment
 - Self-Help Groups outpatient treatment (*Twelve-step programs*): Alcoholics Anonymous (AA) and Narcotics Anonymous (NA).
 - Group treatment
 - Maintenance programme
 - Family treatment
 - Outpatient counseling/therapy:
 - Brief Intervention.
- (iii) **Preventive/protective measures:**

Slide: 6

Treatment Settings:

Centre Based Treatment extending to community:

- De-Addiction Centre/ Medical Institute/ College adopt drug affected community/groups.
- Substance abusers identified and referred
- Detoxification and management of concurrent illness.

- Psycho-social treatment with treatment regime,
- Patients are sent back to their community to monitor
- Crisis management
- Family members help in relapse prevention and manage other problems.

Slide: 7

Community Clinic/outreach services:

- The outreach services are set up in the natural milieu
- o identify majority of drug dependents in main catchments area
 - o initiate process of pre-treatment counseling, motivation
 - o to focus on health and social consequences of socially sanctioned drugs like alcohol and tobacco and illicit use of heroin
 - o to provide low-cost treatment services within community.
 - o to facilitate formation of local support groups (youth, women etc.)
 - o to establish self-help groups(AA, NA etc.)

Slide:8

Camp Approach:

- Key approach opium/ alcohol treatment, in the rural areas.
- It involves identification of all drug dependent persons living in a locality.
- Ex-users, volunteers for assistance in the detoxification camp
- Parents/ families and community leaders remains important partners
- Physical facility of the locality to be utilized
- Care providers maintain contact fairly over a long period.
- Helps in relapse prevention.

Slide :9

Broad-based steps:

- Identification of people who have risk factors;
- Build protective factors by giving healthy prevention messages;
- Participation in community and other activities;

- Home visits and follow-up;
- Social reintegration of cured drug addicts
- Advocacy with government officials on all levels to change laws/ policies;
- Promotion of healthy life style.

Slide: 10

Collaboration:

- CBT: Comprehensive services at the community level,
- Involving government medical institutions/health infrastructure
- NGOs, local self government bodies (Panchayat, Zila Parishad),
- Enforcement officials, Deputy Narcotics Commissioner (DNC).
- Involving officials from both demand and supply reduction activities at the district level.
- The district committees are headed by District Magistrates.

Slide 11:

Conclusion:

Community based treatment

- Key strategy in present circumstances
- Cost effective measures
- Key role of health providers
- Flexibility in delivery of services
- Community participation- a cardinal principle in delivery of services
- Integration of services
- Sustainable programme

Nicotine Dependence

11

Vivek Benegal

Summary

Tobacco use is common amongst men and women worldwide. Tobacco dependence is invariably present in all substance users. The need to abstain and understand its harmful consequences remains unrealized in large populace. It is also considered to be difficult to manage. This chapter highlights the major issues related to nicotine dependence and effective ways to manage in primary care settings.

1. Tobacco use in India

1.1 Types of tobacco used

In India, tobacco is used in a wide variety of ways including smoking, chewing, applying, sucking and gargling. Beedi smoking is the most popular form of smoking, while cigarettes form the second most popular form of tobacco smoking.

Chewing *paan* (betel leaf) with tobacco is the major form of smokeless-tobacco (SMT) use. Dry tobacco and areca nut preparations such as paan masala, gutka and mawa are also popular and highly addictive.

1.2 Prevalence of use

Tobacco use among men and women is widespread in all regions of India and among all sections of society. It has been estimated that 55.8% of males in the age range of 12 - 60 years currently use tobacco. Among men the prevalence of smoking and the use of smokeless tobacco is roughly similar. Among women, the prevalence of smoking is low in most areas

due to social unacceptability, but is somewhat common in parts of the north, east, northeast and Andhra Pradesh. Overall, 2.4% of women smoke and 12% chew tobacco. Tobacco use prevalence is higher among older age groups compared to the younger age groups. Nonetheless, it is estimated that two in every ten boys and one in every ten girls use a tobacco product and initiation to tobacco products before the age of 10 years is increasing. Current non-cigarette tobacco use (13.6%) was three times more common than current cigarette smoking (4.2%) among the young.

2. Why do people need to be helped to stop?

2.1 Consequences of Tobacco use

In the year 2000, an estimated 4.83 million premature deaths in the world were attributable to smoking alone; 2.41 million in developing countries and 2.43 million in industrialised countries. The region with the highest number of deaths attributable to smoking (0.68 million) was the developing region of South-East Asia (SEAR-D; dominated by **India** in terms of population).

Tobacco-related cancers constitute 56.4% and 44.9% of all cancers in males and females in India, respectively. Tobacco chewing in its various forms is directly responsible for cancers of the oral cavity, oesophagus, pharynx, cervix and penis. Beedi and cigarette smoking cause oral, pharyngeal, oesophageal, laryngeal, lung, stomach, gallbladder, urinary bladder and penile cancers.

ALL-CAUSE MORTALITY DUE TO TOBACCO

The relative risk for death due to tobacco use in cohort studies from rural India is 40% to 80% higher for any type of tobacco use; 50 to 60% higher for smoking; 90% higher for reverse smoking; 15% and 30% higher for tobacco chewing in men and women, respectively; 40% higher for chewing and smoking combined.

An urban cohort study in Mumbai found that the relative risk of dying was more than 50% higher for smokers and about 15% higher for smokeless tobacco users.

Overall, smoking currently causes about 700,000 deaths per year in India.

From Report on Tobacco Control in India (2004)

Tobacco use, especially smoking, is associated with vascular diseases. The major constituents of tobacco smoke which are responsible for the cardiovascular effects are nicotine and carbon monoxide. Tobacco use is associated with earlier myocardial infarction (heart attacks) and coronary heart disease-related deaths at an early age. Many of the deaths due to cardiovascular diseases occur at a younger age in India compared to other countries. In India, 42% of the total deaths by 2020 are projected to be due to cardiovascular causes.

Chronic obstructive pulmonary disease (COPD) is a progressive and disabling lung disease, which leads to respiratory crippling and premature death. In India, it affects over 5% of males and 2.7% of females who are over 30 years of age. Tobacco smoking is responsible for over 82% of COPD, which accounts for about 12 million adults suffering from smoking-attributed COPD in India.

Exposure of non-smokers, especially children and women, to second-hand smoke from others is an important cause of respiratory infections, worsening of asthma and poor lung functions.

Tobacco use in any form has marked effects upon the soft tissues of the oral cavity. Tobacco use is associated with oral precancerous lesions such as leucoplakia and erythroplakia. Leucoplakia is the most common precancerous lesion associated with smoking and/or chewing tobacco. Oral submucous fibrosis (OSMF) is emerging as a new epidemic, especially among the youth. In this disease, fibrous bands develop in the mouth, mucosa loses its elasticity and the ability to open the mouth reduces progressively. In extreme cases, victims may be only able to open their mouths enough to pass through a drinking straw. This disease does not regress, has no known cure and has a very high potential for cancer development. The relative risk is almost 400 times that of a non-user. The dramatic increase in OSMF among young people in India has been attributed to chewing gutka and paan masala.

Tobacco use has an adverse effect on the sexual and reproductive health of both men and women. Men who smoke have a lower sperm count and poorer sperm quality than non-smokers. The effects of maternal tobacco use (smoked and smokeless) during pregnancy include decreased foetal growth, spontaneous abortions, foetal deaths, pregnancy complications including those that predispose to preterm delivery and long term effects on the surviving children. Exposure to second-hand smoke during pregnancy has been associated with lower infant birth weight.

It is estimated that the total cost entailed by the major tobacco-related diseases in India, was about Rs 30,833 crores for the year 2001-2002.

2.2 What are the Benefits Of Tobacco Cessation?

Tobacco cessation is an essential component for reducing the mortality and morbidity related to tobacco use. Continuing use may lead to an additional 160 million global deaths among smokers alone by 2050.

However, for the individual user, **personalized reasons for quitting tobacco use** (stated in positive terms) is likely to be a more compelling source of motivation [see Box]. Professionals involved in helping people through tobacco cessation need to be able to discuss these benefits with their clients.

Box: Reasons for Quitting

For Any User

- Feel better and less tired; improve ability to exercise; perform better at work in sports
- Live a healthier life, have fewer illnesses – and more likely to live long enough to enjoy retirement years, grandchildren
- Eliminate smell of cigarettes on body and clothes
- Decrease the following: Chronic sore mouth/sore throat; Hacking cough ; Rough, deepened voice; Shortness of breath; White patches in the mouth, which may be precancerous; Bad breath; Stained, hairy tongue; Stained teeth; Eroded teeth and cavities or gum recession (for users of SMT)
- Improve ability to taste, smell, and feel well
- Save money — money not spent on tobacco products and health services will be available for personal benefit

For Pregnant Women

- Lower the rate of spontaneous abortion and fetal death
- Decrease the risk of having a low birth weight baby
- Decrease the risk of maternal complications

For Parents

- Lower the risk of sudden infant death syndrome
- Decrease coughing and incidence of respiratory illnesses in children
- Decrease ear infections in children

- Become a better role model for children

For Teenage Users

- Show that you are not easily manipulated by misleading advertising
- Feel free of fear of being caught by parents
- Independence; behavior not controlled by nicotine
- Improve appearance, which may make it easier to get a job and/or become more attractive to potential romantic partners
- Money for fun things; doesn't burn money

For New Users

- Quit while it is easier, before habit becomes stronger
- Be more socially acceptable
- Make life less complicated without the distraction and mess

For Asymptomatic Adults

- Cut the risk of heart disease in half; reduce the risk of getting emphysema as much as 6 times; reduce the risk of lung cancer by 90%; have a longer lifespan
- Save cost of tobacco products
- Save cost of health services
- Reduce bad breath; become more socially acceptable
- Have fewer wrinkles and avoid looking older than you are
- Reduce health risks to family, friends, and coworkers

Adapted from Mecklenburg et al., 1998

3.1 Cause of Addiction

Nearly 3000 chemical constituents have been identified in smokeless tobacco (SMT), while close to 4000 are present in tobacco smoke, most of them harmful. Of these, Nicotine is the chemical that makes addicts out of tobacco users. It is a stimulant with properties similar to those of cocaine and amphetamines. Nicotine is 1000 times more potent than alcohol, 10-100 times more potent than barbiturates and 5-10 times more potent than cocaine or morphine in its addictive potential. The addictive effect of nicotine is linked to its capacity to trigger the release of dopamine - a chemical in the brain that is associated with feelings of pleasure. However, recent research has suggested that in the long term, nicotine depresses the ability of the brain to experience pleasure. So, smokers and chewers need greater amounts of the drug to achieve the same levels of satisfaction. Tobacco use is therefore a form of self-medication: further use relieves the withdrawal symptoms, which set in soon after the effects of nicotine wear off.

Nicotine also combines with a number of other neurotransmitters in the brain and may contribute to the following effects: Acetylcholine (Arousal, cognitive enhancement), Serotonin (Mood modulation, suppression of appetite), Norepinephrine (Arousal, appetite suppressant), Vasopressin (Memory improvement), Beta-endorphin (Reduction of anxiety / tension).

A key factor is the compulsion to take the drug experienced by the user. Most tobacco users smoke or use smokeless tobacco on a daily basis. Other indicators of dependence include the time from waking to first use. Among smokers of all ages, 15 per cent light up within five minutes of waking, while almost half of all smokers (46 per cent) smoke within the first half hour of the day. More than eighty per-

cent of smokers who smoke 20 or more cigarettes a day say that they find it difficult to go a whole day without smoking.

Another marker for addiction is the occurrence of withdrawal symptoms following cessation of drug use. Typical physical symptoms following cessation or reduction of nicotine intake include craving for nicotine, irritability, anxiety, difficulty concentrating, restlessness, sleep disturbances, decreased heart rate, and increased appetite or weight gain.

Genetic Influence: Recent research suggests that certain smokers may be predisposed to nicotine addiction through the effects of a gene responsible for metabolising nicotine. Non-smokers are twice as likely to carry a mutation in a gene that helps to rid the body of nicotine. In addition, smokers who carry mutations in the gene, (known as CYP2A6) are likely to smoke less because nicotine is not rapidly removed from the brain and bloodstream. By contrast, smokers with the efficient version of the gene will tend to smoke more heavily to compensate for nicotine being removed more rapidly.

Other factors to consider besides nicotine's addictive properties include its high level of availability, the small number of legal and social consequences of tobacco use, and the sophisticated marketing and advertising methods used by tobacco companies. These factors, combined with nicotine's addictive properties, often serve as determinants for first use and, ultimately, addiction.

3.2 Behavioral and Psychological factors

The second reason why people find it difficult to stop is the psychological dependence upon tobacco use as a means of handling stress or reducing other unpleasant emotions.

The third reason is a learned response to certain environmental/social cues (such as finish-

ing a meal or smoking by others), This can be thought of as an addiction triangle.

Helping people to quit tobacco must therefore address all three arms of this addiction triangle in order to be successful.

Difficulty in quitting: Surveys have shown that the majority of smokers (around 70 per cent) want to stop smoking yet the successful quit

rate remains very low. As little as 3 per cent of those who try to quit succeed in abstaining for as long as a year, using willpower alone. Twenty per cent or less of those who embark on a course of treatment succeed in abstaining for as long as a year. The power of addiction is also demonstrated by the fact that some smokers are reluctant to stop smoking even after undergoing surgery for smoking-induced diseases.

Clinical intervention goals for tobacco users according to degree of dependence and motivation to quit			
		Motivation	
		Low	High
Dependence	Low	<ul style="list-style-type: none"> • Unlikely to stop but could do so without help • Primary goal is to increase motivation 	<ul style="list-style-type: none"> • Likely to stop with minimal help • Primary goal is to trigger a quit attempt
	High	<ul style="list-style-type: none"> • Unlikely to stop • Primary goal is to initially increase motivation to make the user receptive to treatments for dependence 	<ul style="list-style-type: none"> • Unlikely to stop without help but would benefit by treatment • Primary goal is to engage in more intensive treatment

3.3 Who is likely to change? Assessment of people with tobacco abuse.

Whether a user succeeds in stopping depends on the balance between that individual's motivation to stop tobacco use and his/her degree of dependence on tobacco. Clinicians must be able to assess both of these characteristics. Motivation is important because "treatments" to support cessation will not work in those who are not highly motivated. Dependence is especially important in those who do want to stop, as it influences the choice of intervention. It is also important to bear in mind that motivation to stop and dependence are often related to each other. For example heavy users may show low motivation because they lack confidence in their ability to quit; lighter users may show

low motivation because they believe they can stop in the future if they wish. Also, the motivation to stop fluctuates and can vary considerably with time and is strongly influenced by the immediate environment.

Measuring dependence in tobacco users

The simplest approach to measuring dependence is to ask whether the user has difficulty in refraining from smoking or using SMT in circumstances when he or she would normally use or whether the user has made a serious attempt to stop in the past but failed.

Another approach is to use a quantitative measure of dependence like the Fagerstrom test for nicotine dependence (**appendix 2**), which has proved successful in predicting the outcome of

attempts to stop. Patients who quit smoking and relapse within two or three weeks usually do so to relieve withdrawal symptoms secondary to their physical dependence on nicotine. The Fagerström Test for Nicotine Dependence is a standard instrument for assessing the intensity of this physical addiction (¹). The higher the score on this questionnaire, the higher the level of dependence. The Fagerström test helps physicians document the indications for prescribing medication for nicotine withdrawal and craving. While this scale was originally constructed for smokers, a modified version for SMT users also exists.

The main value of measuring dependence in tailoring cessation interventions to individual smokers is in the choice of pharmacotherapy. Smokers of 10 or more cigarettes a day show significantly better results with smoking cessation drug products (principally nicotine replacement therapy and bupropion). However, some experts feel this cut off is arbitrary and all persons who have no specific contra-indication should be given the benefit of pharmacotherapy.

Objective methods such as measurements of the concentration of nicotine or its metabolite, cotinine, in blood, urine, or saliva is often used in research as an objective index of dependence because it provides an accurate measure of the quantity of nicotine consumed, which is itself a marker of dependence. Carbon monoxide concentration of expired air is a measure of smoke intake over preceding hours; it is not as accurate an intake measure as nicotine based measures, but it is much less expensive and gives immediate feedback to the smoker.

Measuring motivation to stop tobacco use

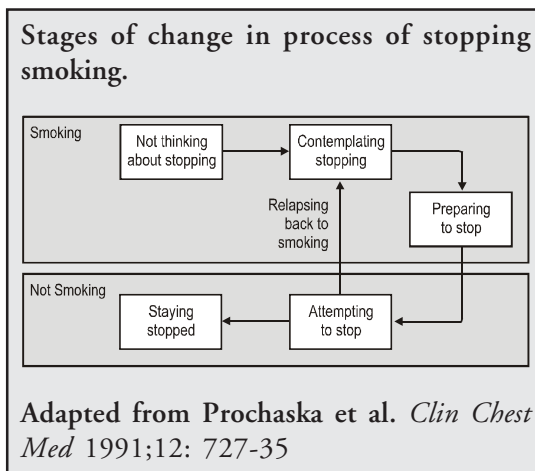
Direct questioning : Motivation to stop can be assessed qualitatively by means of simple direct questions about their interest and intentions to quit. This simple approach is prob-

ably sufficient for most clinical practice, although slightly more complex, semiquantitative measures (asking the smoker to rate degree of desire to stop on a scale from “not at all” to “very much”) can also be used.

Simple qualitative test of motivation to stop	
Do you want to stop smoking (using SMT) for good ?	No/Yes
Are you interested in making a serious attempt to stop in the near future?	No/Yes
Are you interested in receiving help with your quit attempt?	No/Yes
A “yes” response to all questions suggests that behavioural support and/or medication should be offered	

Stages of change:

Another approach, which utilizes the understanding of the process of behaviour change, has become popular: the “transtheoretical model.” In this model, users are assigned to one of five stages of motivation.



This model has been widely adopted, though no evidence exists that the rather elaborate questionnaires for assigning smokers to particular stages predict smoking cessation better than

the simple direct questions outlined above.

Some clinicians use a smoker's degree of motivation to stop as a prognostic indicator of likely success once the quit attempt has been decided. In fact, degree of motivation seems to play a fairly small role in success; once a quit attempt is made, markers of dependence are far stronger determinants of success. The ultimate practical objective of assessing motivation is therefore to identify tobacco users who are ready to make a quit attempt. After that, it is the success of the intervention in overcoming dependence that matters.

4. What has been shown to help users quit?

Tobacco-cessation counseling provided by physicians and other health care professionals have proved to be effective. The key elements of effective intervention include identifying tobacco users, offering consistent and repeated advice to stop in a way that is of personal medical relevance, use of pharmacological adjuncts such as anti-craving medication and nicotine replacement therapy (NRT), follow-up contact, and advice regarding intensive cessation therapy when necessary.

For patients who are unwilling to quit, motivational interventions, including information regarding personal risks associated with smoking and chewing and rewards resulting from cessation are useful. Counseling can be offered at all patient encounters, to both outpatients and hospitalized patients. Similar strategies are used in both smoking and smokeless tobacco-cessation interventions.

There are two broad strategies: One involves focused treatment for tobacco cessation to people seeking to stop or referred from other sources. Trained personnel in specialized cessation clinics usually offer this. The other involves detecting tobacco users opportunistically when they come to the attention of doctors

and health care workers having come for consultation for some other illness. The intervention is typically brief, as it needs to be carried out along with the original treatment sought. But the opportunity to motivate a person to change is high as the concern about his or her health provides the clinician with an excellent "teachable moment". Less intensive interventions, as simple as physicians advising their patients to quit smoking, can produce cessation rates of 5% to 10% per year. More intensive interventions, combining behavioral counseling and pharmacologic treatment, can produce 20% to 25% quit rates in one year.

4.1 Brief interventions in the non-treatment - seeking population

There is good evidence that brief tobacco cessation interventions, including screening, brief behavioral counseling (less than 3 minutes), and pharmacotherapy delivered in primary care settings, are effective in increasing the proportion of users who successfully quit and remain abstinent after 1 year. Minimal clinical intervention consists of brief cessation advice from health care providers delivered opportunistically during routine consultations to smokers whether or not they are seeking help with stopping smoking. Physicians, especially general practitioners (GPs), are in a unique position to influence the many smokers who are not ready to quit as well as to aid the ones who are ready. GPs see patients who smoke at many opportune moments when they are concerned about their health. A GP may see the same patient who smokes over decades.

The components of physicians' clinical intervention in tobacco use in broad terms are provided in the adjoining box.

Knowing the user's stage of readiness to change allows messages to be tailored to the appropriate goal for that patient's condition and facili-

The 5 A's of smoking cessation

Ask every patient on every visit about his or her use status and systematically identify all users. Record tobacco use status prominently, along with vital signs.

Advise strongly all users to quit. Tailor the advice toward the patients' current medical problems and concerns.

Assess the patient's willingness to quit. Ask every user if he or she is willing to make a quit attempt. If the patient is not yet ready to make a quit attempt, provide motivational intervention to promote future quit attempts.

Assist patients in their efforts to quit. Provide nicotine replacement and/or pharmacotherapy as well as teach behavioral strategies to quit, deal with withdrawal and prevent relapse.

Arrange a follow-up close around the quit date to assure the patient that assistance and counseling are available. Arrange subsequent follow-ups to provide support.

Adapted from The Agency for Health Care Policy and Research Smoking Cessation Clinical Practice Guideline. JAMA. 1996.

tate patient movement from the current stage to the next, with the eventual goal being long-term tobacco cessation. This approach has been described as the 5As interventions. The duration of each session of minimal intervention is usually three to five minutes, and certainly less than ten minutes

4.2 Medications and Nicotine replacement

Numerous effective pharmacotherapies for smoking cessation now exist. Except in the presence of contraindications, these should be used

with all patients attempting to quit smoking or smokeless tobacco use:

- A. First-line pharmacotherapies that reliably increase long-term smoking abstinence rates are sustained release bupropion, nicotine gum, nicotine inhaler, nicotine nasal spray and nicotine patch.
- B. Second-line pharmacotherapies including clonidine and nortriptyline, have been identified as efficacious and may be considered by physicians if first-line pharmacotherapies are not effective.

Special consideration, however, is required for certain patient groups among whom one or more of the drugs may have deleterious effects:

- Pregnant/breast-feeding women. No agents are approved for these patients, but pharmacotherapy is less harmful than tobacco use itself.
- Quit attempts without pharmacotherapy — especially in light tobacco users (<10 cigarettes/day or <1 sachet of SMT /day) — are initially preferred.
- Smokers with cardiovascular or pulmonary disease. Although all agents are generally safe, patients with these conditions should be specially cautioned not to use tobacco while using nicotine replacement. Care should be exercised with use of nicotine with patients who have had a recent myocardial infarction, experience severe or worsening angina, or have serious arrhythmias.

4.2.1 Use of Nicotine replacement therapy

Nicotine Replacement Therapy (NRT) is used to relieve withdrawal symptoms in tobacco users when trying to quit by substituting the nicotine in tobacco with nicotine in relatively safer form as they do not contain all the dangerous chemicals present in tobacco. However, it must be made very clear that NRT alone is

not the answer. Behavior modification is an important aspect of any behavior change, especially tobacco cessation. The use of NRT allows individuals to focus on the behavioral aspects of quitting without experiencing severe withdrawal symptoms. After the acute withdrawal period, nicotine replacement therapy is gradually reduced.

Use of Nicotine Gum

Nicotine gum, which is currently available in India, is available in strengths of 1, 2 and 4 mg of nicotine that can be released from a resin by chewing. The gum manufactured in India comes in two varieties a guthka flavored one for pan paraag and guthka users and a mint flavored one for smokers.

Dosage: Scheduled dosing (e.g., one piece of 2-mg gum/hour for light smokers, and 4-mg gum for highly nicotine-dependent smokers is recommended.

Patient Instructions for Nicotine Gum

1. Do not smoke while using the gum.
2. Use one piece of gum at a time and use on a fixed schedule (1 piece/hour).
3. Chew gum slowly until a peppery taste or tingling of the gums occurs. Then, stop chewing and park the gum in between the gums and cheek until tingling stops. Start chewing gum again and repeat the parking and chewing process for about 30 minutes.
4. Do not eat or drink anything 15 minutes prior to and during the use of the gum. Absorption of nicotine in the buccal mucosa is decreased by an acidic environment; thus, patients should not use beverages (e.g., coffee, soda, juice) immediately before, during, or after nicotine gum use.

It is recommended that the gum be started on the quit date when the user is advised to **absolutely stop** all tobacco products and use the gum instead. Duration of treatment is 4-6 weeks. The gum is weaned off subsequently by tapering the frequency and strength of the gum over 2-3 months or less.

At present, other Nicotine replacement therapies such as Nicotine patches and Nicotine inhalers are not freely available.

4.2.2 Use of Bupropion Hydrochloride Sustained Release tablets

Bupropion (an antidepressant agent) has been used along with NRT as first-line therapy for treating tobacco dependence. It is presumed to reduce cravings associated with nicotine deprivation by affecting noradrenaline and dopamine. These two chemicals have been identified as the key components of the nicotine addiction pathway. Taking the drug alone produces higher cessation rates than placebo. In actual practice settings, the combination of bupropion and minimal or moderate counseling has been associated with 1-year quit rates of 23.6% to 33.2%.

Taking it along with nicotine replacement is even more successful.

Dosage : Bupropion treatment is begun 1-2 weeks before the set quit date. The usual adult target dose for bupropion sustained release tablets is 300 mg/day, given as 150 mg, twice daily. There should be an interval of at least 8 hours between successive doses. Dosing with bupropion sustained release tablets should begin at 150 mg/day given as a single daily dose in the morning. If the 150 mg initial dose is adequately tolerated, an increase to the 300-mg/day-target dose, given as 150 mg twice daily, may be made as early as day 4 of dosing. Doses above 300 mg/day should not be used.

The 150 mg twice-daily dosage is continued for 7-12 weeks after quit date and maintenance therapy may go on for 6 months. It is important that patients continue to receive counseling and support throughout treatment with bupropion, and for a period of time thereafter.

Adverse Effects: The medicine may result in an activating effect with feelings of agitation or restlessness that however decreases in 1-2 weeks after starting medication. Insomnia, gastrointestinal upset, appetite suppression and weight loss, headache and lowering of seizure threshold have been reported. (Seizure incidence is 1 in 4000, but incidence is rare with sustained release preparations below 400 mg / day). If insomnia is marked, the night dose should be taken in the late afternoon.

Drug Interactions: It may interact with other antidepressants like Fluoxetine - causing panic and Psychosis. Carbamazepine may increase its breakdown and reduce its efficacy.

Contraindications: The medication is not recommended in people with epilepsy, those taking concurrent psychiatric medications, those with eating disorders like Anorexia Nervosa and Bulimia and in Pregnancy.

4.3 Behavioral methods: Problem-solving and skills training.

The ideal strategy combines pharmacological treatment and behavioral treatment. All users wishing to quit must be provided with practical counseling. Some of the main problems to be addressed and skills that need to be developed include the following:

1. Skills to assist users to make the quit attempt: Review of the participant's tobacco use history and motivation to quit; setting a specific quit date; learning to interrupt the conditioned responses that support tobacco use by self-monitoring and making

plans for coping with temptations to smoke or use SMT following cessation.

2. Skills to deal with problems that may occur immediately after stopping or withdrawal from the effects of nicotine
3. Skills to avoid a lapse or relapse to earlier tobacco using patterns: Help in identification of high-risk situations and cues which lead to tobacco use, and generation of problem-solving strategies to deal with high-risk situations.

These behavioral methods can be taught as part of a brief intervention programme. However, with patients who have very heavy use or have made multiple unsuccessful attempts at quitting, a range of more intensive behavioural methods is often used as part of

- a] Individual counseling or through
- b] Supportive group sessions.

4.3.1 Skills to assist users to make the quit attempt

A. Setting a quit date.

- Help the patient set a quit date, preferably within 2 weeks, but not immediately, unless there is an immediate health crisis. Allow the patient at least a few days to plan for it and tell others about it. The patient should also be helped to draw up a list of personalized reasons for wanting to stop.
- Prompt the patient by suggesting a significant date, for example, a birthday, an anniversary, a holiday, the first of the month, or something else that would keep the date in mind.
- Recommend that they not quit during an anticipated high-stress time. Acknowledge that no time is ideal but that sooner is better than later.
- If a patient's spouse, significant other, or close friend uses tobacco, recommend that

the other person and the patient quit together. If the spouse is not interested in quitting, suggest that the patient arrange to have the spouse help by not using tobacco in the patient's presence.

- *Nicotine fading* techniques may be recommended so that patient is able to achieve a reduction of more than 50% of initial use by the quit date. This involves progressively lowering the number of cigarettes or SMT sachets daily, so that nicotine intake is at the lowest possible level just before the quit date. This is best done after recording when and the way one tends to use tobacco by maintaining a tobacco use diary. The alternative is the *cold turkey* method of giving up all of a sudden on the quit date.
- Advise clients to throw away all tobacco and other items such as ashtrays etc. the night before the quit day dawns, preferably in a *ceremonial gesture*.
- Advise the patient that starting on the quit date, total abstinence is essential. Discuss the possibility of using Nicotine gum as a substitute from that date.
- Note the date selected in the clinic progress record.
- If there are no contra-indications, prescribe Bupropion and build up to the required dosage by the time of the quit date.

B. Overcoming psychological dependence.

Years of conditioning have created habits that cannot be erased easily or quickly. Neurons and neural circuits have adapted to the presence of nicotine over several years of use. Years of regular use have created finely developed behavior patterns and in effect, the individual has become conditioned to use tobacco in certain social settings. It is essential to help the patient identify each of the environmental conditions that most likely lead to tobacco use and then develop a course of behavior that avoids

those conditions or prevents them from occurring. Suggest that the patient develop an alternate plan to having a cigarette during the morning toilet, smoking after a meal, smoking to manage stress at work or in traffic, being in an argument, and so on.

Patients should be encouraged to anticipate when they will be most vulnerable and have a coping response planned and rehearsed. The therapist needs to help the patient draw up a list of such daily circumstances and triggers, which are cued, to tobacco use. The patient is then encouraged to make small changes in his daily habitual activities in order to break the automatic link between these and the cued tobacco use. These can be as simple as doing something different, say drinking two glasses of water before going for the morning toilet. Doing something different forces the person to think and not carry out the usual chain of activity automatically.

Additionally, patients can be advised to make longer term changes in their lifestyle like taking up yoga or an exercise routine.

C. Using past quit experience.

Since most users have tried to quit before, the patient can draw on those experiences. Many times relapse is not due to physical withdrawal. Identify what helped and what hindered previous quit attempts. Was it physical withdrawal symptoms? Feeling sad, bored or upset? A social situation? Help the patient plan how to handle the type of situation that led to the relapse.

D. Anticipating triggers or challenges. [see Box].

Encourage the patient to imagine situations that might lead to relapse. Discuss how the patient might successfully manage each. Encourage practicing responses to feeling, places, and social situations.

E. Avoiding alcohol.

Drinking is one of the most common causes of relapse. Alcohol impairs judgment and will-power. This subject should be raised even if the patient doesn't bring it up. Suggest that alcohol be avoided during the quitting process, especially during the first weeks of abstinence, and used with caution later, especially if the patient drinks where others are smoking.

G. Reviewing and retaining information.

Providing self-help literature allows patients to review what they learned and to learn more as questions arise.

H. Extratreatment social support.

Patients should be encouraged to obtain social support for their treatment from family, co-workers, friends, and others. They will find that reinforcement is usually frequent and positive when such people understand what the patient is trying to do. Conversely, having other smokers in the household is a strong risk factor and

common cause for relapse. Patients should encourage spouses to quit with them or not smoke in their presence.

4.3.2 Skills to deal with withdrawal

Physical withdrawal from nicotine is a temporary condition, but it can cause a fair amount of discomfort while it lasts. Commonly reported symptoms include: Cravings (irresistible urges for tobacco), feeling irritable or cranky, insomnia and fatigue, inability to concentrate, headache, increased cough with postnasal drip and sore throat, constipation, gas, stomach pain, dry mouth and sore tongue or gums and tightness in the chest.

Most people have some of these, but rarely all of them and these discomforts are short-lived.

It is essential to teach the patient coping skills to deal with the irresistible urge to smoke or use SMT [see Box] and the other problems which may be encountered.

Withdrawal Problems Cravings Strongest in the first week. Experienced in waves, individual "cravings" last 30-90 seconds. Begin 6-12 hours after stopping, peak for 1-3 days, and may last 3-4 weeks. As the days pass, the cravings get farther and farther apart. Mild occasional cravings may last for 6 months.	Suggested coping skills The five D's to handle Urges. <ul style="list-style-type: none"> • Delay until the urge passes—usually within 3-5 minutes • Distract yourself • Call a friend or go for a walk • Drink water to fight off cravings • Deep Breaths—Relax! Close your eyes and take 10 slow, deep breaths • Discuss your feelings with someone close to you.
Difficulty in concentrating usually begins within the first 24 hours, peak for the first 1-2 weeks, and disappears within a month.	Taking a break: gazing into a photo or looking out a window; closing eyes and relaxing for ten minutes. Doing different tasks instead of focusing on any one activity for too long. Temporarily putting off work when feeling unable to do it.
Insomnia Trouble falling asleep or disturbed sleep and daytime drowsiness. Troublesome for the first	Avoiding coffee, tea, caffeinated drinks after 6 pm. Drinking lots of fruit juices, and

1-2 weeks, and disappear within a month.	water. Learning relaxation/meditation techniques. Avoiding changes in sleep routine: always getting up at the same time every morning.
Depression and tiredness Mild feelings of depression may occur usually within the first 24 hours, continue in the first 1-2 weeks, and go away within a month	Identifying specific feelings. Is one actually feeling tired, lonely, bored or hungry? Focus on and address these specific needs. Add up how much money you have saved already by not purchasing cigarettes and imagine (in detail) how you will spend your savings in six months. Call a friend and plan to have lunch, go to a movie. Make a list of things that are upsetting to you and write down solutions for them.
Irritability, Restlessness, Anger and Frustration Feeling more “edgy” and short-tempered is common. These peak (stay high) the first 1-2 weeks, and disappear within a month.	Taking short walks or exercising. Having a hot bath, using relaxation techniques. Taking regular 10 minute mental and physical breaks from whatever work one is doing to ...walk, stretch, run. Keeping hands busy, like playing with a rubber band or squeezing a rubber ball.
Increased Appetite and Weight Gain Stronger and more frequent hunger pangs are experienced, and the sense of taste also improves. Weight gain most often due to eating more after is a common but temporary phenomenon.	More physical activities (e.g. take the stairs instead of a lift, park further away from the door to the office/shop etc.). Drinking more water—especially before meals. Eating plenty of fresh fruit—carrying it to work!

4.3.3 Skills to avoid a lapse or relapse to earlier tobacco using patterns:

These interventions should be part of every encounter with patient who has recently quit.

Every ex-tobacco user should receive congratulations on any success and strong encouragement to remain tobacco free. Use open ended questions designed to initiate patient problem solving. “How has stopping tobacco use helped you?” Encourage patients’ active discussion of the following topics:

- Benefits, including potential health benefits, of cessation
- Success the patient has had in quitting,

duration, reduction of withdrawal, etc.

- Problems encountered or anticipated threats to maintaining abstinence eg. weight gain, depression, alcohol, other tobacco users in house

Prescriptive Relapse Prevention: *based on information obtained about specific problems the patient has encountered or likely to, should be delivered during follow-up contact or through a specialized clinic or program.*

High Risk Situations

1. First step: identify high-risk situations. Where they’ve relapsed in past. How would

you answer this question: “If I were to start smoking again on the spur of the moment...” Be specific: where? When? With whom? How you are feeling? Thinking? Doing?

- Next, plan in advance, responses or solutions to cope with these triggers.

Anticipating triggers or challenges	
The urge to smoke after quitting often hits at predictable times. The trick is to anticipate those times and find ways to cope with them—without smoking. Look at the following list of typical triggers. Does any of them ring a bell with you? Check off those that might trigger and urge to smoke, and add any others you can think of:	
<ul style="list-style-type: none"> • Watching someone else smoke • Working under pressure • Feeling bored, angry or sad • Finishing a task • Before starting task • To relax/take a break • To concentrate • While Studying • Talking on the telephone • Having a drink • Watching television • Morning toilet • Finishing a meal • Playing cards • Drinking coffee • Driving your car 	<p>USE THE 4 “A’S”</p> <p><u>Avoid.</u> Certain people and places can tempt you to smoke. Stay away for now.</p> <p><u>Alter.</u> Switch to soft drinks or water instead of alcohol or coffee. Take a different route to school or work. Take a walk when you used to take a smoke break.</p> <p><u>Alternatives.</u> Use oral substitutes like gum, cloves or <i>saunf</i>.</p> <p><u>Activities.</u> Exercise or do hobbies that keep your hands busy can help distract the urge to smoke.</p>

Relapse: If one slips!

Do not be discouraged if your patient slips and starts using again. Remind the person that many former users tried to stop several times

before they finally succeeded.

Encourage the person to recognize that a slip is merely a small setback. One slip need not mean a failure of the attempt or the person’s inability to be a non-user. But it is important to get back on the abstinence track immediately.

Help the person identify the trigger: Exactly what was it that prompted him/her to smoke or use SMT? Once aware of the trigger, help the person plan how to cope with it when it comes up again.

Marking Progress

Each month, on the anniversary of the quit date, advise the patient to plan a special celebration or purchase with the money saved. Encourage the quitter to periodically write down new reasons why he/she is glad to have quit, and post these reasons where they will be sure to be seen.

Follow-Up: After the Patient’s Quit Date

Frequent follow-up of the patient is an important predictor of success. Approximately 40% of smokers who quit relapse after the first year of abstinence. Reinforcement should be provided at every visit because tobacco use is a chronic disease. Steps to take at follow-up appointments after the patient quits include the following:

Data Gathering - Ask patients if they have remained abstinent. Ask patients about problems encountered and how they are managing them. Discussing problems helps identify solutions and makes living with a problem more manageable. Ask about other problems that might be encountered and how the patient might deal with them. This encourages patients’ thinking through circumstances and coping strategies. Invite discussion of benefits and success milestones.

Intervention - Reinforce behaviors that are used to remain abstinent and be positive. Continue to build patients' confidence in themselves as ex-tobacco users. Ask again about their reasons for quitting and continue to reinforce their motives. Determine if the drug therapy selected, if any, is being used correctly and if there are any related problems. Ask how family, friends, and associates are helping or not helping. Recognize if your patient has had any slips or short-term lapses. Assure the patient that he or she has only experienced a small setback and that does not automatically make him or her smoker again. Urge the patient to get back on track as a nonuser as soon as possible to avoid further lapses. Help him or her to identify what triggered the lapse so that he or she will recognize the signs next time and know how to cope.

5. A suggested clinical protocol

During the first visit:

Ask for tobacco use, assess and record levels of dependence and motivation to stop. Advise the patient to take up a programme of tobacco cessation, tying in the advice with his/her current medical problems or other relevant tobacco related concerns.

If the patient is currently unwilling, discuss the roadblocks and prepare to discuss the issue on further visits.

If the patient is willing:

1. Plan a Designated Quit Date [DQD] within the next 2 weeks
2. Start the patient on increasing doses of Bupropion and discuss the use of Nicotine chewing gum or other NRT following the DQD.
3. Outline the steps to be taken to decrease

tobacco (nicotine dosage) to less than 50% of current usage before the DQD.

4. Detail the changes in daily habits and in general lifestyle that the patient is advised to start before the DQD.
5. Explain the likely withdrawal symptoms and strategies to cope with them. Persuade the patient to agree on implementing one or more of these.
6. Advise about getting support from persons close to the patient. If possible the patient could be asked to get in touch telephonically whenever his abstinence is threatened.
7. Schedule the next follow-up visit, close to the DQD.

During the second visit:

1. Check on usage of medications and side effects if any. Start the patient on NRT giving written details regarding use.
2. Review information on withdrawal symptoms and coping strategies.
3. Educate about relapse triggers and skills to deal with them
4. Reinforce the patient's motivation to continue with the cessation plan
5. Schedule the next follow-up visit, preferably after a week.

During subsequent visits (preferably weekly for the next one month and then at increasing intervals):

Check on medication and NRT. Review problems faced regarding relapse triggers or slips and advise accordingly. Always reinforce the patient's continuing in his cessation attempt and deal with any lapses or slips in a positive and empathic manner.

Suggested Reading

1. Ray R, Mondal AB, Gupta K, Chatterjee A, Bajaj P (2004) The Extent, Pattern and Trends of Drug Abuse in India: National Survey. New Delhi. United Nations Office on Drugs and Crimes & Ministry of Social Justice and Empowerment, Government of India.
2. Rani M, Bonu S, Jha P, Nguyen SN, Jamjoum L. (2003) Tobacco use in India: prevalence and predictors of smoking and chewing in a national cross sectional household survey. *Tobacco Control*. 2003 Dec;12(4):e4. Available at: <http://tc.bmjournals.com/cgi/content/full/12/4/e4>. Accessed on 14 May 2005.
3. Global Youth Tobacco Survey (GYTS) Country Factsheets, India (by year of completion and state). Centers for Disease Control and Prevention, Atlanta. Available from URL: <http://www.cdc.gov/tobacco/global/GYTS.htm> (GYTS/factsheets/pdf_files/india)(accessed on 30 September 2004).
4. Ezzati M & Lopez AD (2004) Regional, disease specific patterns of smoking-attributable mortality in 2000. *Tobacco Control*;13:388-395.
5. National Cancer Registry Programme (NCRP). Two year report of the population-based cancer registries, 1997-98. Bangalore: Indian Council of Medical Research, Coordinating Unit, NCRP; 2004a.
6. Heatherton TF, Kozlowski LT, Frecker RC, Fagerström KO. The Fagerström Test for Nicotine Dependence: a revision of the Fagerström Tolerance Questionnaire. *Br J Addict* 1991;86:1119-27.

Suggested slides for OHP

1. Smoking- beedi & cigarette smoking common
Smokeless- chewing, gargling (paan masala, gutka)
2. Prevalence- 55.5% males (age 12-60 years) use tobacco
 - 2.4% women smoke: 12% chew tobacco
 - prevalence low in women- social unacceptability

3. Consequences of tobacco use

- Relative risk of death due to tobacco use is high
- Smoking causes more than 700,000 deaths/year in India
- Tobacco related cancers constitute more than half of all cancers in India
- Cardiovascular, cerebrovascular and respiratory afflictions common with tobacco use
- Oral Submucous fibrosis common with chewing tobacco

4. Nicotine dependence

Nicotine release dopamine- reinforces its use
Release other neurotransmitters- reinforces its use
Behavioural & psychological factors contribute to dependence

5. Measuring dependence

Fagerstrom test for nicotine dependence

- Available for smokers & smokeless tobacco
- Higher scores- greater dependence

6. Measuring motivation

- Direct questioning
- Assessing the stage of change

7. Management

Brief Intervention

- Useful in non treatment seekers
- Can be practiced in short time
- Useful for motivated individuals

Nicotine Replacement (Nicotine gum, patches, inhalers)

- Relieves withdrawal symptoms
- Safe & behaviour modification also required

Bupropion hydrochloride SR tablets

- reduces craving
- Begin 1-2 weeks before the set quit date
- 150 mg single dose
- to continue for 7-12 weeks after quit date
- maintenance therapy for 6 months
- seizures at very high doses only
- if tolerated, increased to 150mg b.i.d after 4 days

Behavioural methods

Learning skills like self monitoring & coping with craving
Skills to deal with withdrawals
Skills to avoid a lapse /relapse
Individual/group sessions also useful

8. Avoiding alcohol use

Regular follow up and marking progress
Enhance motivation & confidence

Intervention with Treatment Non Seekers

12

Manoj Kumar Sharma, Deepak Yadav

Summary

Treatment non-seekers constitute a large number of the substance using population. Reasons for not seeking treatment are multiple and vary from individual to individual. Numerous studies have focused on the socio-demographic profile of these individuals and reasons for not seeking treatment. The process of bringing this population into the treatment program is of paramount importance as they form a large number in the community. This chapter highlights their characteristics and ways to engage in the treatment process.

Introduction

Treatment refers to a variety of activities and processes that aim at helping individuals with drug related problems. Various characteristics have been associated with treatment seeking individuals. It includes stable socioeconomic status, married, 30-44 year age group, religious affiliation and history of abstinence in past. Self-recognition of substance related problems, occurrence of negative events and conscious and informal advice or suggestion by others are other reasons cited by treatment seekers. However, treatment seekers do not constitute a significant proportion of alcohol users. Available reports suggest that only 2% of total alcohol users report to treatment as late as five years after the onset of use and only 27% had ever reported to any organization for help.

Definition of Treatment
Characteristic of Treatment Seekers

Trends of non-treatment seeking alcohol users

Studies suggests that the lifetime prevalence of at-risk drinking and alcohol abuse may be as high as 35% and the frequency of problem drinking as high as 10% in primary care settings. The estimated ratio of untreated to treated individuals' ranges from 3:1 to 13:1. Even among the patients seen by the primary care physician, less than half were recognized as alcohol abusers. The majority of individuals with alcohol use / abuse do not enter treatment and there exists a pressing need to understand factors that people perceive as barriers to seek help.

In general population surveys, respondents who had ever had an alcohol problem reported several reasons for not seeking treatment: 96% thought they could handle it on their own, 84% did not think their problem was serious enough and 56% said they did not want help. Alcohol abusers in treatment or who sought advice about their drinking have also reported delaying seeking treatment because they felt their drinking was not a problem or was not serious enough to warrant attention. The stigma associated with the alcoholism or admitting to being an alcoholic has been another reason they gave for not wanting to enter treatment. Patient report feeling of being ashamed and a belief that treatment does not help as reasons for not seeking treatment. Denial may be prevalent among persons with alcohol use disorders and it is the most commonly cited reason for failure to seek treatment. The Rapid Assessment Survey (2004) cited difficulty in

obtaining help from a treatment centre, not being aware of treatment facility, not needing treatment and a belief that treatment was not possible as reasons for not seeking treatment.

These barriers have also been linked to various socio-demographic characteristics. It includes lack of a stable job and having no issue or family responsibility and a low socioeconomic status (inability to afford transport expense or buy prescription drugs). Women (less likely to be referred by conventional routes, not being able to arrange for care of child, stigma, drinking as a manifestation of other interpersonal problem), youth (denial, fear of losing a job, not wanting to go for treatment, not having time for treatment) and being homeless are the other groups who do not seek treatment.

Identification of treatment non-seekers

Identification of treatment non-seeking persons with alcohol use / abuse is especially important in developing countries.

Primary Care setting
Characteristic of Treatment Non-Seekers
Barriers to treatment

Intervention in Primary Health Care

Primary care physician are in a unique position to identify and treat patients with 'at risk drinking' and alcohol related problems. Providing treatment – either directly or by referral to specialized services logically follows the process of screening and diagnosis of alcohol problems. Counseling is one of the approaches to prevent relapse.

Counseling based nonpharmacological treatment strategies have been studied extensively for the care of patients who are 'at risk' for alcohol problems. These approaches are based on the principle and process of behavioral change and typically involve the type of coun-

selling that can be used by the primary care physician. The important components of interventions are:

- Identification / Screening
- Interventions
 - Brief intervention
 - Community Reinforcement Approach
 - Contingency Management Intervention
 - Specialized Group
 - Women
 - Adolescent
 - Homeless Addict

Identification and Screening Treatment Characteristics

Identification / Screening: Primary care physicians need to ask all patients about current and past alcohol use "Do you currently or have you ever used alcohol?" quickly identifies those patients who are not lifetime abstainers and who require further screening. In addition, given the importance of family history as a risk factor for alcohol problems, it is important to ask all patients about alcohol use in their families. Among patients who use alcohol, the next step is to obtain a detailed history regarding quantity and frequency of current and past alcohol use. Screening instruments in the form of AUDIT, SMAST and CAGE could be administered to detect alcohol abuse and dependence. (Appendix 3, 4, 5)

Treatment Approaches :

Education Programme: Group or street meetings and pamphlet distribution help to reduce stigma, enhance awareness about alcohol abuse, treatment approaches, cost and its availability.

Brief Intervention: It is most intensively studied in primary care setting. These counseling sessions are short (5-20 minutes) and focused.

They incorporate four components namely motivational techniques, feedback about the problems associated with alcohol abuse, discussion of adverse effects of alcohol and setting drinking limits. These interventions have been found to be effective in motivating the treatment non-seekers into treatment.

Community Reinforcement Approach (CRA)

The over reaching goal of CRA is to rearrange and improve the quality of the reinforcers obtained by patients through social, recreational, vocational and family activities. Community Reinforcement approach has been adopted to assist the significant others of treatment resistant problem drinkers by encouraging the drinkers to enter treatment. The CRA intervention includes education about alcohol problems, information and discussion of the positive consequences of abstinence from alcohol, assistance involving the designated client in healthy activities, increasing the involvement of the significant other in social and recreational activities and training the significant others in how to respond to drinking episodes. Several studies on this topic suggest greater efficacy of the CRA approach compared with more traditional approach involving confrontation. The majority of designated clients whose families received the CRA intervention entered treatment and decreased their problem drinking.

Contingency Management Intervention: It involves the explicit and direct application of the conditioning principle of reinforcement and punishment to increase desired behaviour or to decrease problematic ones. It has three components: an objective, an observable target mode of behaviour that must be increased or decreased and tangible consequences that can be delivered promptly and reliably by a treatment provider upon display of the target response. Research has shown that contingency management intervention can be used to mo-

tivate or increase the participation of treatment non-seekers into treatment.

Specialized Group

Besides using the above-mentioned component of intervention, specific guidelines can be used for women, adolescent / children and the homeless addict.

Women:

Women are more likely to seek treatment initially from medical doctors or from psychiatric facilities for alcohol related problems or psychological difficulties associated with drinking. Further, there is evidence that physicians are less effective in identifying alcohol abuse in women. There is a need to sensitize the primary physician to diagnose, refer and treat women with alcohol problems.

The main component of intervention

- Education material targeting stigma, social support and health consequences.
- Educating Primary care physician on screening and detection of alcohol problems.
- Screening and referral information should be provided in women's health clinic, pregnancy and family planning clinics.
- Improve the availability of services for children
- Availability of childcare services while women participate in treatment.
- Provide assessment, referral and treatment of behavioral problems in children.
- Outreach services to women at risk for drinking should be improved and out reach workers specially educated on screening and treatment referrals for alcohol problems in women.

Children and Adolescents:

Alcohol consumption is a major contributor to adolescent morbidity and mortality. Forty to fifty percent of adolescents who died as a result of violent event (i.e. traffic accidents and homicides) were found in post mortem investigation to have drunk alcohol. Children and adolescents who use substances often show high risk behaviours.

- **Intervention**

Education about the health hazards of substance use. It may include conducting school program or sensitizing the parents about the risk factors for substance use in parent teacher meeting.

- Proceed according to the severity of problem
 - Substance use once or twice in a year: focus should be on awareness building about drugs.
 - Consumption has been frequently reported: There should be regular visit and therapeutic intervention.
- Individual Therapy

Children and adolescents with co morbid psychiatric disorder should be taken for individual therapy. Therapy can focus on improving social skill training, coping behaviour and communication training.
- Family involvement

It involves the family for motivating the patient to seek treatment, planning rehabilitation and compliance to treatment.

Homeless Addicts

The problem of homelessness has worsened markedly in recent years. The main components of interventions are

- Enhancing awareness about substances among homeless addicts / in shelter homes.
- Community Reinforcement Approach
- Brief Intervention.

National Drug Dependence Treatment Centre (NDDTC, AIIMS) experience

A group using alcohol is identified through patients / family members attending community clinic or by social scientist visiting the community. A group generally constitutes 20-25 members comprising mostly women and older age group. They act as catalysts in motivating the treatment non-seekers. Psychiatrist, psychologist, social scientist and psychiatric nurses conduct group sessions. A session includes identification of senior members as group leader to mobilize interaction and discussion focused on characteristics of alcohol abuse, psychosocial problems, benefits of treatment, pamphlet distribution, clarifying their misapprehension and sharing of experiences for alcohol free life style. These sessions have a positive impact on treatment seeking behaviours. Every meeting is being able to motivate 3-4 alcohol abusers into treatment.

Conclusion

Barriers to treatment must be addressed if we want to encourage the greater population of untreated substance user to enter treatment. These barriers might be reduced by a change in public perception of problem, the role of treatment, family role, and community involvement to motivate substance users or by how and where treatment is being offered. Although this chapter deals largely with work done with the alcohol abuser, the principles of treatment remain the same for all categories of substance abusers.

Suggested Reading

1. Fergusson DM and Horwood LJ (1998). Psychiatric disorder and treatment seeking in a birth cohort of young adult. Report prepared for Ministry of Health from the Christchurch Health and Development study. Department of Psychological Medicine, Christchurch School of Medicine, New Zealand.
2. Fiellin DA, Reid MC and O'connor PG (2000): New therapies for alcohol problems : application to primary care. *Am J. Med.* 108, 227-237).
3. Heather N (1990). Brief intervention strategies. In RK Hester and WR Miller (Eds.) *Handbook of alcoholism treatment approach. Effective alternatives*, New York, Pergamun Press pp. 93-116.
4. Higgins ST and Silverman K. (1999): *Motivating Behaviour Changes among illicit drug abusers: Research on contingency Management Interventions*. Washington, D.C., American Psychological Association.
5. Meyers RJ and Miller WR (2001): *A Community Reinforcement Approach to Addiction treatment*. Cambridge, UK: Cambridge University Press 40-45.
6. Miller WR, Sovereign RG and Krege B (1988). Motivational interviewing with problem drinkers. The drinker's checkup as a preventive intervention. *Behavioural Psychotherapy*, 16 : 251-268.
7. Moos RH, Finney JW and Crunkite RC (1990). *Alcoholism treatment context, process and outcome*. New York Oxford University Press.
8. Pal H, Jena R and Yadav D (2004). Validation of alcohol use disorder identification in urban community outreach and de-addiction. *Center samples in North India Journal of studies on Alcohol*, 40; 794-800.
9. Roizen R (1977). Barriers to alcoholism treatment. Berkdey CA. *Alcohol Research Group*, pp. 30-34.
10. Sobell LC, Sobell MB and Toneatto T (1991). Recovery from alcohol problems without treatment. In: Heather N, Miller WR, Greeley J (Eds). *Self control and addictive behaviours*. New York, Maxwell Macmillan, pp. 198-242.
11. Sobell MB and Sobell LC (1993). Treatment for problem drinkers- A public health priority. In JS Boer, GA Morlatt and RJ McMohan (Eds). *Additive behaviorus across the life span: Prevention, treatment and policy issues*. Beverly Hills CA, Sage Publication, pp. 34-36.
12. *The Extent, Pattern and Trends of Drug Abuse in India. National Survey (2004)*. Sponsored by Ministry of Social Justice and Empowerment, Government of India and United National office on Drug and Crime. Regional Office for South Asia, pp. 19-36.
13. Thomas B (1986;). Sex difference in help seeking for alcohol problems. The barriers to help seeking. *British Journal of Addiction*, 81: 777-788.

Suggested slides for OHP

Slide 1 Definition

Treatment refers to a variety of activities and process that aim at helping individuals with alcohol related problems.

Slide 2 Characteristics of treatment seekers

- Self recognition of substance related problems
- Occurrence of negative events
- Coercion
- Informal advice or suggestion by other
- Good Socio-economic status
- Married
- Age group 30-44 years.
- Past H/o of abstinence
- Religion affiliation

Slide 3 National survey

- Treatment seekers constitute 2% of the total alcohol abusers
- Reported for treatment as late as five years after onset of alcohol/drug user
- 27% had ever reported to any organization for helps

Slide 4 Treatment nonseekers

- Ratio of untreated to treated individual- 3:1 to 13:1
- Frequently seen in hospital emergency/crisis center / medical practitioner.
- As many as 12% of patients seen by primary care physician
- Fewer than half of these recognized as alcoholic

Slide 5 Sociodemographic characteristics of non-seekers

- Stable job
- Having no issues / lack of family responsibility
- Low socioeconomic status
- Women
- Youth

Slide 6 Reasons for not seeking treatment

- Stigma
- Did not think their problem was serious
- Thought they could handle it on their own
- Did not want to admit that they needed help
- Drinking was not a problem.
- I did not think to seek help.
- Problem would get better by itself.
- Ashamed to admit problem
- Treatment does not help
- Difficulty in obtaining help from treatment center
- Not aware of treatment facility
- Treatment was not possible

Slide 7 Intervention

- Identification/Screening
- Intervention
- Brief Intervention
- Community Reinforcement Approach
- Contingency Management Intervention
- Specialized Group
- Women
- Adolescent
- Homeless Addict

Slide 8 NDDTC experience

- Identification of groups abusing alcohol (through patient, family member or visit by social scientist).
- Visit by consultant, Psychologist, Social Scientist and Psychiatric nurse to community.
- Group constitute 20-30 persons
- Identification of senior member of group as leader (village pradhan)
- Group session focus on alcohol use, psychosocial problem and benefits of treatment)
- Pamphlets distributions/sharing of experiences entertained,
- Positively correlated with treatment entry.

Role of Laboratory Services in Substance Use Disorder

13

Raka Jain

Summary

While clinical assessment forms the cornerstone of diagnosis and management of substance use disorders, laboratory investigations can aid in helping the clinician in this endeavor. Laboratory provides an objective way of assessing drug use and monitoring progress, treatment compliance, as well as assisting law enforcement agency.

While the availability of newer techniques have definitely benefited this field, the older techniques are relevant on account of their low cost and easy applicability, especially in the context of primary care. The present chapter gives an overview dealing with the need for laboratory testing, the type of samples and techniques used and their application in clinical field.

Introduction

The abuse of psychotropic substances and narcotics has become a major problem of our times, with high economic and social costs. The pattern of drug use varies from time to time depending on the availability of new illicit drugs. The problem of drug abuse is of concern to health professionals, clinical chemists, toxicologists and regulatory authorities.

WHY TO TEST

A valid assessment of drug consumption is critical for evaluating substance abuse treatment programs and treatment outcome data. Self-reported drug use is a principle measure in the evaluation of treatment outcome. Drug dependent subjects tend to falsify their pattern of

drug use. Deception, denial and minimizing the extent of drug use are common practices seen among drug addicts. They often fear that reporting their activities correctly may result in legal sanctions or denial of treatment. There have been concerns about the accuracy of self-reporting. It is therefore necessary to establish its validity by an independent objective method.

Currently, drug testing in body fluids has gained popularity for validating self-reported drug use. Such analysis helps to diagnose, plan intervention, and monitor progress following treatment and also provides an epidemiological data in studying patterns of drug abuse. Thus, laboratory has a very important role in substance abuse testing program.

WHEN TO SCREEN FOR DRUG ABUSE

Determining when to suggest the need for a drug screening is a difficult matter. Several physical, behavioral or emotional patterns in the patient may suggest the need for screening. For instance, deterioration in academic performance, conduct or antisocial disorders such as repetitive lying, stealing, recurrent violence towards people, may suggest the need for screening. Serious depressive or biphasic mood disorders, unexplained fatigue in a person where life is deteriorating, chronic vasomotor rhinitis, seizure disorder or coma of unexplained etiology are also indications of drug use. Periodic urine testing for drugs of abuse is often recommended for drug addicts who are under treatment or in maintenance program. In recent years, substance abuse testing

programme have also been extended outside the De-addiction Treatment Centres and is currently used as a part of pre - employment physicals and for monitoring drug in employees in a variety of industries and government agencies.

ANALYTICAL ISSUES

Biological Specimens

Many biological specimens can be used for drug abuse testing. Among all the biological samples, urinalysis is a favored method for self-reported drug use in a clinical setting, although alternative specimens such as blood, oral fluid (saliva), sweat and hair and fingernails have also been used. Each specimen has its own advantages and limitations.

Urine specimens are preferred for mass screening as large sample volumes can be collected non-invasively. Drugs and their metabolites generally remain detectable in urine from several hours to several days especially in chronic users. The concentration of a drug in urine depends on a number of factors. In general, drug concentrations in urine vary with dose, route of administration, time elapsed since administration, and the individual's physiological status, which influences urine flow, urine pH and metabolism. Moreover, urine has a simpler matrix than other biological specimens, which simplifies its sample preparation and analysis. Before carrying out a urine test, it is essential to ensure that urine specimen being tested is actually from the patient who is being assessed as urine specimens can easily be tampered with by substitution, dilution or adulteration.

Blood samples can be used alternatively to detect drugs or their metabolites. The half-life of drugs in blood is short, making blood specimens less useful for routine drug screening (though a high concentration of active drug will suggest recent usage). The major concern

is the invasive nature of the collection process. Also the cost of collection and analysis is greater.

Saliva analysis is a developing technology, particularly the sample collection is relatively quick, noninvasive and the matrix has the potential to provide both qualitative and quantitative information. It is less prone to adulteration than urine but drug concentrations are lower as compared to urine, and require more-sensitive test methods. A major disadvantage of saliva drug testing is the high risk of contamination and false positives by oral and nasal routes. Also, drugs are only detectable for one to two days. It is not considered economically viable or practical for continuous drug use monitoring.

The sweat patch, although accurate in the testing for drug use, has one major flaw. The collection process is quite lengthy, in that the donor must have the patch applied, wear the patch for 10 days to two weeks, and then have the patch removed and sent to a laboratory for analysis. Sweat patches are being considered for use in drug-compliance programs.

Unlike urine testing, hair testing can detect drug use for a much longer period. The standard hair test will detect drug use for up to three months. The greatest advantage of hair testing is the ability to create a permanent record of drug use in the strand (shaft) of the hair. No convenient screening procedures for the measurement of drugs in hair exist, and hair tests lack the sensitivity of urine tests for occasional or single-time drug use.

Fingernail specimens can also accurately detect drugs of abuse. The overwhelming disadvantage is the inability to detect recent drug use. Most fingernail clippings are between five and six months old by the time they can be obtained and would give very little insight as to recent use of drugs. Fingernail use is, however, gaining acceptance in the postmortem setting.

Table I. A comparison of the types of samples that can be used in drugs-of-abuse testing.

Sample	Advantages	Disadvantages
Blood	<ul style="list-style-type: none"> • Difficult to adulterate 	<ul style="list-style-type: none"> • Short half-life of drugs • Low drug concentrations
Hair	<ul style="list-style-type: none"> • Potential for long-term assessment of drug use 	<ul style="list-style-type: none"> • Requires difficult analytical procedures • Drug deposition not uniform among hair types • Testing is expensive
Saliva	<ul style="list-style-type: none"> • Difficult to adulterate 	<ul style="list-style-type: none"> • Low drug concentrations • Difficult to get large volumes for confirmation
Sweat patch	<ul style="list-style-type: none"> • Can monitor accumulated drug use for 3–7 days 	<ul style="list-style-type: none"> • Requires difficult analytical procedures • Difficult to get large volumes for confirmation • Environmental contamination possible
Urine	<ul style="list-style-type: none"> • Noninvasive • Available in large volumes • Remains positive 2–3 days 	<ul style="list-style-type: none"> • High adulteration potential when collection not witnessed

Specimen Collection and Transportation

A major issue in the drug abuse testing programmes is proper sampling, as the validity of test results is dependent on the integrity of the specimen being collected. Adulterating or diluting the specimens is a common practice by patients attending the de-addiction services. Common contaminants include sodium hypochloride, table salts, lemon juice, vinegar, ammonia water, soap solutions or caustic compounds, eye drops and all of these may interfere in testing. It is therefore very important to take the following precautions at the collection site, before the sample is sent for testing to the laboratory:

- i) Container or specimen bottle must be clean, dry, unbreakable and leak proof.
- ii) Urine sample should be collected under close supervision of trained personnel who have a clear understanding of the

collection process and its significance for the laboratory results.

- iii) There should not be any provision of sink or hot water in the toilet. If possible, a toilet bluing agent should be placed in the toilet bowl to deter specimen dilution.
- iv) The staff at the collection site should check the temperature of the urine sample immediately after voiding. A freshly voided urine should have a temperature close to body temperature i.e 33° C- 36° C and the urinary pH should range between 4.6 and 8.0. If adulteration is suspected the laboratory should be notified.
- v) Minimum volume of urine to be collected should be 30-60 ml.
- vi) Each specimen must be clearly labeled with patient's name, date, time, and identification number to prevent intentional or inadvertent confusion.

- vii) The person supervising the collection site should notify the date, time of collection of the specimen on the drug screening requisition form. It is also important for the personnel at the collection site to sign on the drug requisition form to ensure the integrity of the specimen.
- viii) Each specimen should be properly sealed and transported to the laboratory to avoid pilferage. Each sample should be accompanied with the drug abuse requisition forms containing the details of investigations required with adequate clinical history.

Sample Storage

Proper storage of samples is also important in drug abuse testing programs. If the samples are left at room temperature for long before analysis, their pH value get altered. It changes from acidic to basic and bacterial decomposition occurs, which increases the chances of false negatives. In general, sample should be refrigerated within 12hrs of their collection preferably at -20°C . Barbiturates, amphetamines and cocaine are unstable at room temperature. Samples brought from offsite laboratories should be transported in an ice bath. Ideally, quick transport and short period of storage can significantly contribute to the quality of results.

Methodology for Detection

Analytical Techniques

Large selection of procedures are available for analysis of drugs of abuse. The specific method chosen by a laboratory will depend upon many factors that include nature and quantity of specimen, turnaround time, sensitivity required, existing facilities, available manpower, workload, program needs and economic considerations.

Drug abuse testing is a two-step process; pre-

liminary screening followed by confirmatory analysis of the prescriptive positive and doubtful results. Analytical methods used in most laboratories for the detection of drugs are so selected as to meet the requirements for screening and confirmation. A screening test should be able to identify potential positives and should be sensitive, rapid and inexpensive whereas the confirmatory tests should be more specific than screening test. Screening test generally involves immunoassays and thin layer chromatography (TLC). Confirmation testing is the second step of testing following the detection of a positive result on the preliminary or screening test. The purpose of confirmation is to eliminate any false positive results or false negative results that may have originated from an initial screening process. More specific confirmation tests used to identify drugs of abuse are chromatographic techniques like gas liquid chromatography (GLC), high-pressure liquid chromatography (HPLC) and gas chromatography-mass spectrometry (GC-MS). A detailed description of each technique is beyond the scope of this chapter.

i) Competitive Immunoassays:

The most common analytical approach to urine drug screening is the use of competitive immunoassays, in which specific antibodies bind to targeted chemical atoms and functional groups. A fixed amount of labeled drug material from the test kit (marked with a radioactive substance, enzyme, fluorescent tag, or colored particle) competes for antibody binding sites with the variable amount of unlabeled drug in the urine sample. When the binding sites are saturated, the amount of either free or bound labeled drug is measured. For a bound-labeled drug, low sample-drug concentration will produce a high analytical signal; high concentration will produce a low analytical signal.

The most commonly employed immunoassays used for urine screening include methods such as radioimmunoassay (RIA), enzyme immunoassay (EIA), and fluorescence polarization immunoassay (FPIA). Each method has its own advantages and limitations. The principal advantages of the immunological assays are ease of sample handling, rapidity of analysis and high sensitivity. These techniques do not require preliminary sample processing. Technologists can also be trained easily. Radioimmunoassays can detect very small concentration of drugs. Its sensitivity ranges between 1-5 nanogram per ml. Disadvantages include the use of radioactive substances, separation of free and bound fractions, high cost of reagent, high cost of equipment, relatively slow turn around time, linearity of response and cross-reactivity with other drugs which may produce both false positive and false negative results.

The enzyme immunoassay has a short analysis time and has an additional advantage of being a homogenous assay, requiring no separation step for free and bound fractions. It is less sensitive than RIA but has moderate to good sensitivity. The disadvantage of this technique is the cost of the reagents. Other problems include difficulty with linearity of response and cross reactivity with other drugs.

FPIA is also a homogenous assay technique. It does not require physical separation step. Advantages of this technique are its ease of operation, speed and high sensitivity. The limitations of this technique are its expensive reagent costs and the limited sources from which they are available.

The most serious limitations of all immunoassays are that specificity for a drug is not absolute. Drugs of similar chemical structure may cross-react. For this reason, all negative results may be considered reliable and all the positive results may be considered ambiguous and must

be confirmed by another non-immunological method such as TLC, GLC or HPLC etc. Also these assays do not differentiate between drugs in these classes and may cross-react with related therapeutic substances. For example codeine and poppy seeds may lead to false-positive opiate results and decongestants such as pseudoephedrine and phenylpropanolamine may lead to false-positive test for amphetamine.

The interferents do not produce a false-positive result with the chromatographic assays now employed for confirmation—a justification of the two-tiered approach to drug testing.

ii) Chromatographic Technique

All chromatographic methods in use today are based on a common principle. There are in the system two phases. One of them is stationary which may be solid or liquid on an inert support having a large surface area and other a mobile (moving) phase which may be a liquid or a gas. The compounds to be separated are differentially attracted to the stationary phase because of variation of their physiochemical properties. This distinctive influence is manifested by different distance migrated. The compounds which are less strongly held by the stationary phase would tend to move faster in mobile phase and vice-versa. Identification of a compound is achieved by comparing the distance traveled by the pure known standard against the distance traveled by the unknown compounds from the biological samples (R_f) or by comparing the time taken to migrate a specified time (retention time) of pure known standard with that of unknown sample. There are various types of chromatography depending upon the stationary and mobile phase.

Thin Layer Chromatography (TLC)

It is widely used for multiple drug screening programs. It requires pH dependent extraction

followed by purification and concentration of the drug from a biological sample. We found TLC to be very effective for preliminary screening of opiates and other drugs. It offers the advantages of low start up cost, relatively rapid analysis, and simultaneous determination of multiple drugs and metabolites. Identification of drug is based on Rf values in various solvents and color reaction following specific spraying reagents. Drug concentrations as low as 0.3- 1.0 microgram per ml can be detected with proper sample preparation, which may require hydrolysis of conjugated drugs and metabolites. The technical staff can be trained in two months time. A single technician can handle 30-40 samples per day in 8 hours. TLC has a fair degree of specificity and sensitivity; hence drugs having identical Rf values overlap and obscure one another resulting in false positives. In such circumstances, use of multiple solvent systems aid in the differentiation and confirmation by an alternative technique such as HPLC or GLC is recommended. Some disadvantages of TLC are that it is labor intensive and results are highly dependent on the technician's skill as interpretation of results is subjective.

Gas Liquid Chromatography (GLC) and High Pressure Liquid Chromatography (HPLC)

GLC and HPLC are widely used for confirmation of presumptive positive and doubtful results in screening assays. Both techniques are highly sensitive and specific and are used for qualitative and quantitative purposes. Identification is based on the retention time (Rt). Detection limit is about 0.1 µg/ml. The main limitations of these techniques are intensive sample preparation, the capacity to analyze a single sample at a time, the expense of the equipment and highly trained personnel to operate and interpret the data.

Gas Chromatography-Mass Spectrometry (GC-MS)

In recent years, the most sophisticated drug testing approaches is gas chromatography coupled with mass-spectrometry (GC-MS). This technique combines the efficient separating power of gas chromatography with the high sensitivity and specificity of mass spectrometric detection. It can detect nano to pico grams of drugs, per milliliter concentration of samples. It offers an insight into molecular structure and makes unequivocal identification possible. It is most sensitive, specific of all the methods available for confirmation and quantitation of drugs and their metabolites in biological samples. It is considered as the "gold standard" test. It is the method least likely to be challenged in court and should be considered essential in national program at the nodal De-addiction centres. Components are chromatographically well resolved and are quickly identified using retention time and mass spectral information.

The use of GC-MS or LC-MS is limited by virtue of being an expensive equipment to buy and maintain, lack of technical expertise needed for operation and interpretation of the data and complex sample preparation.

Detection Periods

The length of time that the presence of drugs of abuse in the body can be detected is an important factor in drug screening. Table II outlines approximate time of detection of drugs in different body fluids. This time duration depends on several variables including amount and frequency of usage, drug tolerance, age, body mass, the body's metabolism, the subject's physical condition, urine pH and state of hydration. Moreover, the detection of the drug would also depend on the type of technique adopted by the laboratory.

Table II. Detection of drugs in biological specimens

Substance	Urine	Hair	Blood
Alcohol	6-24 hrs	n/a	Unknown
Amphetamine	1-4 days	up to 90 days	Unknown
Barbiturates	1-21 days	Unknown	Unknown
Benzodiazepines	1-42 days	Unknown	Unknown
Cannabis (single use)	48-72 hrs	up to 90 days	2-3 days
Cannabis (habitual use)	up to 12 wks	up to 90 days	2 weeks
Cocaine	4-5 days	up to 90 days	Unknown
Codeine/Morphine	2-4 days	up to 90 days	Unknown
Heroin	8 hrs	up to 90 days	Unknown
Methamphetamine	3-5 days	up to 90 days	1-3 days
PCP	3-7 days	up to 90 days	1-3 days

Recommended Frequency of urine testing is every third day for Inpatients and during every follow up for Outpatient.

In order to keep a check on the reliability, validity, sensitivity and reproducibility of the test results, Quality Control (QC) of a drug abuse-testing laboratory should be maintained. These laboratories should maintain their internal QC by carrying out blind exercises periodically. A satisfactory performance of the laboratory would be if the false positive and false negative results do not exceed more than 10 percent.

Safety Guidelines

Safety measures of a drug abuse testing laboratory are no different from a routine clinical laboratory such as wearing of gloves and masks, washing of hands with disinfectant or antiseptic solution, use of rubber bulbs or dispenser for pipetting acids\ bases\ chemicals and reagents, and provision of exhaust fan and fume hood in the laboratory. For HIV screening, the used needles, syringes and gloves should be destroyed immediately in incinerator or by burning them. Blood samples should be carefully handled. Moreover, never leave a discarded

tube or infected material unattended or unlabeled. Furthermore, eating, drinking and smoking in work area should be strictly prohibited.

Communication with the laboratory

Regular interaction of laboratory personnel and clinical staff is essential so that lacunae on either side are minimized in the interest of patient care. Clinicians should be familiar with the strength and limitations of the drug screening techniques and programs. For meaningful interpretation of test results, particulars of drug use are important. Hence clinicians should furnish adequate clinical history regarding suspected drug use, route of administration, quantity of consumption, frequency of use in last 72 hrs, time of last intake of drug before sample collection and medicines being prescribed to the patients. Knowing which specific substances are suspected on clinical grounds helps the laboratory to tell the clinicians whether or not the laboratory can identify such substances, for how long they can be detected after ingestion and whether serum or urine is preferred. The laboratory may also alter the methods used to prepare the sample to

maximize the sensitivity of the testing for those substances. Moreover, this would also minimize the false positive results, for example, in patients who are being prescribed with cough syrup containing codeine.

Limitations of Drug Testing

Inadvertent positive results have been an issue for drug testing programs. Some drugs are consumed as food like dietary poppy seeds can give a strong positive results for urinary opiates for several days. Some consumer medications contain drugs of abuse (Tylenol 3 contains codeine as well as acetaminophen). In such cases, analytically true-positive test results are false-positive indicators of drug abuse by the individual.

Some individuals resort to diluting, substituting, or adulterating urine samples to avoid the consequences of a positive drug test result. The object of dilution is to reduce the concentration of illicit substance in urine to below the cutoff level, either in vitro, by adding water, saline, or other fluid after collection, or in vivo, by consuming diuretics or plasma volume expanders to stimulate excess water excretion. A urine sample is considered dilute when creatinine is below 20 mg/dl and specific gravity is less than 1.003.

Replacement of donor urine with non-urine fluid is substitution. To succeed as a ruse, the substituted fluid must be warm, as the collector is instructed to check specimen temperature within 3 minutes of collection. A sample is deemed substituted if creatinine is less than

5 mg/dl and the specific gravity is 1.000 or 1.001.

Since most immunoassays are designed to be performed under narrow pH and ionic strength ranges, the addition of acids, bases, salts, or detergents will invalidate them. However, these adulterants generally do not affect GC/MS test results.

Health Damage

Apart from drug abuse testing, De-addiction laboratories should also have facilities for assessment of health damage in drug addicts. With increasing intravenous drug use, testing for HIV and Hepatitis B is also considered essential. As majority of the patients attending de-addiction clinics are from lower socio-economic status, some general health investigations such, as haemogram, X-ray chest, routine urine examination etc. are also necessary. On occasions, biochemical investigations like (LFT) are also undertaken to ascertain the condition of organ damage.

Experience indicates that the establishment of a well-equipped laboratory is a prerequisite requirement for any hospital-offering Drug - Dependence Treatment services as it plays an important role in the assessment and clinical management of patient's drug problem. More De-addiction laboratories should be established and upgraded. Such up gradation and infrastructural development will ultimately improve the quality of care given by the Health care delivery system.

Suggested Reading

1. Braithwaite RA, Jarvie DR, Minty PS, Simpson D, Widdop B. Screening for drugs of abuse. I: Opiates, amphetamines and cocaine. *Annals of Clinical Biochemistry* 32, 1995:123-153.
2. Eskridge KD and Guthrie SK. Clinical issues associated with urine testing of substances of abuse. *Pharmacotherapy*, 1997, 17:497-510.
3. Fraser AD and Zamecnik J. Impact of lowering the screening and confirmation cutoff values for urine drug testing based on dilution indicators.
4. Therapeutic Drug Monitoring, 2003,25:723-727.
5. Jain R and Ray R. Detection of drugs of abuse and its relevance to clinical practice. *Indian Journal of Pharmacology*, 1995,27:1-6.
6. Jain R. (ed). *Detection of Drugs of Abuse in Body Fluids: A Manual for Laboratory Personnel*. Drug Dependence Treatment Centre, All India Institute of Medical Sciences, N. Delhi, India, 1998.
7. Jain R. The relevance of laboratory Services in South Asia. In: *South Asia Drug Demand Reduction Report*, Ray R (ed), United Nations International Drug Control Programme, Regional Office of South Asia, New Delhi, India, 1998:214-221.
8. Katz N, Fanciicullo GJ. Role of urine toxicology testing in the management of chronic opioid therapy. *Clinical Journal of Pain*, 2002, 18(Suppl 4):S76-82.
9. Report of the substance abuse testing committee. Critical issues in urinalysis and abused substances. *Clinical Chemistry*, 1988, 605-632.
10. Samyn N, van Haeren C. On-site testing of saliva and sweat with Drugwipe and determination of concentrations of drugs of abuse in saliva, plasma and urine of suspected users. 2000. *International Journal of Legal Medicine*, 113, 150-154.
11. Simpson D, Braithwaite RA, Jarvie DR, Stewart MJ, Walker S, Watson IW and Widdop B. Screening for drugs of abuse (II): Cannabinoids, lysergic acid diethyl amide, buprenorphine, methadone, barbiturates, benzodiazepines and other drugs. *Annals of Clinical Biochemistry*, 1997, 34:460-510.
12. Wu AHB. Integrity of Urine Specimens Submitted for Toxicologic Analysis: Adulteration, Mechanisms of Action, and Laboratory Detection. *Forensic Science Review*, 1998,10:47-65.

Suggested slides for OHP

Slide 1:

Why laboratory services in a drug dependence treatment programme

- Confirm clinical history of drug intake
- Monitor progress following treatment
- Treatment compliance
- Assessment of overall health status of drug dependents
- Clarification of medico-legal problems
- To assist law enforcement
- Promote pharmacokinetic and metabolic research

Slide 2:

Biological samples

- Biological fluids: blood, urine, saliva, sweat
- Tissues: hair, finger nail

Why urine is preferred for screening

- Non invasive procedure
- Easy collection
- Larger volume available
- Drugs and metabolites can be detected in higher concentration for a longer period of time
- Easier processing

Slide 3:

Precautions in sample collection

- Close supervision
- Proper labelling
- Hot water should not be available at collection site
- Urinary temperature should approximate normal body temperature
- Proper sealing
- Transportation under custody

Storage of samples

- Storage under -20° c temperature is recommended

Slide 4:

Why do sample preparation

- Remove interfering material

- Remove particulates
- Concentrate solute of interest
- Enhance sensitivity

Selection of analytical methodology

- Cost
- Workload
- Turn around time
- Sensitivity required
- Reliability

Slide 5:

Screening techniques

- Immunoassays: RIA, EMIT, FPIA
- Chromatography-TLC

Confirmatory techniques

- Gas liquid chromatography (GLC)
- High pressure liquid chromatography (HPLC)
- Gas chromatography-mass spectrometry (GC-MS)

Principle of immunoassays

Competition between the labeled drug and unlabeled drug to bind to its binding sites

$AB + D^* + D \rightleftharpoons ABD^* + ABD$

AB= antibody, D* = labeled drug

D= unlabeled drug

Slide 6:

Advantages of immunological assays

- No sample preparation
- Ease of operation
- Rapid analysis
- Highly sensitive
- Detection limit: 0.001-0.1 µg/ml
- Qualitative and quantitative estimation

Limitations of immunological assays

- High reagent costs
- Specificity for a drug is not absolute
- Moderate to high equipment cost

Slide 7:

Advantages of TLC techniques

- Simple
- Comprehensive
- Inexpensive
- Fairly rapid
- Fair degree of specificity
- Detection limit 0.5 µg/ml
- Identification based on R_f value

Slide 8:

Features of GC

- Moderate equipment cost
- Low reagent cost
- One sample at a time
- Identification based on retention time
- Detection limit: 0.01- 0.1 µg/ml
- Confirmation technique
- Quantitation technique
- High technologist skill required

Slide 9:

Features of HPLC

- Moderate equipment cost
- Moderate reagent cost
- One sample at a time
- Multiple drugs simultaneously
- Identification based on retention time
- Analysis time is less than an hour
- Resolution is high
- Confirmation & quantization technique
- Detection limit: 0.01- 0.1 µg/ml
- High technologist skill required

Slide 10:

GLC-mass spectrometry (GC-MS)

- Rapid, sensitive & specific
- Unknown samples
- Drug & their metabolites
- Diagnosis of overdose
- Low reagent cost
- Very high equipment cost
- One sample at a time
- Multiple drugs simultaneously
- Detection limit: 0.0001-0.1 µg/ml

- Very high technologist skill needed
- Confirmation needed

Slide 11:

Pertinent clinical information required for drug abuse screening

- Suspected drug abused
- Route of administration
- Quantity of consumption
- Frequency of use in last 72 hr.
- Time of collection from last intake
- Medication prescribed

Slide 12:

Assessment of general health status

- Biochemical profile
 - Liver function test
 - Lipid profile
 - Renal function test
- Haematological profile
 - Complete haemogram

Prevention of Substance Abuse in India

14

Parmanand Kulhara, Debashish Basu

Summary

The problem of substance abuse continues and will continue, at least in the foreseeable future, driven both by large-scale vested interests at a macro-level as well as man's inherent pleasure-seeking propensity and psychobiological vulnerabilities at a micro-level. However, with a combined multi-pronged effort at multiple levels, aimed not just at supply reduction but also at demand and harm reduction, countries and their people can potentially contain the problem at a manageable level.

Introduction

Misuse of alcohol and other drugs (collectively referred to as 'psychoactive substances') is a problem not only for the abuser but also for the caregiver, family, workplace, neighbourhood, and indeed, for the society at large. It can affect anybody regardless of age, sex and socio-occupational status. No geographical location, race, or religion is exempt.

The growing menace of alcohol and drug abuse at both international and national levels is of great concern today. It has been continuously challenging the existing resources to combat the problem. For such a multifaceted complex problem, the interventional strategies also need to be multidimensional in nature.

Before considering the various ways in which a multi-level preventive approach can be taken up, it is first important to understand the common but often confusing terms such as 'drug' and 'abuse'.

Basic concepts

Broadly speaking, a drug is defined as any chemical which, when administered, alters the functioning of one or more systems of the organism. However, this definition is too general and would include virtually all medicines ranging from antacids to vitamins and antibiotics. A more narrowly defined term is a 'psychotropic' drug, which induces change primarily in some aspect(s) of mental functioning; for example, an anti-depressant is meant to relieve mental depression.

When we refer to 'drugs' we mean agents such as alcohol, cannabis, heroin or morphine. Although they are all psychotropic agents, they are rarely taken for a particular illness. Rather, they are consumed voluntarily to alter one's mood, thinking, perception or other mental functions so as to *induce pleasure* in an artificial manner. Further, these drugs can cause addiction when taken repeatedly so that, at a later stage, these are consumed not so much to induce pleasure as to avoid or reduce the discomfort resulting from their absence in the body (in other words, to avoid or decrease the '*withdrawal*' of the drugs). In this sense, alcohol is also a 'drug'. In order to differentiate them from other, more generally defined, medicinal drugs, these are now called 'psychoactive substances' or simply '*substances*'. Of course, there are several medicinal drugs that can also be misused as drugs of abuse, e.g., codeine-containing cough syrups, several painkillers containing opium-like substances, etc. When used in this context (for non-medical uses such as inducing pleasure), these are also referred as

‘substances’.

The disorders resulting from pathological (excessive, compulsive, uncontrolled, or non-medical) use of these substances are grouped as “Psychoactive substance use disorders”. The common terms such as ‘abuse’ and ‘dependence’ come under this umbrella.

‘Addiction’ is a much older term than both ‘abuse’ and ‘dependence’. It is now omitted from technical language because of its pejorative connotation. However, the term still is retained in popular usage. It denotes either abuse or dependence. Also, the word ‘abuse’ when used non-specifically may cover both abuse and dependence phenomena. Thus, used loosely, a drug ‘abuser’ (earlier called ‘addict’) is a person who uses drug(s) in a pathological fashion and may meet the technical definition of either ‘abuse’ or ‘dependence’. This clarification of terminology was felt necessary because often these various terms create confusion in our mind.

The World Health Organization in 1992 has enlisted the following *categories* of psychoactive substances:

1. Alcohol
2. Opioids (opium, heroin, morphine, pethidine, buprenorphine, codeine, etc.)
3. Cannabis (‘ganja’, ‘bhang’, ‘charas’)
4. Sedative-hypnotics (‘tranquillisers’)
5. Cocaine
6. Other stimulants, including amphetamines and caffeine
7. Hallucinogens (e.g., LSD, ‘acid’)
8. Tobacco
9. Volatile solvents (typewriter correction and dilution fluids, kerosene, gasoline, petrol, paint-thinners, nail-polish removers, etc.) and other organic hydrocarbons (e.g., those in shoe-polish, Iodex, etc.)

Of these, the common and major substances used in India are alcohol, tobacco, opioids, can-

nabis, tranquillisers, and recently, volatile solvents.

Levels of substance abuse prevention

Traditionally, the two major strategies at the level of *primary prevention* are:

- (i) *supply reduction* (policies and activities aimed at minimizing the availability of alcohol and drugs to people); and
- (ii) *demand reduction* (aimed at decreasing the internal need or demand for the substances by the people).

A third strategy is *harm reduction*, which tends to minimize the harm resulting due to substance use, and thus acts at the levels of *secondary and tertiary prevention*.

Both international and national-level active responses have been mounted to take the drug menace in its stride. International Treaties and various International Agencies or Drug Control Programmes (most notably the United Nations Office for Drugs and Crime, UNODC, formerly United Nations Drug Control Programme, UNDCP) are in force, trying to plan, implement and monitor many aspects of the drug control programme, in terms of both the reduction in supply of, and the demand for drugs.

India is a signatory to the following international conventions:

- a) Single convention on Narcotic Drugs, 1961, as amended by the 1972 Protocol;
- b) Convention on Psychotropic Substances, 1971;
- c) U.N. Convention against Illicit Trafficking in Narcotic Drugs and Psychotropic Substances, 1988.

In addition, India has enacted her own comprehensive legislation in this matter in the form

of Narcotic Drugs and psychotropic Substance Act (NDPS) in 1985, amended in 1988. Various Ministries/Departments are given responsibility for tackling different aspects of the problem. The supply reduction aspects are largely the responsibility of the Ministry of Home Affairs (along with the Narcotics Control Bureau) and the Ministry of Finance (Department of Revenue). Prevention and rehabilitation are primarily responsibilities of the Ministry of Social Justice and Empowerment, formerly known as the Ministry of Welfare, and the Ministry of Health and Family Welfare (Department of Health, Drug De-addiction Programme). Thus, a multi-pronged approach has been adopted.

Section 4(d) of the NDPS Act provides for identification, treatment, education, aftercare, rehabilitation and social reintegration of drug abusers. For this purpose the Act also empowers the Government, under section 71(1), to establish as many centres as it thinks fit and frame appropriate rules for their functioning.

Following this mandate, a number of de-addiction centres have been established at both Central and State levels with the assistance and under the auspices of Ministry of Health and Family Welfare. Most of these are directly funded and monitored by the Ministry of Health and some are directly funded by the UNODC. Other than the above, there are a number of counselling and rehabilitation centres operating through the Ministry of Social Justice and Empowerment. Still other, voluntary, non-government organizations (NGOs) are actively pursuing the common goal of drug abuse control.

The focus of all these activities is threefold: the drug abuser, his family, and the society at large. **The drug abuser** is first motivated and engaged in treatment. He is then detoxified in an outpatient and/or inpatient set-up depending upon the needs and priorities. This part of the

treatment is essentially pharmacological (i.e., through medicines given to counteract the withdrawals of drugs of abuse). Side by side, a comprehensive assessment is made of the patient's biological, psychological and socio-environmental aspects. Guided by the assessment, a longer-term treatment plan is formulated which may include both pharmacological aspects (e.g., giving disulfiram, naltrexone or acamprosate to alcohol-dependent persons and naltrexone to opioid-dependent persons) and non-pharmacological aspects. The latter may comprise of individual counselling, cognitive or behavioural therapies, Yoga therapy and meditation, and group work including participation in self-help groups like the Alcoholics or Narcotics Anonymous (AA and NA). The AA and NA groups are especially useful for maintenance of sobriety for many millions of former substance abusers all over the world. A final long-term plan is then drawn up for occupational rehabilitation and social re-integration.

The family of the drug abuser similarly undergoes thorough assessment and counselling. The latter is aimed at providing emotional support, psycho-education, defusing family conflicts and guiding the family through the different phases of treatment and rehabilitation. At times a formal family therapy or couples therapy is undertaken. More usually, family groups are formed where various related and common issues are discussed and mutual support is generated. Various practical day-to-day tips for management of the patients at home are also given, often in the form of Dos and Don'ts for the family members. The family groups have especially been found to be helpful.

The society of the drug abuser is tapped in more indirect ways. It is at this focus that principles of demand reduction really come into action. One of the most vital components of demand reduction is raising awareness – aware-

ness about both the evils of drug abuse as also about the availability of help for treatment should the need occur. The **modalities** of achieving this end are manifold: campaigns through the press, television and radio; public meetings, workshops, poster and painting competitions; disseminating information through books, pamphlets, posters and stickers; organizing and popularising 'drug free' music and other cultural events; networking with various NGOs, clubs, hotels and other areas of social intercourse; and promoting in general a healthy drug-free but full-of-fun lifestyle. Ex-abusers and their family members take an active part in this social focus on demand reduction.

Supply reduction

Supply reduction has to be conceptualised differently for licit (alcohol and tobacco) and illicit drugs. For illicit drugs, supply reduction strategies remain an important issue at international, national and local levels. However, alcohol and tobacco control pose dilemmatic questions for the policy makers, because although they are responsible for immense harm at personal, familial and societal level, they generate handsome revenue for the government. Further, it has been seen repeatedly that a superimposed complete prohibition of supply for alcohol and tobacco does not work. All it does is to create an artificial illegal market for these substances and to encourage corrupt practices at various levels, causing further expenditure for an already impoverished state exchequer for law enforcement. On the other hand, unrestricted easy availability of alcohol and tobacco have been seen to correspond with increasing use, which in turn results in a commensurate increase in substance-related morbidity (lung cancer, cirrhosis of liver), mortality and social harm such as violence and accidents (especially for alcohol). An attempt to control supply is akin to tightrope walking. The following measures have been suggested:

1. Price controls.
2. Controls on availability:
 - a. Minimum age limits for sale.
 - b. Limiting the hours and days of sale.
 - c. Licensing and restricting the number and location of outlets.
 - d. Prohibition on selling to intoxicated persons (for alcohol).
 - e. Public monopolies of retail sale.
 - f. Enforcement of retail controls.
 - g. Restrictions on import.
3. Controls on the use of alcohol and tobacco:
 - a. At specified places (e.g., public offices, schools, etc.).
 - b. At specified times.
 - c. During specified activities (e.g., driving, operating heavy machinery).
4. Product safety standards:
 - a. Alcohol and tar content specification and restriction.
 - b. Display of warning statements on health hazards on the packages.
5. Controls on marketing:
 - a. Controls on advertisements of alcohol and tobacco in print or electronic media
 - b. Controls on 'surrogate' advertising (e.g., advertising 'apple juice' or other innocuous products by a particular industry which also produces alcoholic drinks, and indirectly but clearly advertising the alcohol product under the garb of advertisement of the innocuous product).
 - c. Controls on sponsorship of cultural, sports or other events.
 - d. Taxing marketing costs.
 - e. Controls on the mass media of the portrayal of alcohol and tobacco use.

Combating the abuse of both licit and illicit substances is a tall order. Nonetheless, the current data suggests that some strategies are better than others. Though supply reduction measures for alcohol and tobacco as outlined above have been shown to be modestly successful if implemented properly, interventions aimed at

reducing the supply of illicit drugs rarely works effectively. These measures are expensive both in terms of resources, infrastructure and manpower, and tend not to significantly curb the supply of illicit drugs, the number of users, or the amounts they consume. Governments must therefore develop stronger parallel strategies to *reduce the demand* for drugs if the problem is to be meaningfully addressed. This requires enhanced public education that includes messages on prevention that are meaningful to the youth and that note the dangers associated with the more casually accepted use of tobacco and apparently less potent liquors. The most successful educational campaigns tend to be locally administered, culturally meaningful, and relevant for all youths. Governments should also develop and support culturally relevant prevention efforts.

Demand reduction

The major role of *demand reduction* activities in India lies with the Ministry of Social Justice and Empowerment and also with the Ministry of Health and Family Welfare. Other ministries involved in demand reduction activities in the country are the Ministry of Human Resource Development (Department of Youth Affairs and Education) and the Ministry of Broadcasting. In the federal system of India, health is an issue dealt with by individual states in which the federal (Central) Government has a policy making, coordinating, and assisting role. So the relevant Ministries of the states also deal with drug issues. NGOs too have played a key role in all aspects of drug demand reduction.

Under the NDPS Act, several high level committees were formed in the past. Ministry of Health and Family Welfare appointed an expert committee in 1986. An advisory committee was constituted in 1988. The Central Government directly constituted a Cabinet Subcommittee in April 1988 (upon whose recom-

mendation the national-level Drug De-addiction Programme was launched) and also in August 1993. A Narcotics Coordination Committee of secretaries (from the Ministries of Health, Welfare, Home, Revenue and Director-General of Narcotics Control Bureau) was also constituted in March 1994. Since 1988, specific project documents were also developed in collaboration with UNODC (then UNDCP).

In 1994, a national Master Plan for Drug Abuse Control (1994-2003) was submitted. The Master Plan had proposals for both demand and supply reduction and had outlined overlapping responsibilities for the Ministry of Social Justice and Empowerment and the Ministry of Health and Family Welfare in demand reduction.

The Ministry of Social Justice and Empowerment currently funds more than 400 counselling and rehabilitation centres throughout the country (December 2002: 462 centres; 318 are De-addiction-cum-rehabilitation centres and 144 are Counselling and Awareness centres). Funding for NGOs working in the field of drug abuse is also available from several bilateral agencies. The strategy of this Ministry in demand reduction can be summarized as follows:

1. Building awareness and educating people about ill effects of drug abuse.
2. Dealing with the abusers through a well rounded-up programme of motivation, counselling, treatment, follow-up and social integration of cured persons.
3. To impart drug abuse prevention and rehabilitation training to volunteers and generate an educated cadre of demand reduction workers.

The Ministry of Health and Family Welfare has funded more than 100 drug de-addiction centres in the country (December 2003: 122).

These are located in the hospitals and medical institutes. Although mainly concerned with treatment and rehabilitation of alcohol and drug abusers (i.e., working at the secondary and tertiary levels of prevention), these drug de-addiction centres are involved in several demand reduction (primary prevention) activities as well. These include:

1. Generating trained manpower by training doctors, nurses, social workers, counsellors, other health professionals.
2. Development and dissemination of health education materials relevant to demand reduction themes as well as need for early detection and treatment.
3. Community-based research in several areas related to substance abuse, including demand reduction.
4. Information, Education and Communication (IEC) activities at the local levels (schools, colleges, public offices, factories and industries, etc.) as also via mass media.
5. Establishing a data collection and monitoring system for drug abuse.
6. Establishment of drug abuse screening services.

Demand reduction and other preventive activities

Governmental as well as non-governmental voluntary agencies (NGOs) are currently carrying out several activities in demand reduction and other preventive activities. These include:

- A. Primary Prevention:
 1. Audio-visual publicity
 2. Development and distribution of print materials
 3. Press advertisements
 4. Out door publicity
 5. Anti-drug awareness campaigns
 6. Awareness programmes in schools and colleges

7. Workplace prevention
8. Drug abuse prevention for street children.
- B. Drug Treatment and Rehabilitation:
 1. Medical detoxification
 2. Treatment with antagonists such as naltrexone
 3. Treatment with pharmacological agents such as deterrents (disulfiram) or anti-craving agents (acamprosate)
 4. Pilot treatment programmes for opiate abusers
 5. Utilizing twelve-step programmes
 6. Therapeutic communities
 7. Long-term rehabilitation programmes
 8. Drug treatment programmes in jails
 9. Detoxification camps in villages
 10. Community based case detection and treatment programmes.

In spite of this impressive array of activities and programmes, evaluation of these programmes has been minimal. An earlier evaluation of the national demand reduction activities in the country observed that the budgetary utilization was low, the pace of the implementation of the programmes have been slow, and the quality and range of services were limited. The need for broadening of primary prevention services was also emphasized in the evaluation. The latest formal evaluation of the drug de-addiction centres funded by Ministry of Health & Family Welfare has depicted a rather dismal picture: about 60% of the centres were non-functional (though some of them have been maintaining a degree of low-key service), nearly one-fourth of the centres were not providing *any* de-addiction services at all, and only about 13% of the evaluated centres were optimally functional. Almost all the functioning centres kept their activities limited to providing out-patient and/or inpatient services; only a minority of the centres were providing community-based services as well.

There are numerous factors contributing to a

lack of progress in these demand reduction programmes. These include a host of administrative factors including improper coordination between the various Ministries and agencies involved in this work. This leads to a neglect of some areas and duplication of others. A withering political and administrative will is another factor. In spite of having been formulated a decade back, the National Master Plan for Drug Abuse Control was never published officially, let alone being put into action. This might have to do with yet another factor: the gradual drying up of funds. Since 1987-88, when UNDCP and other agencies were heavily funding the drug de-addiction and demand reduction programmes, that was the time when a lot of activities took place. Since 1994-95, the activities and initiatives on the part of the government have tended to become half-hearted. A parallel decline of interest was evident at the level of the funded agencies as well. As mentioned in *World Mental Health*, it is an irony that “despite the inadequacy of supply-reduction policies, efforts to decrease the demand for substances of abuse remain almost universally under-funded and under-supported. Although treatment and prevention services are offered, and sizable amounts of money are spent on demand-reduction programmes, the comparatively small amounts

of resources allocated reflect a lack of priority given to demand reduction in almost countries, including India. This relative imbalance speaks of a lack of knowledge about the potential effectiveness of demand-reduction strategies, the conflicting political forces that reign in the area of substance-abuse control, and the quasi-military approach that sees substance abuse as unrelated to health and human services.”

On a much smaller but equally important level, all of us can render valuable preventive services to our community if we follow these simple ten steps while dealing with our younger generation, as mentioned by the U.S. Department of Health and Human Services:

1. Talk with your child about alcohol and other drugs.
2. Learn to listen to your child.
3. Help your child feel good about himself or herself.
4. Help your child develop strong values.
5. Be a good role model or example in your own use of alcohol, other drugs or tobacco.
6. Help your child deal with peer pressure.
7. Set firm no use rules about drinking and other drug use by your children.
8. Encourage healthy, creative activities.
9. Team up with other parents.
10. Know what to do if you suspect a problem.

Suggested Reading

1. Galanter M, Kleber HD, Eds. The American Psychiatric Press Textbook of Substance Abuse Treatment. American Psychiatric Press, Washington D.C. 1999
2. Lowinson J, Ruiz P, Millman R, Langrod J. Substance abuse, a comprehensive textbook, 4th edn. Baltimore: Lippincott Williams and Wilkins, 2005.
3. McGrady BS. & Epstein E, eds. Addictions: A Comprehensive Guidebook. New York: Oxford University Press, 477-498.
4. Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, (DSM-IV), Text Revision, American Psychiatric Association, 2000.
5. American Psychiatric Association. Practice Guidelines for the Treatment of Patients with Substance Abuse Disorders: Alcohol, Cocaine, Opioids. American Journal of Psychiatry, 1995, 152 (Supl.): 1-59

Suggested slides for OHP

Slide 1:

Misuse of alcohol & drugs, a worldwide problem
Affects all ages, gender & geographical locations

Slide 2:

Prevention involves 3 strategies

- Primary
- Secondary
- Tertiary

Slide 3:

Primary Prevention involves

- Supply reduction
- Demand reduction

Secondary & tertiary prevention involves

- Harm reduction

Supply reduction seen by

- Ministry of Home Affairs
- Narcotics Control Bureau
- Ministry of Finance

Prevention & rehabilitation seen by

- Ministry of Social Justice and Empowerment
- Ministry of Health & Family Welfare

Slide 4:

Supply reduction different for licit & illicit substances

For licit substances measures include

- Price controls
- Controls on availability
- Controls on the use of alcohol and tobacco
- Product safety standards
- Controls on marketing

For illicit substances measures include

- Public education
- Awareness
- Information culturally meaningful & relevant for youths

Slide 5:

Demand Reduction

- Master plan for Drug Abuse Control (1994-2003)- proposed for demand & supply reduction

Funding for counseling & rehabilitation centres

Strategies- awareness & education about ill effects of drug use

- coordinated treatment plan of drug abuser
- prevention & rehabilitation training to volunteers

Funding for deaddiction centres

Strategies- Generating trained manpower by training doctors, nurses etc

- Development and dissemination of health education materials
- Community-based research
- Information, Education and Communication
- Data collection and monitoring system for drug abuse
- Establishment of drug abuse screening services

Slide 6:

Other preventive activities

- Publicity
- Awareness for street children

Failure in prevention

- Lack of political & administrative will
- Lack of funds in demand reduction programmes
- Failure to provide community services

Management of Substance Use Disorder in Primary Care

15

Prabhat K Chand, Mohan K Isaac

Summary

The primary care physician is best placed to treat substance abuser at an early stage. Alcohol and tobacco are the drugs most commonly encountered by the physician. It has been shown that disorders related to these substances can be easily diagnosed in primary care settings. Therapies such as brief intervention and motivational enhancement has been found to be effective in these settings too. Safe medicines are currently available and the physician can familiarise himself with these easily. This chapter deals with assessment and management of alcohol and tobacco use in primary care settings.

Introduction

Management of substance abuse is usually easier in the early stages of the disorder. At an early stage, the substance abusing person is most likely to present to the primary care physician with a variety of non-specific problems. The physician who is unaware may treat the physical symptoms without attending the underlying substance problem and its other consequences.

For effective management the physician needs to be competent in

- Screening patients for substance use
- Assessment of problems related to substance use
- Treatment
- Timely referral to specialized services

This chapter explores ways of management of substance abuse from a primary care physician's perspective and discusses its key elements. In India, Alcohol and tobacco are the major substances of abuse and will be the primary focus of this chapter.

ALCOHOL

“Does your heart sometimes sink when you find one of your patients has an alcohol problem? If so, you are not alone, many doctors rate this as a difficult area.”

General physician are in an ideal position to detect heavy drinking and to advise patients, as they are likely to present with various physical problems. Simply spending 5-15 minutes on a brief intervention can be highly effective in reducing the level of problem drinking.

Broadly alcohol misuse can be classified as follows:

Heavy drinking: Currently not experiencing any problem but if continued, at risk for liver damage, neuropathy, pancreatitis, and addiction to it

Problem drinking: Evidence of deterioration of physical, psychological or social condition i.e. not able to drive properly or absence from duty, or fighting, inappropriate behaviour under influence.

Male: >4 units/day or >14 units/week

Female: >2units/day or > 7units/week

Addiction/dependence: Evidence of tolerance, withdrawal, craving, physical/social/ psychological damage, impaired control over drink

The majority of people presenting to general practitioner clinic belong to the first two categories. Research has consistently shown the effectiveness of intervention in this population.

Screening

The symptoms with which the patient presents often gives **clues** to underlying alcohol misuse (box). Even directly asking about drinking is a part of life style assessment and routine health examination. This should be done irrespective of gender and type of presentation.

As the patient may deny or under-estimate the amount he drinks, the physician should establish a good therapeutic relationship with the patient. Showing empathy, understanding and being non-judgemental is the key to establishing a good therapeutic rapport. Wherever possible one should seek corroborative information from family members and involve them in treatment.

Detection and Intervention

Step I: Ask

In all: Do you use alcohol?

In current drinkers:

Frequency-How often do you drink?

Quantity-How much do you drink?

Duration-How long are you drinking?

Abstinence-How many days in past have you not drunk alcohol at a stretch?

Also assess associated withdrawal symptoms and high-risk behaviours i.e. repeated intoxications, drinking and driving. Some people may minimise the severity of problems and would say that they drink 'occasionally' or 'only at weekends' or 'only after work'. These need further exploration about actual drinking patterns and problems.

Clues

Symptoms

Gastrointestinal: poor appetite, indigestion, heart burn, dyspepsia, diarrhoea

Neurological: tremors, sweating, headaches, insomnia, burning legs

Cardiorespiratory: palpitations, chest pain, pneumonia

Musculoskeletal: backache, repeated injuries, rheumatism

Gynecological: menstrual problems, pre-menstrual disturbances etc.

Skin: bruises, flushing, rashes

Endocrinology: reduced libido, obesity

On examination

Conjunctiva injection

Bloated face

Periorbital puffiness

Parotid swelling

Smell of alcohol on breath

Flushing

Hepatomegaly etc.

Step II: Assess

In a patient who reports regular drinking, assess:

Physical damage: a small list is provided in the box. But a good physical examination may give evidence of early physical damage in problem drinkers.

Psychological: stress, depression or anxiety

Occupational: Monday morning blues, going late to work, frequent absenteeism, accidents, inter personal problems etc

Legal: arrest or reprimanded for drunken driving, fights or brawls

Screening questionnaires

These help the physician in detection of problem drinking in patients with history of regular intake of alcohol. One or more positive responses on the CAGE questionnaire indicate problem drinking and more than three points suggest dependence.

Another widely used scale is the Alcohol use disorders identification test (AUDIT). An AUDIT score of more than eight indicates problem drinking and the need for intervention.

In depth assessment in persons

- Drinking
- >2-3 times/wk
- >2units/day in male />one unit/day in female
- Heavy episodic drinking

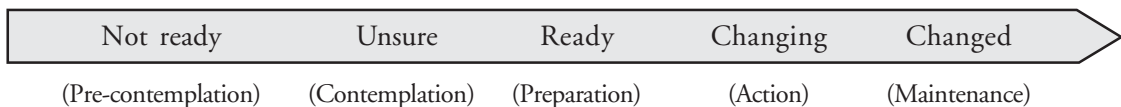
Laboratory investigations

Laboratory investigations assist in the detection of problem and heavy drinking and are outlined in the accompanying table.

Laboratory test	Abnormal values	Interpretation
MCV (Mean corpuscular volume)	Macrocytosis (>100 fL)	Detects approximately 20–30% of problem drinkers in general practice
GGT (Gamma glutamyl transferase)	Elevated GGT (>55 U/L)	Detects approximately 30% of problem drinkers in a general practice setting and 70–75% in a hospital setting
AST/ALT (Aspartate transferase/Alanine Transferase)	>1.5	Alcoholic liver damage

When alcohol problems are identified, it is important to evaluate patient's perception about the problems and the need for reducing or stopping alcohol. As shown below the person's response may vary from not willing to very well motivated for reduction in drinking.

Stages of change



In pre-contemplation stage, patients are not even considering change. As they become aware of reasons to alter behavior, they think about it, weigh pros and cons of changing- the contemplation stage. When the argument for change wins through, a decision point is reached. They are now ready to change and move into stage of action.

These changes involve alteration of life style, handling stress and successful coping. Stage changes occur slowly with time and may have repeated setbacks. The goal of each visit should be to help the person move along the continuum of change towards the reduction of alcohol use.

Step III: Advice

Many people are sensitive about their drinking and the offer of help will be more readily accepted if it is given in a spirit of concern for health and family well being. There should be mutual trust and respect. Dire warnings and judgemental statements do not work. Most physicians are pessimistic about being able to help excessive drinkers yet there is good evidence that as many as 75% respond well to brief intervention.

The steps of brief intervention are:

Feedback of personal risk

Be clear in informing the patient about how drinking is going to worsen his condition further. At the same time state your concern on the prescribed medicine and its interaction with alcohol. Focussing on physical problems and correlating with drinking reduces the patient's defensiveness.

E.g. "your drinking is going to worsen your stomach pain" // "I am concerned that your drinking is contributing to your easy tiredness and sleeping problem"

At the same time just treating the physical ailment without discussing about drinking, may be counterproductive and undermine the seriousness of problem drinking.

Similarly statements may help for minor problems i.e. sleep disturbance.

E.g. I am prescribing some medicines for symptomatic relief of your stomach pain but you will need to completely stop your drinking for some time to allow healing. Why don't you give up for two weeks and see the difference?

It is important to involve the spouse or an important family member and educate them regarding ill effects of alcohol on the patient's current health.

Responsibility

Emphasise that the decision about drinking is

the patient's responsibility and choice. No one else can make the change or decide for them.

E.g. "Now it is up to you to take a decision on drinking"

Advice

Give clear advice as a doctor to reduce drinking. The person can also make a balance sheet as shown and discuss about future plan with the doctor.

Balance sheet		
Drinking	Advantage	Disadvantage
Continue	Forget worries Escape responsibility	Family fights Health problems Cost
Reduce	Be like others Prestige	Pass time Gives kick
Stop	Health better Money save	Loss friends

Menu

Discuss variety of strategies for the patient to choose to achieve the goal. It is worth clarifying initially about patient's goal i.e. no change, cut down or stop. The impediments for the desired goal will be obvious from the interview or from the balance sheet. The common strategies are shown in box.

Keeping a diary of drinking occasions, amount of drink per week is helpful in keeping track of drink.

Menu (Alternate strategies)

Recognising and avoiding trigger situations

- Planning ahead to limit drinking
- Pacing one's drinking
- Learning to cope with everyday problems that encourage drinking
- Finding alternate sources of enjoyment

Self-efficacy

Patient needs to be encouraged to be optimistic and to bring about the changes in drinking behaviour. It is best to aim for specific short-term goals at first so that the patient gets a sense of control or achievement.

E.g. A person who is able to abstain for 2-3 weeks should be encouraged to continue it.

Step IV: Agree

The final choice for future alcohol intake is best left to the person. The **low risk or moderate drinking** option is advisable if person wants to continue drinking. The moderate drinking needs to be carefully planned and discussed and is best preceded by period of abstinence. Abstinence is strongly advised in certain conditions.

Low risk or moderate drinking

- Men: # 2 units/day, # 4 units/ occasion
- Women: # 1unit/day, # 3 units/ occasion
- Over 65 yr: # 1unit/day, #3 units/ occasion
- No drinking at least 3 days/week

Abstinence

- Addicted/dependence
 - Significant physical damage
 - Failed in moderate/controlled drinking
- Family h/o of alcohol dependence

Step V: Monitor (Follow up)

Whatever the agreed goal, it is essential that the doctor regularly review the patient's progress. The most important task at the first interview is to gain the patient's interest in tackling his or her drinking problem and to ensure

that he or she returns for the next appointment. At this time, the short-term achievements and problems can be reviewed and further goals agreed. Supportive laboratory test i.e. GGT, MCV, AST, ALT are useful objective means of monitoring progress and results and their implication should be discussed with patient.

Progress should be reviewed regularly over a year. The first six months of progression often gives good impression of longer-term prognosis.

Relapse

Most patients will drink again whatever the original goal of treatment, but this need not be a catastrophic relapse involving the loss of all that has been achieved. It is to be viewed as an opportunity for the patient to learn from. The important issues to be addressed are mentioned in the box. Relapse is not the end of the road. One common cause of relapse is complacency and overconfidence that this problem is in the past and drinking will be now safe.

Relapse

- When?
- Where?
- What preceded?

How is he going to handle it in future?

Late stage alcohol problems

Persons, who drink regularly, having developed tolerance, craving, or significant problems, are considered to be addicted or dependent. This group of patients need detoxification and more intensive counselling for management. Abstinence is the goal in these groups. They need pharmacological intervention to handle withdrawal symptoms and future abstinence.

Detoxification/ management of withdrawal symptoms

It is a process that provides safe withdrawal from alcohol. The common withdrawal

symptoms like insomnia, tremors, irritability, restlessness, sweating, increase pulse rate usually begins 6-8 hr of last drink, reaches its peak at 24-48 hr and subside in next 7 days.

Mainstay of management is pharmacotherapy and most of cases can be managed on an out-door basis. Roughly for one unit of alcohol, 1mg of diazepam, 5mg of chlordiazepoxide needed.

Drug	Dose	Trade name	Interval	Comments
Diazepam	10-40mg	Calmpose	6hr-8hr	Safe
Chlordiazepoxide	50-120mg	Librium	6hr-8hr	Safe
Lorazepam	4-12mg	Ativan	6hr-8hr	Safe even in liver disease

Additionally, intramuscular injection thiamine 100mg/day for five days should be given followed by oral vitamin B complex orally for two weeks.

In a few patients, the withdrawal becomes severe and can present as confusion, disorientation, seizure and generalised tremors. This condition is known as delirium tremens and requires inpatient intensive treatment.

Pharmacotherapies for alcohol dependence

Pharmacotherapeutic agents may be prescribed for alcohol dependent individuals generally after the phase of acute alcohol withdrawal is over. This coupled with a comprehensive rehabilitation program with individual and family counselling, relapse prevention, coping skills and is essential for a successful treatment outcome.

Disulfiram (Antabuse, deaddict, esperal, disulfiram)

Disulfiram was the mainstay of pharmacological treatment for alcohol dependence for a long time. It acts by irreversibly inhibiting aldehyde dehydrogenase and leading to accumulation of acetaldehyde. This triggers an unpleasant reaction when alcohol is ingested and this acts as a psychological deterrent to drinking alcohol. This form of aversive therapy is effective in motivated and reliable patients who have good

social support who can monitor its intake.

Disulfiram alcohol reaction: flushing, headache, palpitations, dyspnoea, nausea, hypotension, and prostration when alcohol is ingested. It varies in intensity between individuals and usually occurs within 10 minutes of taking alcohol and reaches a peak at 20–30 minutes and last for 1–2 hours.

Contraindications: psychosis, ischaemic heart disease, severe hepatic or renal disease.

Dose: It is to be administered only after patient understands disulfiram alcohol interaction and informed written consent is taken. Patients need to abstain from alcohol for at least one day before administration of disulfiram and for at least one week after cessation of treatment. Disulfiram is available as 250 mg tablets, and is commonly prescribed once daily

Naltrexone (Naltima, Nodict)

Alcohol consumption is thought to produce a feeling of well being brought about by the release of endorphins in the brain and stimulation of opiate receptors. This reinforces drinking of alcohol and ultimately leads to relapse. Naltrexone competitively blocks opioid receptors and reduces the reinforcing and rewarding effects of alcohol. Naltrexone at 50 mg/day significantly reduces the risk of relapse to heavy drinking and the frequency of drinking.

Drug	Trade name	Dose	Comments
Disulfiram	Disulfiram, deaddict, esperal	250mg/day	Work best if patient is motivated, good social support
Naltrexone	Naltima, Nodict	50mg/day once day	Anticraving agent, work with positive family history of addiction
Acamprosate	Acamprol 333mg/tablet	4-6 tablets thrice day	Can be started during detoxification, least side effects
Topiramate	Topmac, Topaz	200-300 mg/day	Latest agent, needs slow building of dose (25!200mg/day),c/i in renal stone

Acamprosate (Acamprol)

It predominantly suppresses excitatory glutaminergic neurotransmitters and decreases craving.

Side effects: mild and transient. Diarrhoea occurs in few patients but is reduced by taking medication with a meal

Contraindications: renal insufficiency, hepatic failure

Dose and duration: available as 333mg/tablet. <50kg=4tablets in three divided dose, >50kg =6tablets in three divided dose

Conclusion

Alcohol is second only to tobacco as a cause of substance induced morbidity and mortality. It is a risk factor for many cancers, liver disease, road fatalities, homicides and suicides. As one in five patients who visit a primary care physician drink alcohol at hazardous levels, physicians play a unique and vital role in early identification and prevention of alcohol related harm.

Tobacco

Tobacco is a major cause of morbidity and mortality all over world. In India, it is estimated that 65% of men and 33% women use

tobacco in some form. At the same time about one fifth of tobacco used in India is as smokeless type i.e. guthka, tooth paste etc. The process of stopping smoking is often a cyclical one, with the smoker sometimes making multiple attempts to quit and failing before finally being successful. Approximately 70 to 80% of smokers would like to quit smoking and approximately one-third of current smokers attempt to quit each year. 90% of these unassisted quit attempts fail.

MANAGEMENT

The 5 A's is a brief intervention method used to guide the clinician in tobacco cessation Counseling. This method is found to be effective and takes only 5-15 minutes.

ASK

Ask all the patients about tobacco use at the time of history taking

5 A's of Intervention

- ASK
- ADVISE
- ASSESS
- ASSIST
- ARRANGE

"Do you smoke or chew tobacco?"/Have you ever used tobacco ? Are you using now?"

Also enquire about amount and type of tobacco used by the patient. It is important to check about the duration and any associated complications.

Screening

One of the easy ways to assess whether the person needs help is by asking the two questions given in the box. A “yes” response to either of these questions would suggest that the person need help in stopping tobacco.

1. Do you find it difficult not to smoke/chew in situations where you would normally do so?
2. Have you tried to stop smoking for good in the past but found that you could not?

ADVISE

In a clear, strong and personalized manner, urge every tobacco user to quit. It is important for the person to be aware of the complications of tobacco use.

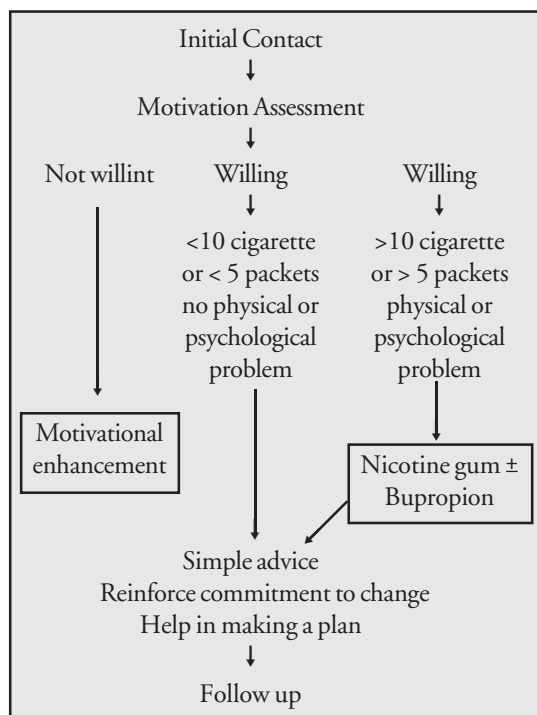
<p>If you smoke, have no problems yet You have Twice the risk of heart attack Six times the risk of emphysema Ten times the risk of lung cancer Increased risk of colorectal cancer, skin cancer And Life span 5-8 year shorter</p>	<p>If chewing tobacco, you have high risk for Increased risk of leukoplakia 5 times increased risk of oral cancer Stained and abraded teeth Gingivitis, dental caries, bad breath Poor wound healing</p>
---	--

It is useful to tie tobacco use to current health and its social, economical costs as well as its impact on children and other house hold members.

ASSESS

During initial contact with the patient assess his motivation to quit smoking or chewing. Usually very few people think of cessation of smoking at any given point of time. Motiva-

tion to stop can be assessed by means of simple direct questions about their interest and intentions to quit. Past attempts of quitting if present can be used to encourage further and longer abstinence.



ASSIST

1. Patients willing to change

Physician should discuss with them the benefits of stopping tobacco use and at the same time encourage them to do so. Another important thing is to make a plan on how to stop use. The important points while making plan are:

a) *Identify* what works and what does not work i.e. “What worked well last time when you stopped using tobacco?” What did not work? What were the problems?”

b) *Triggers*: These are situations or thoughts that initiates tobacco use and can be the reason for restarting tobacco use after a few days/weeks of abstinence. It is important to identify these and developing strategies to handle them.

Common triggers	Handling
Boredom/ Stress/anxiety smoke	Spend time which person enjoy like listening songs, exercise etc.
Mood (positive or negative)	Spend time with friends/family member who do not tobacco or smoke.
Party	Substitute with other behaviors i.e. playing games, creative pursuits.

Craving:

This is one of common impediments in tobacco cessation. Generally, craving is strongest in the first week and lasts for 30-90 seconds each time. As the days pass, the intensity of cravings reduces.

Most withdrawal symptoms are self limiting and are not very disabling.

Handling Craving
<ul style="list-style-type: none"> • Avoid smoking situation • Drink 2 glass of water • Think again reason for quitting • Exercise or take bath • Eat sugar rich food • Deep breathing

c) Explore use of medications i.e. nicotine gum, patch or Bupropion tablets

Nicotine gum

It is now available in India. Each chewing gum contains 2mg of nicotine and is to be chewed like any other chewing gum. It is to be chewed slowly and should remain in mouth for at least 30 minutes for effective absorption. It is more effective in heavy smokers but can be used as and when required to

decrease craving after quitting smoking or chewing tobacco. One can use an average of 10 to 15 gums per day but most patients in India do not require such high doses.

Duration of treatment: 6- 12 weeks.

Bupropion

Bupropion, an antidepressant also helps in tobacco cessation and taking it along with nicotine gum increases the chance of success.

Dose: Patient should first set a QUIT DATE (no tobacco) after discussion with physician. Bupropion sustained release (150 mg) should be started two weeks prior to this and patient should be advised to progressively decrease tobacco consumption.

Duration: for 7-12 weeks. If no significant progress toward abstinence by the 7th week, it is unlikely he will quit during that attempt and treatment can be discontinued.

Contraindication: seizure disorder

ARRANGE Follow up

Set a follow up date about 2 weeks after quitting and reassess the situation. There is every likelihood that patient may slip back to earlier pattern. If so, be accepting and empathetic, reassess the situation and may plan accordingly.

Patient unwilling to change

Patients unwilling to make a quit attempt during a visit may lack information about the harmful effect of tobacco, may have fears or concerns about quitting or may be demoralized because of previous relapse. Such patients may respond to motivational intervention that provides the clinician an opportunity to educate, reassure and motivate the person.

Increase motivation to quit(5 R's)

- Relevance
- Risks
- Rewards
- Road block
- Repetition

Relevance: Encourage the patient to indicate why quitting is important for him and his current health. It works best when the issue is relevant to patient's disease status risk, family or social situations, health concerns etc.

Risks: Discuss with the patient about short and long term risk of continued tobacco use. Highlight the conditions that are most relevant for the patient. Also emphasize that smoking filtered cigarette, low tar or smokeless tobacco will not eliminate these risks.

Rewards: Ask the patient to identify potential benefits of stopping tobacco use.

Rewards

- Improved health
- Dental hygiene
- Feel better physically and psychologically
- Good example for children
- Reduced wrinkling and aging

Roadblocks : Ask the patient to identify barriers or impediments to quitting and reassure that these can be handled if he would try quitting.

Roadblocks (Barriers)

- Fear of failures
- Withdrawal symptoms
- Loss of pleasure
- Constipation
- Depression

Repetitions : The motivational intervention should be repeated every time an unmotivated patient visits the clinic. Tobacco user who has failed in previous quit attempts should be told that most people make repeated quit attempts before they are successful.

Conclusion :

Tobacco dependence is a chronic disease that needs treatment. Effective treatment methods are now available and should be used with every current and former tobacco user.

Suggested Reading

1. Benegal V, Murthy P, Shantala A, Janakiramaiah N. Alcohol related problems : a manual for medical officers. Deaddiction Centre, National Institute of Mental Health and Neurosciences, Bangalore, India, 2002.
2. Coleman T. ABC of smoking cessation: Use of simple advice and behavioral support. British Medical Journal, 2004, 328:397-399.
3. Johnstone C. Effective brief interventions in problem drinking. The Practitioner, 243, 1999:614-618.
4. Latt N, Saunders JB. Alcohol misuse and dependence: assessment and management. Australian Family Physician, 2002,31:1079-1085
5. Molyneux A. ABC of smoking cessation: Nicotine replacement therapy. British Medical Journal, 2004,328:454-456.
6. Patton A. ABC of alcohol. British Medical Journal publishing group, Tavistok Square, London, 1994.
7. Ray R. Treatment principles and issues in management of addictive behavior. In: Substance use disorder: a manual for physician (ed by) Rajat Ray, Drug Deaddiction Treatment Center, Department of Psychiatry, AIIMS New Delhi, 2002, 85-97.
8. West R. ABC of smoking cessation: Assessment of dependence and motivation of quit. British Medical Journal, 2004,328, 338-339.

Suggested slides for OHP

Slide 1: Introduction

Intervention is easy in the early stage of the disorder
Physician should be competent in:

- Screening patients for substance use
- Assessment of problems related to substance use
- Treatment
- Timely referral to specialized services

Slide 2: Alcohol

Problem patterns of drinking include:

- Heavy drinking: at risk for damage i.e. hepatitis, neuropathy, gastritis & addiction
- Problem drinking: evidence of damage in physical/psychological/social
- Addiction: development of tolerance, craving, withdrawal symptoms, morning drinking, impaired control over drink

Slide 3: Screening

Physician should have a high index of suspicious and pick of clues

Pay attention to non specific symptoms i.e. tiredness, insomnia, weight loss, indigestion etc which may indicate an underlying alcohol problem

Routinely enquire about alcohol as a regular part of history taking

Slide 4: Detection and Intervention

Step I: ASK:

Do you drink alcohol?

↓

Yes

Frequency- quantity-duration-type

Check withdrawal symptoms, high risk behaviors i.e. drink driving, fights & physical damage, unprotected Sex under intoxication

Slide 5: Step II: Assess

Detailed assessment required in persons

Drinking

>2-3 times/wk

>2units/d in male />one unit/d in female

Heavy episodic drinking

On screening questionnaire

Yes on any one item of CAGE

Score of > 8 on AUDIT

Slide 6: Assess

With the help of laboratory investigations:

Raised MCV, GGT, AST/ALT ratio

Stage of motivation

Not ready → unsure → ready → changing → changed

Slide 7: Step III: Advice

Be non judgmental, express concern regarding health

Feedback personal risk

Stress on personal responsibility

Advice specifically and clearly regarding desirable change

Provide a Menu /future plan

Indicate Optimism

Slide 8: Step IV: Agree

Final choice on drinking left to the patient

Agree on low risk or moderate drinking if abstinence not being considered by patient

On the need for regular monitoring

Involve the family member i.e. spouse

Slide 9: Agree...

Strongly advice Abstinence in patients with:

Dependence

Significant physical damage

Failed attempts at moderate drinking

Family history of alcohol dependence and related complications

Regular follow up is essential

Slide 10: Alcohol dependence

Considered late stage alcohol problem

Detoxification essential

Benzodiazepine mainstay for detoxification

Additional specific pharmacotherapy along with counseling helps

Abstinence is the goal

Slide 11: Relapse

Most patient do restart drinking
Do not panic as relapse is natural in the course of alcohol use

Assess: When, Where, Preceding event for relapse

Advise: How is patient going to handle relapses in future?

Slide 12: Tobacco

ASK

Do you find it difficult not to smoke in certain situations?

Have you tried to quit smoking in the past but could not?

“Yes” to either of these questions-person need help

Advise

Strongly urge all users to quit in a clear, strong, and personalized manner.

CLEAR- “Quit now, not just when you are ill”.

STRONG- “Quit now and protect health

PERSONALISED- Tie use to adverse impact.

Slide 13: Advise...

Benefits of quitting

20 MINS - B.P, Pulse & Body Temperature returns to normal

8 HRS – CO level in blood & O₂ level becomes normal

24 HRS - Chances of heart attack decrease

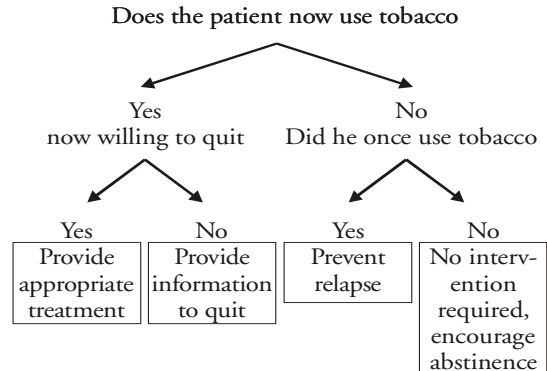
72 HRS- Bronchial trees relax, lung capacity, breathing easier

2 WKS- 3 MONTHS - Circulation improves, walking easier

5 YRS - Lung cancer death risk decreases by 50%

10 YRS - Lung cancer death risk drops to the level of a non-smoker.

Slide 14: Assess



Slide 15: ASSIST

Help with a quit plan:

Set a quit date

Tell family, friends/request help

Avoid, Remove tobacco

Relapse Prevention

Discuss triggers/challenges

Review past experience and lessons learnt

Help the user to obtain extra-treatment social support from workmates, family and friends

Recommend use of approved pharmacotherapy.

Comorbidity in Substance Use Disorder

16

S Parker

Summary

The coexistence of substance use with mental health problems is a rule rather than an exception. It has also been established beyond doubt that comorbid conditions have severe clinical presentations. Till date, there are no uniformly accepted, comprehensive and coherent guidelines for the care of patients with coexisting substance use and mental health problems. Management is mostly opinion-led and this area of substance use disorders continues to remain a poor neglected step-child.

Patients with comorbid disorders irrespective of temporality and cause-effect relationship pose a great burden on health care services. However, the significance of this condition is almost always disregarded. A dire consequence of this is that these patients and their families experience tremendous distress. It is of significant mental health importance that this category of patients be identified and treated appropriately – in a manner dissimilar from the solitary diagnosis of a substance use disorder or a mental illness.

Introduction

Comorbidity is defined as the presence, either simultaneously or in succession, of two or more specific disorders in an individual within a specified period.

Comorbidity can be used to describe the presence of a comorbid physical condition (general medical condition) or psychiatric disorder. However, in most systems of psychiatric classi-

fication, general medical condition is coded separately. Comorbidity in psychiatric terms and in the context of substance use disorders usually refers to the co-occurrence of psychoactive substance use and other mental disorders.

Two terminologies often used include:

- 1) Mentally Ill Chemical Abuser (MICA)/Mentally Ill Substance Abuser (MISA)/Chemical Abusing Mentally Ill (CAMI): These terms have been used to describe patients with a psychiatric disorder having a comorbid substance use disorder.
- 2) Dual Diagnosis: Patients with a substance use disorder and comorbid psychiatric manifestation are referred to as dual diagnosis patients.

The distinction between the two categories is very thin and it may not always be possible to establish a primary-secondary relationship between the two.

Irrespective of the type, comorbidity has been shown to have major consequences. Three major epidemiological surveys, the Epidemiological Catchment Area study (ECA), National Comorbidity Study (NCS) which were conducted in USA and Netherlands Mental Health Survey and Incidence Study showed that subjects with comorbid disorders had higher service utilization rates than those with psychiatric illness alone. Studies have also linked comorbidity with a more severe symptom profile, greater functional disability and a longer illness course.

Prevalence

In the ECA study, an estimated 45% of individuals with alcohol use disorders and 72% of individuals with a drug use disorder had at least one co-occurring psychiatric disorder. In the NCS, approximately 78% of alcohol-dependent men and 86% of alcohol-dependent women met lifetime criteria for another psychiatric disorder, including drug dependence.

Correspondingly, 65% women with other substance abuse or dependence received at least one additional diagnosis. Conversely among psychiatrically ill patients, substance use disorder was found to be 15.7% in the past month with a lifetime prevalence of 32.7%.

Indian studies are available only on psychiatric conditions comorbid with alcohol. The prevalence of comorbid psychiatric disorders in alcohol ranges from 12.5%-46.0%, depressive symptoms from 27.5%- 48.6%, depressive disorder from 8.8%- 23.6%, and psychosis from 10.0%-29.2%.

The most common psychiatric disorders seen with substance use disorders are:

- 1) Antisocial personality disorder (prevalence rate of 35-60%)
- 2) Depression. One-third to one-half of opioid abuse or dependence and about 40% of those with alcohol meet criteria for major depressive disorder sometime during their lives. Studies have also shown substance abuse to be a major precipitating factor for suicide. Persons abusing substances are 20 times more likely to die by suicide as compared to the general population.
- 3) Panic and other anxiety disorders (In patients with alcohol dependence-Panic disorder - 5 to 42%, Generalized anxiety disorder-8.3 and 52.6%, social anxiety disorder- 8 to 56%, Obsessive-compulsive disorder -3-12%).
- 4) Schizophrenia: 10.1% prevalence.

Classification

Comorbid disorders can be classified as follows:

- a) Depending on the drug of abuse like alcohol-induced psychosis or schizophrenia with comorbid alcohol dependence.
- b) On the pharmacological action of the drug e.g. stimulant induced psychosis.
- c) Type of psychiatric disorder such as schizophrenia, depression.
- d) Etiological significance.

The routinely followed classification is based on etiological significance. In order to establish a cause –effect relationship, it is essential to understand

- 1) The chronological order of appearance:
- 2) Influence of remission in one of the disorders on severity of the other: This usually confirms the diagnosis. Often in substance-induced cases, there is an attenuation of the comorbid psychiatric disturbance associated with abstinence from the substance.
- 3) Certain other paradigms that can be used in diagnosing substance-induced disorders including absence of any other condition that could result in the psychiatric disturbance and the severity of mental illness associated with the substance use.

Accordingly, Comorbid conditions in substance use disorders can be classified thus:

a) Classification based on etiology

1) Primary substance use disorder with secondary psychiatric disorder.

These include substance-induced conditions such as alcohol-induced psychosis probably caused by organic changes in the brain. In some cases, the psychiatric disorder can be a secondary condition caused by the psychological and

social effects of the substance use.

2) **Primary psychiatric disorder with secondary substance use disorder.**

In some psychiatric disorders, it is seen that the patients consume the substance as a form of self-medication to obtain relief from the disorder. e.g. alcohol consumption secondary to panic attacks. Patients with schizophrenia very commonly abuse nicotine to decrease the intensity of hallucinations and thus improve alertness.

3) **Primary psychiatric disorder with substance use disorder as part of the clinical syndrome.**

In some patients, the substance disorder can be a part of the clinical syndrome of the psychiatric illness. e.g. alcohol consumption increases during the manic phase of bipolar disorder.

4) **Two coexisting independent disorders.**
Initially considered improbable, the concept of co-existence of two independent psychiatric disorders is now accepted.

b) **Classification Based on Severity :**

This approach based on severity considers a mix of substance abuse and mental health disorders in the categorization scheme, and uses categories that reflect the relative severity of each set of problems. It has been adapted from Weiss et al. whereby categories based on low/high severity of psychiatric and substance use disorders are described.

- 1) Substance abuse and non-severe psychopathology (Psych-low, Substance-low).
- 2) Complicated chemical dependency (Psych-low, Substance-high).
- 3) Substance abusing mentally ill. (Psych-high, Substance low).
- 4) Substance dependent mentally ill. (Psych-high, Substance-high).

c) **Approach Based on existing classificatory systems**

The third approach is to form sub-categories based on a broad DSM-IV classification of mental health disorders. DSM-IV provides the option of indicating that the disorder is “substance induced” .

Etiology

The etiology of the high prevalence of substance use disorders in patients with mental illness is unclear. The evidence of different theories of increased comorbidity can be organized according to four General Models.

1) **Common factor model :**

Among common factor models, evidence suggests that anti-social personality disorders accounts for some increased comorbidity.

2) **Secondary substance use disorder Model :**

Among secondary substance use disorder model, there is support for the supersensitivity model, which posits that biological vulnerability of psychiatric disorders results in sensitivity to small amounts of alcohol leading to substance use disorders. This models implies a selective matching of specific substances (and their subjective effects) with specific symptoms. The self medication hypothesis links substance use to the patients' wish to improve psychopathological symptoms such as anhedonia or side effects of neuroleptic treatment.

3) **Secondary Psychiatric disorder model :**

Secondary psychiatric disorder model remains controversial till date. This model focusses on vulnerability and hypothesizes that drug abuse may cause psychiatric illnesses and vice versa in a vulnerable individual.

Various other models like the bidirectional model have been proposed but these have not been adequately substantiated. No single model has unequivocal support and can claim to explain all cases of comorbidity between substance abuse and psychiatric illnesses and it is possible that all models contribute in the explanation.

Management

It is of importance to realize that treatment of comorbid conditions cannot be generalized. Treatment has to be tailored according to the specific needs of each individual patient. This will vary according to

- 1) Nature of drug abused like stimulant, sedative
- 2) Type of psychiatric disorder.

Models of Treatment :

As mental health professionals have become increasingly aware of the existence of patients with co-morbid disorders, various attempts have been made to adapt treatment to the special needs of these patients. These attempts reflect philosophical differences about the nature of comorbid disorders, as well as differing opinion regarding the best way to treat them. There are three approaches to treatment.

- 1) Sequential treatment :

This is the first and (historically) most common model of dual disorder treatment. The term sequential treatment describes the serial involvement of both mental health and addiction treatment teams. The severity of the disorder determines the priority – substance abuse or Psychiatric illness.

- 2) Parallel treatment :

In this model the mental health and addiction treatment teams work simultaneously, but separately. This has been found

to be most efficacious when the psychiatric symptoms are not very severe.

- 3) Integrated treatment :

A third model, called integrated treatment, an approach that combines elements of both mental health and addiction treatment into unified and comprehensive treatment program for patients with co-morbid disorders. Integrated treatment involves clinicians cross trained in both mental health and addiction who use a unified case management approach, making it possible to monitor and treat patients through various periods of crisis related to either substance abuse or the psychiatric illness.

Management of comorbid conditions essentially includes:

- 1) Establishing a diagnosis
- 2) Management of substance withdrawal
- 3) Short-term management of the psychiatric disorder
- 4) Maintenance of abstinence and long-term management of psychiatric disorder
- 5) Rehabilitation
- 6) Caregiver psychoeducation

1) Establishment of diagnosis:

Substance intoxication may resemble a psychiatric disorder (for e.g. patients under the influence of alcohol often talk irrelevantly) and protracted substance withdrawal can complicate psychiatric presentation (for e.g. opium withdrawal can mimic depressive disorder). Inadequate history may give rise to further confusion about the cause-effect relationship. Hence, it is advisable to treat the substance withdrawal and wait for a minimum of 2-4 weeks before confirming the diagnosis of the psychiatric disorder.

2) *Management of substance withdrawal:*

Adequate management of the substance withdrawal (detoxification) must be done for an adequate duration. Substance-induced psychiatric disturbances remit with adequate and rigorous management of withdrawal. However, in some conditions like alcoholic hallucinosis, the condition can become chronic. It forms good clinical practice to consider substance induced psychotic disorders as a variant of brief psychotic disorder and treat the patient accordingly.

3) *Short-term management of the psychiatric disorder:*

If the patient continues to manifest the psychiatric disturbance, it is recommended that the patient receive treatment appropriate to the disorder.

4) *Maintenance of abstinence and long-term management of psychiatric disorder:*

Both steps are to be treated hand-in-hand. Comorbidity forms a vicious cycle with both disorders contributing to each other. Hence it becomes essential to attain long-term remission in both. If any one condition is neglected, the comorbid condition can get exacerbated. The following paradigms can be helpful in management.

Long-term management of psychiatric disorder involves

Pharmacotherapy: The patient should be treated for the psychiatric disorder with adequate doses for an adequate time period. Anticraving agents can help in abstinence. However, the anticraving agent has to be selected appropriately. SSRIs can help in comorbid depression. Disulfiram can precipitate psychosis and hence should be used cautiously in comorbid schizophrenia. Topiramate as a mood-stabilizer has also been used as an

anti-craving agent. Long-acting depot antipsychotics have been shown to be efficacious in patients with alcohol dependence and comorbid psychosis. It is advisable to avoid the use of long-term benzodiazepines in patients due to their addictive potential.

Psychotherapy: Patients with comorbid disorders are difficult to engage in any kind of psychotherapeutic relationship. However, these patients can benefit from psychoeducational programmes, group therapy, and individual psychotherapy.

5) *Rehabilitation:*

It is essential to ensure that patients are adequately rehabilitated to prevent relapses.

6) *Caregiver psychoeducation:*

Caregivers need to be educated about the special nature of comorbidity, i.e., the co-existence of two disorders and should be forewarned about the problems and prognosis. They should be adequately prepared to spot the early warning signs of relapse. This can be done either individually or in groups. Adequate support to the caregiver and encouraging healthy coping patterns to deal with perceived burden is essential.

Problems in management:

- 1) Difficulties in establishing the diagnosis. (Discussed in the earlier section)
- 2) Difficulties in treatment: Patients with comorbid substance use disorder are often non-compliant to the medications. They are more prone to the side-effects of the various psychotropics used for treatment.
- 3) Presence of additional organic brain damage may complicate management.
- 4) Long-term rehabilitation is often difficult, as most substance-use rehabilitation centres do not attend to patients with

comorbid psychiatric disorders leading to poorer prognosis characterized by an unpatterned behaviour pattern and frequent relapses.

Mental Health Significance:

Even relatively minor use of a substance by a person experiencing mental health difficulties may lead to worsening of this condition and may have significant health implications. The coexistence of substance use and mental health problems has been linked to increase in impulsive, aggressive and disinhibited behaviors, as well as an increase in anxiety, depression and self-harm.

Comorbidity also leads to social problems, difficulties with activities of daily living, worsening of physical health and significant legal and financial problems. In extreme situations a person may end up behaving in self-destructive and antisocial ways. They may become homeless, be disengaged from their family and community, and have a higher chance of exhibiting high-risk behaviors such as indulging in criminal activities, intravenous drug use, needle sharing, suicide attempts, unsafe sex, and binge consumption.

Overall, the presence of comorbidity increases the incidence of relapse and the need for acute intervention for both the substance use and the mental health problem.

Impact on caregivers and health providers:

As discussed earlier, comorbidity in substance use disorder is characterized by frequent relapses. This poses tremendous burden on the caregivers emotionally and financially and can lead to caregiver burden and depression. These in turn lead to increased expressed emotions that further aggravate the patient's illness. Often it is seen that because of the frequent relapses, the caregiver loses interest in the patient and the treatment process. The patients

are then brought to the treatment facilities only in dire emergencies.

Frequent relapses, difficulty in establishing and maintaining therapeutic relationship, poor compliance and a non-committal attitude of the caregiver has a negative impact on the treatment provider occasionally leading to a negative counter-transference.

An ideal situation for management of these patients is a specialized set-up with physicians trained in all aspects of management of patients with dual disorders.

Impact on health care utilization:

Studies have shown that comorbidity increases health care service utilization. It has also been shown that 50% patients attending the emergency room are patients with dual disorders. Thus these patients account for a significant proportion of health care costs.

Role of the General Practitioner:

Majority of patients suffering from comorbid conditions are never seen by a specialist. The general practitioners (GPs) is often the first and only contact. Damien McCabe and Chris Holmwood (Australian Resource Centre, Primary Mental Health Care) have suggested the following possible role of GPs in management:

- Early detection and accurate diagnosis of comorbidity
- Provision of information on the patients' condition and treatment approaches
- Brief interventions for people with lower levels of disability
- Referral and co-ordination of care for more severely affected people
- Medical treatment for physical health complications
- Provision of a high level of support to the patient and their family
- Long term monitoring and follow-up

Suggested Reading

1. Nimesh G Desai, Dhanesh K Gupta, KA Khurshid. Substance use disorders. In: Text-book of postgraduate psychiatry. JN Vyas and Niraj Ahuja (Eds). New Delhi. Jaypee Brothers Medical Publishers (P) Ltd, 1999, 76-150.
2. Ron de Graaf, Rob V. Bijl, Filip Smit, Wilma A.M. Vollebergh, and J. Spijker. Risk Factors for 12-Month Comorbidity of Mood, Anxiety, and Substance Use Disorders: Findings from the Netherlands Mental Health Survey and Incidence Study. *Am J Psychiatry* 2002; 159:620-629.
3. Li-Tzy Wu, Anthony C. Kouzis, and Philip J. Leaf. Influence of Comorbid Alcohol and Psychiatric Disorders on Utilization of Mental Health Services in the National Comorbidity Survey. *Am J Psychiatry* 1999; 156:1230-1236.
4. Substance-related disorders. In: Synopsis of psychiatry. Harold I Kaplan and Benjamin J Sadock (Eds) 8th edition 1998. Maryland. Williams and Wilkins: 375-455.
5. Kessler RC, McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, Wittchen H-U, Kendler KS: Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: results from the National Comorbidity Survey. *Arch Gen Psychiatry* 1994; 51:8-19.
6. Robins LN, Locke BZ, Regier DA: An overview of psychiatric disorders in America, in *Psychiatric Disorders in America: The Epidemiologic Catchment Area Study*. Edited by Robins LN, Regier DA. New York, Free Press, 1991,328-366.
7. Hugh Myrick, Kathleen Brady. Review of Comorbidity of Affective, Anxiety, and Substance Use. *Current Opinion in Psychiatry*, 2003; 16(3): 261-270.
8. Reiger DA, Farmer ME, Rae DS, et al Comorbidity of mental disorders with alcohol and other drug abuse. *JAMA* 1990; 264:2511-2518.
9. Damian McCabe & Dr Chris Holmwood. What is comorbidity and why do general practitioners need to know about it? -The Comorbidity Problem. Primary Mental Health Care Australian Resource Centre. (PARC project-2001).

Suggested slides for OHP

Slide 1: Comorbidity and substance use disorders:

Concept: Co-occurrence or presence, either simultaneously or in succession, of two or more specific disorders in an individual within a specified period.

Terminologies:

- MICA (Mentally Ill Chemical Abuser), MISA (Mentally Ill Substance Abuser), CAMI (Chemical abusing Mentally Ill)
- Dual Diagnosis

Slide 2: Basis of classification:

- 1) Drug of abuse like alcohol, opium, cannabis.
- 2) Purpose the drug serves such as stimulants, sedatives.
- 3) Type of psychiatric disorder like depression, psychosis.
- 4) Etiological significance

Slide 3: Criteria for establishing cause-effect relationship:

- Chronological order of appearance of symptoms
 - Influence of remission on one of the disorders on severity of the other.
- Classification (etiological significance)
- Primary substance use disorder with secondary psychiatric disorder
 - Primary psychiatric disorder with secondary substance use disorder
 - Primary psychiatric disorder with substance use disorder as part of the clinical syndrome
 - Two coexisting independent disorders.

Slide 4: Etiological Models

Common Factor Model

Secondary substance use disorder Model

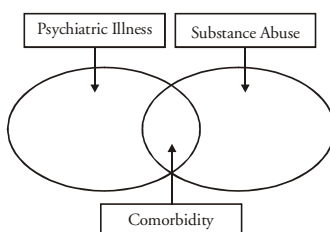
Secondary psychiatric disorder Model :

Bidirectional Model

Prevalence

ECA study: Comorbidity of mental illness in substance use disorder

Men – 76%
Women - 65%



Slide 5: Most common comorbidity in substance use disorders

1. Antisocial Personality Disorder
2. Depression
3. Panic disorder and other anxiety disorders
4. Schizophrenia

Slide 6: Significance

1. Difficulties in diagnosis: -
 - a. Substance intoxication can resemble psychiatric disorder
 - b. Protracted substance withdrawal complicates psychiatric presentation.
 - c. Establishment of a cause-effect relationship
2. Difficulties in management
 - a. Problems in establishing therapeutic relationship
 - b. Poor compliance to medications
 - c. Increased side-effects with medications
3. Increased chances of organic brain damage due to substance use disorder

Slide 7: Management: Salient features

- 1) Adequate and appropriate management of withdrawal phase
- 2) Diagnosis of psychiatric disorder to be established only after end of withdrawal phase.
- 3) Appropriate and rigorous management of psychiatric disorder
- 4) Anticraving drugs for substance use disorder can be used
- 5) Disulfiram contraindicated in comorbid psychosis
- 6) SSRIs preferred as anticraving in comorbid depression
- 7) Long-acting depot preparations like Flupenthixol
- 8) Avoid long-term use of benzodiazepines
- 9) Long term rehabilitation with regular follow-up
- 10) Caregiver psychoeducation.

Slide 8: Role of GPs.

- Early detection and accurate diagnosis
- Provision of information on condition and treatment approaches
- Brief interventions for lower levels of disability
- Referral and co-ordination of care for higher levels of disability
- Medical treatment for physical health complications
- Provision of support to the patient and their family
- Long term monitoring and follow-up

Substance use disorder in Women

17

Pratima Murthy, Prabhat Chand

Summary

Substance abuse in women is a growing concern in India. While traditional surveys have been unable to provide insights into this hidden problem, recent studies of special population and qualitative research suggests that alcohol, tobacco, opiates and sedatives are drugs that are commonly abused by women from diverse backgrounds. Patterns of use across the country vary. However, some common themes appear to be an early onset, use in the context of a heterosexual relationship, greater emotional problems and poor social support. Women are more vulnerable to the adverse physical consequences of substance use. The environment plays a significant role in development of substance abuse in addition to genetic vulnerability. There are specific issues with regard to treatment of substance use in women, which include delay in recognition of the problem, associated stigma, lack of support systems for treatment and follow-up and other social and psychological issues.

Introduction

Substance abuse has traditionally been considered a disease of men. Women were believed to have some kind of immunity in terms of “social inoculation”. However it is now being seen that women are also susceptible to substance use and related problems. Historically, the understanding of substance use is based on male consumption patterns. Though earlier believed that these patterns are equally applicable to women, recent research has shown important gender differences in biology, epidemiology,

socio-cultural factors and psychological comorbidity.

In many developing countries substance abuse is no longer an exclusive or predominantly male activity. However there is hardly any information on substance abuse among women from developing countries.

Epidemiology

Epidemiological surveys from the United States show one-month prevalence rates of alcohol use disorders in men as being five times more common than in women. The prevalence of alcohol dependence was twice in men as compared to women. The rates of tobacco dependence are almost the same in both groups (men: 31%, women: 27%). Evidence from U.K, Australia and Switzerland point towards increasing substance abuse in women.

In India, traditional use of various substances by women during religious festivals is not unknown. Chewing tobacco is a common practice among many women across the country. Cultural use of alcohol has been known in some tribal populations. National multi-centered studies in early 80's reported negligible drug use rates among women. The findings in the 1990s also indicated that drug abuse was a predominantly male phenomenon and that 92 to 94 percent of women had never used drugs in their lifetime.

The low numbers of women substance users in traditional surveys is probably reflective of the unsuitability of existing epidemiological

surveys in identifying substance use among women. However, recent data from treatment centers shows that 1 to 3 percent of treatment seekers are female. Therefore, more recent studies have shifted from traditional surveys to studies of specific groups of women with respect to their substance use. A study carried out in 2002 in three cities i.e. Delhi, Mumbai and Aizwal examined substance abuse patterns in women, characteristics of women users and gender issues in treatment. The predominant drugs of abuse were heroin, propoxyphene, alcohol and minor tranquilizers. Injecting drug use was reported especially from Mumbai and Aizawl. About half the women substance users were between twenty to thirty years and majority were employed. Engaging in unsafe sexual practice was observed among many substance abusing women.

In a rapid assessment study of 4648 substance users in the community, it was possible to identify 371 women substance users (7.9%), which may suggest that substance use among women is becoming more visible. The trends from this study appear to suggest that substance use occurs more commonly in single, educated women. Currently, women appear to have an early onset of substance use, have high level of substance use in families and also have an early initiation into sexual activity. In comparison to male counterparts, there appear to be increasing numbers of single, better-educated women initiating substance use in urban areas.

Studies from western countries show that men smokers are twice that of women smokers. Although smoking among women is not common in our culture, chewing of tobacco is quite high. Among 39,840 women in Mumbai, 58% were chewing tobacco. In rural Karnataka, 7-9% of 467 women reported chewing tobacco. In a survey of 500 pregnant women, 33% reported tobacco use, mainly as tooth powder.

Etiology

Genetic factors

Twin and adoption studies in males have suggested the robust association of genetic factors in the cause of alcoholism. In female alcohol abusers there is evidence that inherited factors are strongly influenced by the environment. One recent study from Australia involving 2000 female twin pairs have showed the risk of genetic factors for drinking falling from 60 to 40 percent following marriage or cohabitation. Across all studies, one of the most important factors influencing drinking in women was found to be alcohol use or abuse by spouse. Studies from India also suggest that a large number of women alcohol dependents started drinking to keep their spouses company. These evidences imply the important role of environmental influences in association with genetic factors in development of alcohol abuse in females

Studies on genetic markers showed that compared to non-alcoholic women without first-degree relatives suffering from alcohol dependence, those with first-degree relatives suffering from alcohol dependence showed fewer errors for the same Blood alcohol level.

Psychological factors

The few studies examining psychological predictors of alcohol use in women all emphasize the strong association of co-morbid psychological factors in this group in comparison with males. Low self esteem and impaired ability to cope at the high school level in girls was found to predispose to future problem drinking in an Australian study. Childhood sexual abuse increased the risk for both substance abuse and dependence in women. There is a significant association between substance use and major depression in women, with studies suggesting an odds ratio for developing alcohol abuse or dependence of 4.10 for depressed female compared to 2.67 for a male with major depres-

sion. Studies from India report association of depression (62.7%) and anxiety (53.3%) in the women using substances.

Sociocultural factors

Research in developed countries suggests that a number of social factors differentiate women and men substance users. Women experience more social disapproval of substance use. Similarly women are more likely to have role models in their families and have an alcohol-using spouse. More female substance users are likely to get separated or divorced. In males, the substance abuse is more likely to affect jobs or career. Women are less likely to be involved in criminal acts or social deviance and have higher internalizing problems than males. Other factors like poor education status, lack of job, young age at work, early marriage and lack of social support increase vulnerability to substance use in female.

Biological responses

Gender differences in the physiological effects contribute to the increased harmful effects of

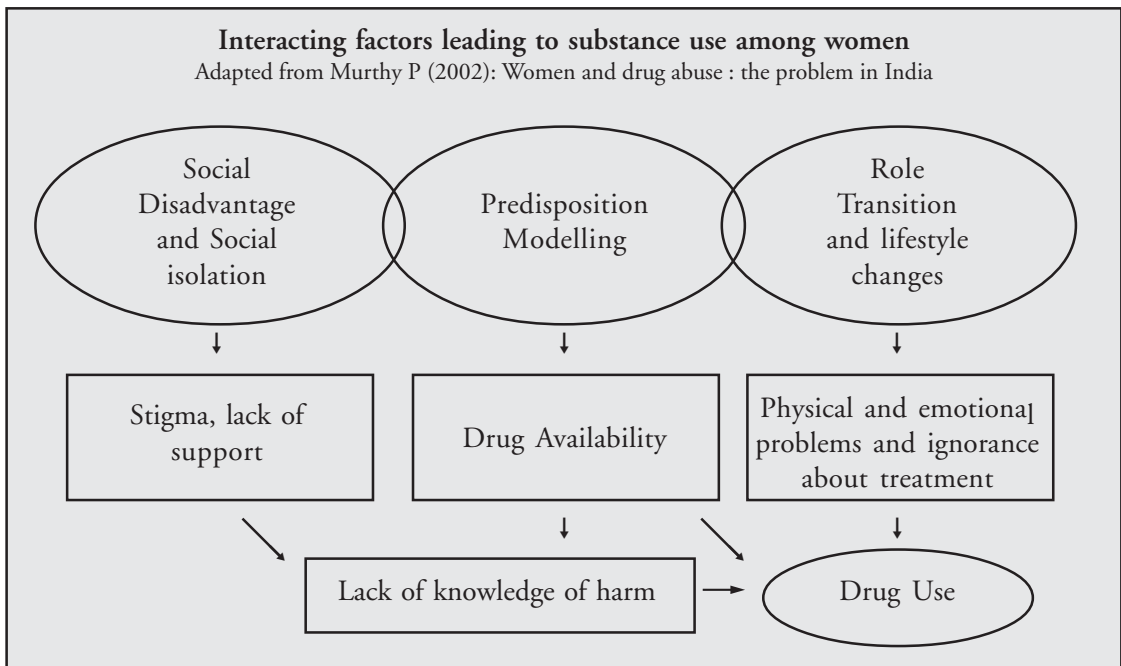
alcohol in women than in men. Women become intoxicated after drinking smaller quantities of alcohol than do men. This may be due to less body water in comparison to size, which means they achieve higher blood concentrations than do men after drinking an equivalent amount of alcohol. Additionally, lower levels of alcohol dehydrogenase enzymes in the stomach results in a higher amount of alcohol in the systemic circulation. Women develop alcohol liver disease with comparatively shorter and less intense drinking than men. More women die from cirrhosis than men. Heavy alcohol consumption may also be associated with increased risk of menstrual disturbances, infertility and breast cancer.

Aetiology

- High family loading
- Greater psychiatric symptoms and dual diagnosis, especially depression
- Greater likelihood of living with a substance using partner
- Greater marital disruption

Interacting factors leading to substance use among women

Adapted from Murthy P (2002): Women and drug abuse : the problem in India



Pregnancy and lactation

Teratogenic effects of alcohol consumption are well known. Fetal alcohol syndrome (FAS) and fetal alcohol effects of alcohol have been identified as among the leading cause of mental retardation in the western world. FAS is diagnosed by presence of craniofacial anomalies, central nervous system dysfunction, and major organ system malformation. Children born with less than the full constellations are termed as FAE (Fetal alcohol effects), a continuum of fetal alcohol syndrome. The incidence of FAE is found to be 1.9 per 1000 live birth in western studies. In case of heavy alcohol drinking, the incidence increased up to 25 per 1000 live births. Under reporting of the alcohol use in women poses difficulty in actual estimation of harmful effects on the fetus. Prenatal alcohol exposure is related significantly to persistent problems with attention, distractibility and slower reaction times.

Use of other substances like cocaine and nicotine showed significant impairment of orientation, motor and intrauterine growth retardation. Term infants born to these mothers had lower mean birth weights, lengths, and head circumferences. Apart from this, the risk of adolescent pregnancy and its complication goes together with increased risk of substance use.

Alcohol and Sex

Traditionally, alcohol is believed to increase sexual power and enjoyment. Studies have shown that it is not alcohol itself, but the belief that alcohol improves sex, which is responsible for increased sexual enjoyment. However, heavy drinking actually inhibits sexual enjoyment. Women who drink heavily have been shown to be more likely to have early sexual experiences, to have a greater number of sexual partners, and to have unprotected sex. This exposes them to the problem of unwanted

pregnancies and sexually transmitted diseases. Drinking to intoxication also makes a woman less able to defend herself, and more vulnerable to sexual abuse and rape.

Course of Illness

Initiation

The reasons for initiation of substance particularly alcohol among adolescent girls have been studied predominantly in American situations. Common reasons cited include adolescent depression and problems in adjustment, hanging out with older male friends, peer pressure, feeling of a sense of glamour and power, and disappearing stereotypes about femininity. These reasons are likely to be universal, and equally applicable in India. Adolescence is a time when there is a constant struggle between dependence and autonomy, and all adolescents are extremely vulnerable to psychological pressures including drinking as a way of creating an image or dealing with the pressures.

Research suggests that while many of the reasons why adolescent's drink are gender blind, some factors may affect girls more than boys.

- Puberty tends to bring a higher incidence of depression among teenage girls, which can trigger alcohol use. One study found symptoms of depression in one in four girls – a rate that is 50 percent higher than in boys.
- Adolescent girls who are heavy drinkers (drink five or more drinks in a row on at least 5 different days in the past month) are more likely than boys to say that they drink to escape problems or because of frustration or anger.
- Friends have a big influence on teenagers overall, but girls are particularly susceptible to peer pressure when it comes to drinking. Adolescent girls are more likely than

boys to drink to fit in with their friends, while boys drink largely for other reasons and then join a group that also drinks.

Girls often are introduced to alcohol by their boyfriends, who may be older and more likely to drink.

It is shown from Indian studies that positive expectancies regarding benefits of alcohol use were cited as the most common reason for initially starting to drink. Also, the positive expectancies cited by men and women differ significantly (Table 1).

Table 1: Positive expectancies regarding effects of alcohol use

Females*	Males**
<ul style="list-style-type: none"> • Elevates mood • Provides strength after childbirth • Improves health and relieves tiredness 	<ul style="list-style-type: none"> • Improves sleep • Improves sleep • Relieves tiredness, fatigue and worry • Prevents colds, coughs and breathing problems, helps in asthma and paralysis • Increases joy and cements friendship • Improves sexual desire and performance

*Murthy et al (1995) **Chandrasekhar (1994)

Women attributed mood elevating and antidepressant properties to alcohol, and in the light of the prominent pre-existing depression reported by many of them, might have started alcohol as a form of self-medication. Men on the other hand used it to improve sleep or decrease tiredness. The second most common attribution among women was that alcohol had major restorative properties after childbirth. The next most common reason for initiation

of drinking was in order to keep company with their husbands.

Course

The course of substance use disorders, particularly alcohol, seems to be different for women than for men. The interval between the age of first drinking and treatment seeking seems to be shorter for women than for men. As mentioned previously, studies suggest that women experience greater medical, physiological and psychological impairment earlier in their drinking career. In addition, women seem to progress between landmarks associated with the developmental course of alcoholism (e.g. regular drinking or loss of control) sooner than men. This accelerated progression of alcoholism in women is commonly referred to as “telescoping.”

Assessment and treatment

Once a female patient begins treatment, she should be carefully evaluated for additional psychiatric and substance use disorders. The first step involves building rapport with the patient. It is important to educate them about the substance and its ill effects. It works well when the physician can personalize the harm suffered by the index patient. For example, for a patient having alcohol induce hepatitis, discussing about the physical effects of alcohol is more useful. Linking the medical problem with the substance and recommend reduction or abstinence is the next most important step in the management. Also emphasize patient’s responsibility in helping herself out of the problem.

Decisions about in-patient admission need to take into consideration not just clinical issues, but also social issues, especially the care of young children that the patient may have. The need for separate services for women with substance use to address their special social and emotional needs is increasingly being recognized.

Then physician helps the patient in ways to maintain abstinence from substance like recognizing risky situations, coping with negative emotions, handling friends etc. Even if you feel that the patient is not motivated or not sure regarding the treatment, it is very important to keep her in therapeutic net. It helps the person to think and reconsider his views in next follow up. It is helpful to involve the family members, particularly spouse in the treatment plan and long term rehabilitation. Clinical experience suggests that social supports for women substance users are often lacking, and this increases their chances of dropping out of treatment. Enhancing support as part of after-care is very important to maintain recovery among women.

Treatment approaches to substance dependence in women

- Establishing confidentiality and rapport, being non judgmental
- Assessment of severity of the problem
- Comorbid depression, anxiety, and inter personal problem need attention
- Educate ill effects of substance to her and family and fetus if she is of reproductive age
- Feed back of the damage due to substance
- Help in reduction or abstinence and in handling high risk situations
- Increase self esteem
- Use pharmacotherapy also where indicated

In a woman who is dependent or having a co-morbid psychiatric problem, it is advisable to refer her to the specialist.

When co-morbid psychiatric disorders are discovered, it is helpful to determine whether

the disorder preceded the addiction or had its onset during a prolonged period of abstinence and therefore may be regarded as primary. In the latter condition, the patient should be prepared to recognize early indication of recurrence of the psychiatric disorder during her recovery from addiction.

Pharmacotherapy

In the initial visits the symptomatic treatment of substance withdrawal symptoms is essential. Unless the withdrawal is complicated by conditions like delirium tremens or seizures, most cases can be treated as outdoor basis. This is especially important in social situations when admission may not be feasible.

Conclusion

Under recognition of substance abuse and barriers to accessing services often prevent women from benefiting from treatment. First, identification of women substance abusers by health care professionals can be hindered because of stereotypic views of women and of substance abusers. Second, women often have basic needs such as food, economic constraints, housing, and safety from battering or assault. Furthermore women, more often than men are primary care givers for their children and that may hinder from entering into treatment due to lack of social support.

Summarising, women need some of the same treatment services as men, such as detoxification, education, support, and treatment of comorbid physical and psychiatric disorders. Women, however, require more attention for childcare, associated psychiatric and medical disorders, building self-esteem, supportive therapy from therapist, care from spouses, and other possible sources of support in the community.

Suggested Reading

1. Blume SB. Alcohol and other drug problems in women. In: Substance abuse :a comprehensive text book (eds.) J.H. Lowinson, P. Ruiz & R.B. Willman. Maryland. Williams & Wilkins. 1992, 794-807.
2. Blume SB. Addiction in women. In: Text book of Substance use (eds.) M Galanter & HD Kleber Washington. American Psychiatry Press, 1999.
3. Brady KT & Randall CL. Gender differences in substance use disorders. *Psychiatric Clinic of North America* 1999,22:241-252.
4. Closser MH & Blow FC. Special populations:women,ethnic minorities and the elderly. *Psychiatric Clinic of North America* 1993,16:199-209.
5. Gupta PC. Survey of Socio demographic characteristics of tobacco use among 99598 individuals in Bombay, India using handheld computers. *Tobacco Control*, Summer, 1996, 5(2): P 114-120.
6. Kewalramani M, Murthy P. Women and Alcohol. In *Manual on Women's Counseling*. (eds) C.R.Chandrashekar . NIMHANS, Bangalore, 2002:33-36.
7. Murthy NV, Benegal V, Murthy P. Alcohol Dependent Females: A clinical profile. Abstracts of scientific papers presented at the 47th Annual National Conference of the Indian Psychiatric Society. *Indian Journal of Psychiatry (Supplement)*; 1995, 37:2.
8. Murthy P. Women and drug abuse: the problem in India. Ministry of Social Justice and Empowerment, Government of India and United Nations Office on Drugs and Crime, Regional Office for South Asia, 2002.
9. Murthy P. Alcohol consumption and its consequences for women. In *Young Ladies* (ed) A. Khwaja. Banjara academy, Bangalore, 2003: 31-36.
10. Prasad S, Murthy P, Verma V,Mallika R and Gopinath P S. Alcohol dependence in women: a preliminary profile. *NIMHANS Journal* 1998, 2:87-91.

Suggested slides for OHP

Slide1

- Substance use traditionally a disease of men
- Recent research show significant differences in biology, sociocultural factors and psychological morbidity in women and men
- Very few studies exist on substance abuse and women

Slide2: Epidemiology

- US – Prevalence of alcohol use disorders in women 1/5 as compared to men
Alcohol dependence 1/2 compared to men
Tobacco dependence: 27% in females
- India – Traditional and cultural use permissible in certain sections of society
Treatment seekers: 1 – 3% of treatment seekers are females
Study in 3 cities in 2002:
Heroin, Propoxyphene, Alcohol, and Minor Tranquilisers
Majority in 20s – 30s, employed
Rapid assessment survey: 7.9% female users
Most common:
Single uneducated females
Early onset of drug use
Family history positive
Early initiation into sexual life
Tobacco use: 3.7% of females in India smoke

Slide 3: Etiology

- A) Genetic factors: Robust association with alcoholism
Both state and trait markers seen
- B) Psychological: Strong association compared to males
Low self esteem, impaired ability to cope
Increased association of depression (odds ratio of 4.10 for alcohol)
Indian studies: Depression – 62.7%
Anxiety – 53.3%

Slide 4: Etiology contd...

- C) Sociocultural: Role models present
Increased likelihood to have a drug using spouse
Increased social disapproval
Decreased likelihood of legal problems
- D) Biological responses: gender differences present
Females intoxicated with smaller

quantities

Develop alcohol liver disease earlier with shorter duration of alcohol use
Increased risk of menstrual disturbance, infertility and breast ca

Slide 5: Pregnancy and Lactation

- Alcohol: Teratogenic effect present
Fetal alcohol syndrome: craniofacial anomaly, CNS malfunction, major organ malformation
Fetal alcohol effects: 1.9/ 1000 live birth (western studies)
- Other substances: IUGR, impairment of orientation, motor abnormalities

Slide 6: Course of illness

- Initiation:
Common reasons – adolescent depression, adjustment problems, hanging out with older male friends, peer pressure, glamour
Increased expectancies regarding effect of alcohol use
Course:
Interval between age of initiation and treatment seeking shorter for females compared to males
Greater psychological and physiological impairment
Faster telescoping

Slide 7: Assessment and Treatment

- Establishing confidentiality and rapport, being non judgmental
- Assessment of severity of the problem
- Comorbid depression, anxiety, and inter personal problem need attention
- Educate ill effects of substance to her and family and fetus if she is of reproductive age
- Feed back of the damage due to substance
- Help in reduction or abstinence and in handling high risk situations
- Increase self esteem
- Use pharmacotherapy also where indicated

Adolescent Substance Abuse

18

Anju Dhawan, Yatan Pal Singh Balhara, Indra Mohan

Summary

Majority of drug users start drug use in adolescence with use of licit substances such as tobacco and alcohol. Some of them subsequently graduate to use of harder/illicit substances. Drug abuse among adolescents is a cause of concern because use in this age group is associated with increased risk of accidents, violence and high-risk sexual behaviour. The profile of drugs used in adolescence may also be different from the drugs used in adulthood. Co-morbid psychiatric disorders are also more common in adolescents who have substance use disorder. The intervention in substance using adolescents requires involvement of parents as well as teachers. The family needs to be counseled about nature of treatment and the process of recovery.

Less intensive intervention may be required for those with structured lifestyle, absence of psychopathology, and those who have not yet become dependent on the substance.

Introduction

Majority of substance users start use in adolescence with use of licit substances such as tobacco and alcohol. However, most adolescents who use substances give it up subsequently and do not go on to develop abuse/dependence.

Substance use during adolescence is associated with high-risk behaviour, increased risk of infections such as HIV, interpersonal problems, decline in academic performance and failure to complete education.. Co-morbid psychiatric disorders are also more common in adolescents who have substance use disorder as compared to their non- substance using counter-

parts and the substance using adult population.

Adolescence: A Transition Phase

Adolescence is one of the least understood phases of human development. It heralds biological and psychological changes for the individual. Considered to begin usually from the 10th to 12th year of life, the period lasts till 18 years or up to 20 years as considered by some researchers.

Adolescence is associated with experimentation in the realms of social relationships, diet, rest/activity cycles, ideas, dating, and roles. Even though for many teenagers drug use is just another form of experimentation, society still has a legitimate concern. The reason is that the residual number of children who do not spontaneously stop but go on to have drug-using lifestyles is significant and growing.

Epidemiological Data-International

The incidence estimates based on data from the National Survey on Drug Use and Health (NSDUH), United States, show a period of increase for initiation of most drugs in 1990s (marijuana, cocaine, hallucinogen, prescription medication, tobacco). Some of the drugs have shown stabilization in incidence estimates thereafter (marijuana, prescription drugs) while others have shown a decrease in incidence (LSD, ecstasy, tobacco), although incidence may still be very high.

In 2001, an estimated 2.7 million Americans used cigarettes for the first time. About three quarters (76 percent) of these initiates were under age 18, and about half (51 percent) were

males. In 2001, an estimated 5.3 million took alcohol for the first time. Most of these new alcohol users were under the legal drinking age of 21. There were an estimated 2.6 million new marijuana users and a million new cocaine users in 2002. About two thirds (69 percent) of these new marijuana users were under age 18. The number of new inhalant users was about 1 million in 2002. As in prior years, these new users were predominately under age 18 (78 percent). New initiates of pain relieving medication were 2.5 million. More than half (55 percent) of the new users in 2002 were females, and more than half (56 percent) were aged 18 or less.

Age of Initiation: Data indicates that three substances were initiated by more than 50% of users in sixth grade or earlier. These “gateway drugs” were alcohol, tobacco, and inhalants.

EPIDEMIOLOGICAL DATA-INDIA

In India, adolescent drug use has been studied in the general population as well as special populations such as school and university students. Since most of the data is cross-sectional, it is not possible to discuss change in trends over time. Studies on substance use among adolescents were first carried out in 1970s. A multi-centred study on the prevalence and pattern of drug abuse among the university students concluded that alcohol was the most commonly used drug in both the sexes in all the centres (10- 15%), which was followed by tobacco (8- 15%) and tranquilizers (1- 2.5%). The study did not report any opiate and stimulant use (Mohan et al, 1976- 77). The survey was repeated after ten years and found similar figures of licit substance use although 0.02 to 0.04 % students reported heroin abuse, which had not been present in 1976. Another study on drug abuse among senior high school students in Delhi on a sample of 2032 students reported use of alcohol by 13%, tobacco by 6% and tranquilizers by 4%. There was no report of cannabis and opiate use (Mohan and Sundaram, 1977-78). More recent data from

reanalysis of the data from National Sample Survey Organization (1995-1996) gave figures based on a sample that is representative for the country. It reported current regular use of tobacco by 8% males and 2% females in the age group of 10-20 years in the country. In the same age group alcohol use was reported by 1.3% females and 0.5% females respectively. The prevalence was comparatively higher in rural areas (Mohan et al, 2002). The National Household Survey (NHS) is the first survey in the country carried out specifically to provide figures of prevalence for drug use in the country using a representative sample. In this sample, 21% of the respondents were 12 to 18 years old and 19% were students. It found that 21% of current users of alcohol, 3% of current users of cannabis and 0.1% current users of opiates were below 18 years of age and 10% opiate users and 2.5% of current alcohol and cannabis users were students (UNODC, 2004).

Drug Abuse Monitoring System (DAMS) provided data from treatment seekers from 203 centres providing services to drug users in India. It reported that 0.4% of treatment seekers in de-addiction centres in various states were less than 15 years of age and 4.6% of the substance users were between 16-20 years of age. Among users of heroin, cannabis and propoxyphene, 0.5 to 0.8% were in the age group below 15 years. The proportion of opium and alcohol users in this age group was comparatively low. The proportion of users of various drugs belonging to the age group 16-20 years varied between 2.7 and 18.8 percent. The percentage of users of propoxyphene was the highest. Adolescent treatment seekers were more often users of propoxyphene, heroin and cannabis. There was a regional variation in the drug of use. Adolescent propoxyphene users were mostly from Mizoram and Manipur; heroin users were more often reported from Punjab, Haryana, Bihar and Orissa and Chandigarh had the highest proportion of young cannabis users. Some data on drug use

was also reported from 11 NGOs catering to children and 30 Nehru Yuva Kendras (NYKs). Most of the children from NGOs reported being introduced to drugs at a young age (below 15 years) and injecting drug use was quite common by them (13.8% in NGO-children and 20.1% in NYKs). Only 20% had tried to give up drug use in the past. High-risk sexual behaviour was reported by 5% (NYKs) to 19% (NGO-children). The Rapid Assessment Survey (RAS) provided data on inaccessible drug users in the community using a purposive sample. About 13% of substance users from this sample were below 20 years of age.

A study of profile of 52 subjects seen in the Drug Dependence Treatment Centre of AIIMS in the year 1999-2003 (Malhotra, personal communication) and 21 subjects seen in 2004 and 2005 (Dhawan, personal communication) found that all were male in the age range of 13-18 years with most initiating substance use at or below 15 years of age. About half of them were currently neither studying nor working, while some were students. They were living with the family and many of them were accompanied to the treatment centre by family members. Family history of alcohol abuse or dependence was present in the fathers in one-third cases. History of conduct disorders was present in about one-fourth and 10% reported antisocial behaviour secondary to drug use as well as 10% had history of some legal problems. Tobacco was the most commonly used substance with a lifetime use in 76.0% of adolescent treatment seekers. Lifetime use of Cannabis and the inhalants were the second most common, (38% each) and 33.0% of the respondents had life time use of opioids. 29.0 % reported use of alcohol and 5.0% had used benzodiazepines and methaqualone each. Out of the treatment seekers, 29.0% did not meet the criteria for dependence but were in the category of drug abuse. Most common primary substance of use was inhalants (33.0%), followed by opioids (29%), tobacco (14%), cannabis (10.0%), alcohol (5%), benzodiazepines

(5%) and methaqualone (5.0%).

Etiology

A number of behavioral characteristics and environmental influences are associated with age of initiation of substance use, substance use intensity and the related negative consequences during adolescence. These risk factors determine the risk of substance use. It has been shown that as the number of risk factors increases, the likelihood of adolescent substance use greatly increases. Early age of onset of drug use increases risk of drug related problems in future.

Behavioral characteristics- Impulsivity, Aggression, Sensation seeking, Low harm Avoidance, Inability to delay gratification, Low achievement striving, Lack of religiosity, Psychopathology

Environmental factors include- peer pressure, absence of normative peers, affiliation with deviant or delinquent peers, easy drug availability, social norms facilitating drug use, and relaxed laws and regulatory policies.

Familial factors include- stressful life events, deficient parental support or supervision, poor discipline, ambiguous parental attitude towards substance use, parental and sibling substance use.

Co-morbidity

Psychiatric comorbidity is commonly seen in the substance using adolescents and is more than in the non-users. The largest subpopulation of adolescents with Substance Use Disorder (SUD) includes those who are dually diagnosed. A number of psychiatric disorders are commonly associated with SUD in youth. The most common are conduct (50 to 80%) and mood disorders, including major depression and bipolar disorder. The prevalence of depressive disorders ranges from 24% to 50%. Suicidal behavior, especially while being under the influence of the substance is commonly reported in adolescents following substance use or those diagnosed as SUD. Attention Deficit Hyperactivity Disorder (ADHD) is another

disruptive disorder that is observed in substance abusing youth, however, this association is likely due to the high level of co morbidity between conduct disorder and ADHD. Anxiety disorders are another commonly diagnosed group of disorders in substance using adolescents with prevalence ranging from 7% to 40%. Social phobia usually precedes substance abuse while panic and generalized anxiety disorder more often follow the onset of SUD. Adolescents with SUD often have a history of Post Traumatic Stress Disorder (PTSD) consequent to a history of physical or sexual abuse. Bulimia nervosa and gambling behavior are also commonly found in adolescents having SUD. Substance use disorders were seen in 26.6% of adolescents suffering from major depression. Cigarette smoking was seen in 16.6%, alcohol abuse in 6.6% and inhalant abuse in 3.3% of adolescents (Garg et al 2004 unpublished).

Management

a) Assessment

Assessment of the adolescents with substance use problems would include a detailed and comprehensive work up including the identification of substance use, psychiatric status, physical health status, school adjustment, vocational status, family function, peer relationship, leisure and recreation activity, and legal situation. Assessment should include interviews with both the adolescent and the parents, first separately and then together.

There now exists several interview protocols for adolescents (or children) that address DSM-III criteria for mental disorders, including those for substance use disorder diagnoses. Some of the important interview schedules include the Diagnostic Interview Schedule for Children and Adolescents (Reich et al. 1982), the Kiddies Schedule for Affective Disorders and Schizophrenia (Chambers et al., in press), the National Institute of Mental Health Diagnostic Interview Schedule for Children (Costello et al. 1984), and the Child Assessment Schedule (Hodges et al. 1982). The other instruments

used in India are Achenbach's behavioural checklist, Youth self reporting form, childhood psychopathology measurement schedule and developmental psychopathology schedule.

Other severity oriented rating scales available include Teen Addiction Severity Index (T-ASI), Adolescent Drug and Alcohol Diagnostic Assessment (ADAD) and Adolescent Problem Severity Index (APSI). These scales help in quantifying the problem severity in adolescents.

b) Treatment

Compared to the adult literature, studies on treatment effectiveness in adolescent drug users are limited although they do show clearly that some treatment is better than no treatment. However, there is considerable variability with respect to the effect of treatment. Pre-treatment characteristics of adolescents have not consistently been found to be associated with outcome except psychopathology, which is associated with non-completion of treatment and relapse. The available literature suggests that the relapse rate is in the range of 35 to 85 percent among various treatment studies. Outcome predictors are time spent in treatment, staff characteristics, program environment, and treatment services.

Treatment setting (e.g., inpatient, residential treatment, and outpatient) is less important for outcome than the modality of treatment. Family therapy and cognitive-behavioral therapy have demonstrated enhanced clinical utility in the treatment of adolescents with SUD. The Multi-systemic Therapy (MST) model is a highly successful approach in which interventions simultaneously target family functioning and communication, school and peer functioning and adjustment in the community. Behavioral treatment, manual guided therapy (including drug refusal skills, problem-solving, and social skills), group treatment, role-playing are the available modalities of intervention. Brief therapy and contingency measures provide the treating team effective and time bound interventions.

It has been observed that the best predictors of specific post treatment outcomes are pretreatment measures of functioning (e.g. pretreatment alcohol problems predicted heavier consumption after treatment). Continued time in treatment, completion of treatment, and favorable behavior during treatment are other positive prognostic indicators of outcome. Low intensity of drug and solvent abuse has been found to be positive prognostic factors.

Pharmacotherapeutic agents like disulfiram, naltrexone, sedatives, clonidine are being used as an adjunct in the multidisciplinary approach for this specific group of substance users, although these interventions are still in their early stages. One should also be cautious while using these agents in adolescents since the pharmacokinetic and pharmacodynamic profile of medications differs in certain aspects from the adult population. Adolescents are rapid metabolizers. Naltrexone has been shown to alter some endocrinal activity in adolescents. However, the issues related to medium and long term use remains unaddressed. The growing use of medications will provide more information regarding the efficacy and safety of these agents in adolescent population.

Family based approaches

Some believe that adolescent problems can best be understood by studying the characteristics of the family system. To reduce adolescent problems, family systems therapists attempt to change some of the above family characteristics through:

- (a) gaining access and influence in the system,
- (b) interrupting the reciprocal relationships between the dysfunctional family characteristics and the adolescent problems,
- (c) establishing new family characteristics to interact with new adolescent behaviors and (d) home detoxification, probation, and the community network approach.

Brief strategic family therapy is a structured

intervention based on the principle of this approach and deals with individualized but well defined treatment goals specifically in the realm of family dynamics.

It seems very likely that parents will prove to be the most effective agents for changing the behavior of their preadolescent or adolescent children. Obtaining parent cooperation in any kind of intervention, and ensuring their compliance needs to be addressed in order to ensure the effectiveness of the intervention programme.

The effects of treatment are not uniform. Substantial variability is observed with respect to outcome status post-treatment.

Management of Co morbidity

The co morbid psychiatric conditions should be adequately managed. This would include a detailed assessment and a comprehensive management plan keeping in mind the possibility of drug interactions between the various compounds and the increased potential of certain group of the drugs being abused by this population sub- group. There are several issues specific to teenagers that need attention in prescribing psychotropic drugs. One of these is the additive effects of marijuana and tricyclic antidepressants on heart rate. There is a question of neuroleptic impairment of cognition due to sedation. There are reports that chlorpromazine administered for over 6 months reduces plasma testosterone and luteinizing hormone response to luteinizing releasing hormone in adolescents.

These issues need to be kept in mind while formulating a plan for the adolescents using substances.

Prevention

Efforts for preventive services concentrate on activities designed for supply/demand reduction. The goal of primary prevention among children and adolescents is to defer or minimize the risk of initiation of gateway-substances such as cigarettes, alcohol, and marijuana (can-

nabis). The strategy used is to **increase knowledge** of the consequences of drug use. **Psychosocially based approach** aiming at enhancing social skills and specific drug refusal skills is an important adjunct. The first step in this regard includes the identification of the potential beneficiaries and the intervention groups. They may include the general population or specific group based interventions like children of substance users. The programme developed for a particular group must address the needs of the group and should have active participation of the local community to add to the acceptability and efficacy. These approaches should involve individuals from various spheres of the society and may include the parents, teachers, community leaders and policy makers. Interventions aimed at imparting life skills training, counseling and providing newer opportunities to the adolescents so that their energy can be channelised in a

proper direction should be included as apart of the broader strategy.

Future Research

Gaps in our knowledge persist despite the emergence of more and more information on the number of unanswered questions. The future research must concentrate on these issues for better understanding of the problem. The validity of adult criteria for adolescents needs to be studied. In India, studies on prevalence of drug use in school children are required. Data to document trends or change in prevalence is also required. Studies to validate the instruments in local languages are needed. Manuals on interventions need to be developed for used in drug abuse treatment settings. Further research is needed to evaluate the efficacy of various interventions in adolescent populations.

Suggested Reading

1. Drug Abuse: Analyses of Treatment Research NIDA Research Monograph 77 (1988). Eds: Elizabeth R. Rahdert & John Grabowski.
2. Adolescent Drug Abuse: Clinical Assessment and Therapeutic Interventions NIDA Research Monograph 156 (1995). Eds: Elizabeth Rahdert & Dorynne Czechowicz.
3. Brook, D. W., Brook, J. S., Zhang, C., Cohen, P., & Whiteman, M. (2002). Drug Use and the Risk of Major Depressive Disorder, Alcohol Dependence, and Substance Use Disorders. *Archives of General Psychiatry*, 59, 1039-1044.
4. Henggeler, S. W., Schoenwald, S. K., Borduin, C. M., Rowland, M. D. & Cunningham, P. B. (1998). *Multisystemic Treatment of Antisocial Behavior in Children and Adolescents*. New York: Guilford Publications.
5. McGillicuddy, N.B., Rychtarik, R.G., Duquette, J.A., & Morsheimer, E.T. (2001). Development of a skill training program for parents of substance-abusing adolescents. *Journal of Substance Abuse Treatment*, 20(1), 59.
6. Bastiaens, L., Francis, G., & Lewis, K. (1999). The RAFFT as a screening tool for adolescent substance use disorders. *American Journal on Addictions*, 9(1), 10-16.
7. Martino, S., Grilo, C.M., & Fehon, D.C. (2000). The development of the drug abuse screening test for adolescents (DAST-A). *Addictive Behaviors*, 25, 57-70.
8. Estroff, T.W. (2001). *Manual of adolescent substance abuse treatment*. Washington, D.C.: American Psychiatric Press.
9. Winters, K. (1999). *Treatment of adolescents with substance abuse*. Rockville, MD: U.S. Department of Health and Human Services.
10. Garg, R., Mehta, M., Sagar, R. (2004 unpublished). Clinical study of psychosocial factors and comorbidity in Major Depressive Disorder in adolescents

Suggested slides for OHP

Slide 1. ADOLESCENCE: A TRANSITION PHASE

Relatively less understood phases of human development
 Presence of both biological and psychological changes
 Tendency to experiment in various realms of life
 Emotional and physical stressors of transition
 New responsibilities and new opportunities

Slide 2. EPIDEMIOLOGICAL DATA

Role of *gateway drugs*
 Age of initiation in a substantial proportion of substance users
 Community based surveys- 3- 10% lifetime prevalence
 National Household Survey (NHS)-20% users less than 18 years old

Slide 3. AETIOLOGY

Behavioral characteristics- Impulsivity, Aggression, Sensation seeking, Low harm Avoidance, Inability to delay gratification, Low achievement striving, Lack of religiosity, Psychopathology

Environmental factors include- peer pressure, absence of normative peers, affiliation with deviant or delinquent peers, perception of high drug availability, social norms facilitating drug use, and relaxed laws and regulatory policies. Familial factors include- stressful life events, deficient parental support or supervision, poor discipline practices, ambiguous parental attitude towards substance use, parental and sibling substance use.

Slide 4. NOSOLOGICAL STATUS

ICD- 10 classificatory system
 Harmful use
 Dependent use
 DSM IV classificatory system
 Abuse
 Dependent use
 Criteria for adult population being used for adolescents

Slide 5. COMORBIDITY

Conduct disorder
 Mood disorders
 Major depression
 Bipolar disorder
 Dysthymia in adulthood
 Anxiety disorders
 Social phobia
 Panic disorder
 Generalized anxiety disorder
 Post Traumatic Stress Disorder (PTSD)
 Bulimia nervosa
 Gambling behavior

Slide 6. ASSESSMENT

Identification of substance use
 Psychiatric status
 Physical health status
 School adjustment
 Vocational status
 Family function
 Peer relationship
 Leisure and recreation activity
 Legal situation depending on the need

Slide 7. TREATMENT

Treatment setting
 Inpatient
 Residential treatment
 Outpatient
 Modality of treatment
 Family therapy
 Cognitive-behavioral therapy
 The Multi-systemic Therapy (MST)
 Behavioral therapy
 Manual guided therapy Group treatment
 Brief therapy
 Contingency measures

Legal Aspects of Drug Abuse in India

19

S Lalwani, TD Dogra

CURRENT LEGISLATIVE CONTROL

Drug abuse is a major public health problem with extensive legal ramifications. In India, legal aspects of drug abuse involves two main areas,

- (a) Licensing laws regulating production and retail supply,
- (b) Legislation for offences committed under intoxication circumstances

THE DRUGS AND COSMETICS ACT, 1940–

This enactment was legislated to regulate the import, manufacture, distribution and sale of drugs and cosmetics. The act contains two schedules. The first deals with Ayurvedic and Siddha systems of drugs and second schedule deals with standards to be complied with imported drugs and drugs manufactured for sale, sold and stocked and exhibited for sale or distributed.

The act improvised the constitution of

1. *Drugs Technical Advisory Board*, to advise the Central and State Government on technical matters arising out of administration of this act,
2. *Central Drugs Laboratory* and its functions along with prescribing the procedure of submission of samples of drugs for analysis or test, forms of laboratory report and fees payable in respect of such reports and
3. *Drugs Consultative Committee* to advise the Central and State Government and Drug

Technical Advisory Board on any matter tending to secure uniformity throughout in the administration of this act.

The quality and purity of drugs are the main objectives of the act. Standard of quality of drug is to be maintained. This act prohibits import, manufacture and sale of certain drugs which is not of standard quality, misbranded and spurious drugs, propriety medicines lacking list of ingredients including quantity or formula on label and drugs which claims to cure or mitigate any such disease or ailments. This act also empowers Central Government to prohibit import of drugs which are likely to involve any risk to human beings or animals and drugs which are of no therapeutic value in public interest. This act provides stringent punishment for contravention of provisions of act and rules made thereof.

THE NARCOTIC DRUGS AND PSYCHOTROPIC SUBSTANCES (NDPS) ACT, 1985–

This act consolidates and amends the existing laws related to narcotic drugs. Stringent provisions are made for the control and regulation of operations relating to narcotic drugs and psychotropic substances and for matters connected therewith. The act empowers Central government to take measures for preventing and combating abuse of and illicit traffic of narcotic drugs etc. Salient features of this act are as under

1. Some of the important definitions under this act includes

1. "Addict" as a person who has dependence on any narcotic drugs or psychotropic substance.
2. "Narcotic drug" as coca leaf, cannabis (hemp), opium, poppy straw and includes all manufactured goods and
3. "Psychotropic substance" as any substance, natural or synthetic, or any natural material or any salt or preparation of such substance or material included in the list of psychotropic substances (n=110).
4. "Cannabis (hemp)" means-
 - (a) *charas*, that is the separated resin, in whatever form, whether crude or purified, obtained from the cannabis plant and also includes concentrated preparation and resin known as Hashish oil or liquid Hashish
 - (b) *ganja*, that is the flowering or fruiting top of the cannabis plant
5. 'Coca derivatives' means-
 - (a) Crude cocaine (Any extract of cocaine leaf)
 - (b) Ecgonine and all the derivatives of ecgonine from which it can be recovered.
 - (c) All preparations containing more than 0.1% of cocaine
6. 'Opium' means
 - (a) the coagulated juice of opium poppy; and
 - (b) any mixture, with or without any neutral material, of the coagulated juice of the opium poppy.

It does not include any preparation containing more than 0.2% of morphine.
7. 'Opium derivatives' means-
 - (a) Medicinal opium
 - (b) Prepared opium used for smoking
 - (c) Diacetylmorphine or heroin
 - (d) any preparation containing more than 0.2% of morphine
 - (e) Phenanthrene alkaloids- Morphine, codeine, thebaine and their salts
2. Central Government may, constitute a fund to be called the *National Fund for Control of Drug Abuse* which shall be applied to meet the expenditure incurred in connection with the measures taken for-
 3. a) Combating illicit traffic in narcotic drugs, psychotropic substances or controlled substances, b) controlling the abuse of narcotic drugs and psychotropic substances, c) identifying, treating and rehabilitating addicts d) preventing drug abuse, e) educating public against drug abuse and f) supplying drugs to addicts where such supply is medical necessity.
 4. This act prohibits cultivation of any coca plant, opium plant or any cannabis plant or gather any portion of coca plant or produce, manufacture, possess, sell, purchase, transport, warehouse, use, consume, import inter-State, export inter State, import into India, export from India or transship any narcotic drug or psychotropic substance except for medical or scientific purposes and in manner and to the extent provided by the provisions of this act
 5. The act empowers Central Government to permit and regulate by rules i) The cultivation, or gathering of any portion of coca plant, or the production, possession, sale, purchase, transport, import inter-State, export inter-State, use or consumption of coca leaves; ii) the cultivation of opium poppy; iii) the production and manufacture of opium and production of poppy straw; iv) the sale of opium and opium derivatives from the Central Government Factories for export from India or sale to State Government or manufacturing chemists v) the manufacture of manufactured drugs, not including manufacture of medicinal opium or any other preparation containing manu-

factured drug from materials which the maker is lawfully entitled to possess; vi) the manufacture, possession, transport, import inter-State, export inter-State, sale purchase, consumption or use of psychotropic substances and vii) the import into India and export from India and transshipment of narcotic drugs and psychotropic substances.

6. The State Government may by rules permit and regulate i) the possession, sale, warehousing, purchase, transport, import inter-State, export inter-State, use and consumption of poppy straw; ii) the possession, transport, import inter-State, export inter-State, purchase and consumption of opium iii) the cultivation of cannabis plant, production, manufacture, possession, transport, import inter-State, export inter-State, sale, purchase and consumption of cannabis (Except Charas); iv) The manufacture of medicinal opium or any preparation containing the manufactured drug from materials which the maker is lawfully entitled to process; (v) the production and manufacture of opium and production of poppy straw; iv) the sale of opium and opium derivatives from the Central Government Factories for export from India or sale to State Government or manufacturing chemists v) the possession, transport, import inter-State, export inter-State, purchase, use or consumption of manufactured drugs other than prepared opium and of coca leaf and any preparation containing any manufactured drugs. vi) the manufacture and possession, of prepared opium from opium lawfully possessed by an addict registered with the State Government on medical advice for his personal consumption.
7. Punishment for contravention involving **small quantity** in relation to poppy straw, prepared opium, cannabis plant & cannabis, manufactured drugs & preparations, psychotropic substances, and for illegal import into India, export from India or transshipment of narcotic drugs and psychotropic substances, is rigorous imprisonment for a term up to six months or with fine up to 10,000 rupees or both. For contravention involving **quantity lesser than commercial quantity** but greater than small quantity, punishment is rigorous imprisonment for a term up to ten years and with fine up to 1,00,000 rupees. For contravention involving **commercial quantity** punishment is rigorous imprisonment for a term up to ten years, which may extend up to 20 years and fine up to 1,00,000 rupees, which can be extended up to 2,00,000 rupees. Court has to record reasons in the judgement, for imposing a fine exceeding 2,00,000 rupees. Punishment for cultivation of any cannabis plant is rigorous imprisonment up to ten years and also fine up to 1,00,000 rupees.
8. Punishment for contravention in relation to coca plant and coca leaves is rigorous imprisonment for a term up to ten years or fine up to 1,00,000 rupees.
9. Punishment for contravention in relation to opium poppy and poppy involving small quantity, is rigorous imprisonment for a term up to six months or with fine up to 10,000 rupees or both. For contravention involving commercial quantity punishment is rigorous imprisonment for a term up to ten years, which may extend up to 20 years and fine up to 1,00,000 rupees, which can be extended up to 2,00,000 rupees. Court has to record reasons in the judgement, for imposing a fine exceeding 2,00,000 rupees. In any other case, the punishment is rigorous imprisonment up to ten years and fine up to 1,00,000 rupees

10. Punishment for consumption of any narcotic drug or psychotropic substance like cocaine, morphine, diacetyl-morphine or any other narcotic drug or any psychotropic substance specified by Central Government by Gazette Notification is rigorous imprisonment for a term up to one year or fine up to 20,000 rupees or both. Punishment for consumption of any narcotic drug or psychotropic substance other than mentioned is rigorous imprisonment for a term up to six months or fine up to 10,000 rupees or both. For second and each subsequent offence, punishment is rigorous imprisonment for a term, which may extend to one half of the maximum term of imprisonment and also fine up to one half of the maximum amount of fine. If person is liable to punished with a minimum term of imprisonment and minimum amount of fine, the minimum punishment for such a person will be one half of the minimum term of imprisonment and one half of the minimum amount of fine.
11. Under section 31 A, Chapter IV of this act, (1) If any person who has been convicted for offences punishable under section 19(punishment for embezzlement of opium cultivator), section 24 (Punishment for external dealings(outside India) of narcotic drugs and psychotropic substances), section 27 A(Punishment for financing illicit traffic and harbouring offenders) and for offences involving commercial quantity of any narcotic drugs or psychotropic substance, is **subsequently convicted of the commission** of, or attempt to commit, or abetment of, or criminal conspiracy to commit an offence relating to a) engaged in the production, manufacture, possession, transportation, import to India, export from India or transshipment, of the narcotic drugs or psychotropic substances and quantity exceeding to those specified in the clause b) financing directly or indirectly or any of the activities specified in clause (a), shall be punishable with death, (2) where any person convicted by a competent court of criminal jurisdiction outside India under any law corresponding to the provisions of subsection 1, such person in respect of such conviction shall be dealt with for the purpose of sub section 1 as if he has been convicted by a court in India.
12. Under section 64 A, any addict, who is charged with an offence punishable under section 27 or with offences involving small quantity of narcotic drugs or psychotropic substances, who voluntarily seeks to undergo medical treatment for de-addiction from a hospital or an institution maintained or recognized by the Government or a local authority and undergoes such treatment shall not be liable to prosecution under section 27 or any other section for offences involving small quantity of narcotic drugs and psychotropic substances. This immunity may be withdrawn if the addict does not undergo the complete treatment for de-addiction.
13. Section 71 of this act, empowers government to establish centers for identification, treatment, education, after care, rehabilitation, social reintegration of addicts and for supply, of any narcotic drugs and psychotropic substance (as prescribed by concerned Government) to the addicts registered with government and to others where such supply is a medical necessity.
14. Small quantity of drugs defined under this act are
 Hashish or Charas- 5gm
 Opium-5gm
 Cocaine-125mg
 Ganja-500gm
 Heroin/Smack/Brown Sugar-250mg.

THE DRUGS (CONTROL) ACT, 1950 -

This act provide for the control of the sale, supply and distribution of drugs. This act regulates maximum prices and maximum quantities which may be held or sold and also involve restrictions on sale of drugs. The act provides limitation on quantity which may be possessed at any one time. Issue of cash memorandum on certain sales marking of prices and exhibiting list of prices and stocks is mandatory under this act. Whoever contravenes any of the provisions of this Act or fails to comply with any direction made under authority conferred by this Act shall be punishable with imprisonment for a term which may extend to three years, or with fine, or with both.

LAWS PERTAINING TO CRIMINAL OFFENCES & DRUG ABUSE

The nature of association between drug use and crime is complex. Besides commonest offences such as possession and trafficking and 'drug related crime' or 'street crime' an offence may be committed during an abnormal mental state related to drug use. However, most drugs of abuse do not cause violent criminal behavior, and personality, circumstances and cultural background remain critical determinants.

As per section 85 of Indian Penal Code, "Nothing is an offence which is done by a person who, at the time of doing it, is, by reason of intoxication, incapable of knowing the nature of the act, or that he is doing what is either wrong, or contrary to law; provided that the thing which intoxicated him was administered to him without his knowledge or against his will.

Under Section 86 of Indian Penal Code, In cases where act done is not an offence unless done with a particular knowledge or intent, a person who does the act in a state of intoxication shall be liable to be dealt with as if he had the

same knowledge as he would have had if he had not been intoxicated, unless the thing which intoxicated him was administered to him without his knowledge or against his will.

However, if the intoxication is induced voluntarily, the act done is an offence even if the person is incapable of knowing the nature of the act or that what he is doing is either wrong or contrary to law.

LAWS RELATED TO ALCOHOL

Alcohol is one of the commonly consumed intoxicating substances all over the world. Legal aspects of alcohol involves three main areas, (a) Licensing laws regulating retail supply, (b) legislation on drunkenness defining intoxication as an offence under certain circumstances and (c) road traffic legislation makes driving an offence when blood alcohol level exceeds a certain value.

LICENSING LAWS

'World Health Organization' recommends that member governments should begin to reduce per capita consumption by reducing the availability of alcoholic beverages. Prohibition is incorporated in the Constitution of India among the directive principles of state policy. Article 47 says: "The state shall regard the raising of the level of nutrition and standard of living of its people as among its primary duties and in particular, the state shall endeavor to bring about prohibition of the use except for medicinal purposes of intoxicating drinks and of drugs which are injurious to health." Alcohol policy is under the legislative power of individual states. Prohibition, enshrined as an aspiration in the Constitution, was introduced and then withdrawn in Haryana and Andhra Pradesh in the mid-1990s, although it continues in Gujarat, with partial restrictions in other states – Delhi, for example, has dry days. There was an earlier failure of prohibition in Tamil Nadu.

Excise department regulate and control the sale of liquor in the NCT of Delhi. Retail supply of alcohol is regulated by Delhi Liquor License Rules, 1976. It prohibits consumption and service of liquor at public places. This also prohibits employment to any person (male under the age of 25 years or any female) at any licensed premises either with or without remuneration in part of such premises in which liquor or intoxicating drug is consumed by the public. Similarly no individual should possess liquor at one time more than the prescribed limit without special permit. As per excise rules in Rajasthan, a person can possess maximum 3liters of Country Liquor, 6 Liter of IMFL and 12 Bottles of Beer.

The Bombay Prohibition Act, 1949, prohibits the production, manufacture, possession, exportation, importation, transportation, purchase, sale, consumption and use of all intoxicants.

The Cable Television Network (Regulation) Amendment Bill, in force September 8, 2000, completely prohibits cigarette and alcohol advertisements. The government controlled channel, Doordarshan, does not broadcast such advertisements but satellite channels however are replete with them.

Drunkenness

Drunkenness is defined as the condition produced in a person who has taken alcohol in a quantity sufficient to cause him to lose control of his faculties to such an extent that he is unable to execute the occupation on which he is engaged at the material time.

Section 84 of the Bombay Prohibition Act 1949 provides that any person, who is found drunk or drinking in a common drinking house or is found there present for the purpose of drinking, shall on conviction, be punished with fine which may extend to five hundred rupees.

Section 85 provides that any person found drunk and incapable of controlling himself or behaves in a disorderly manner under the influence of drink in any street or thoroughfare or public place or in any place to which public have or permitted to have access, shall on conviction, be punished with imprisonment for a term which may extend to one to three months and with fine which may extend to two hundred to five hundred rupees.

Drunken Driving

Across the world, governments have defined different acceptable blood alcohol levels. However, there is no minimum threshold below which alcohol can be consumed without risk. With rise in blood alcohol concentration, there is progressive loss of driving ability due to increased reaction time, over confidence, impaired concentration, degraded muscle coordination and decreased visual and auditory acuity. Though the laws to check the drunken driving do exist in India but there is need to effectively impose the same on the alcohol impaired drivers.

As per section 185 (Chapter XIII) of the Motor Vehicle Act(India) 1988, as amended in November 1994, driving by a drunken person or by a person under the influence of drugs.-Whoever, while driving, or attempting to drive, a motor vehicle,-

(a) has, in his blood, alcohol exceeding 30 mg per 100 ml of blood detected in a test by a breath analyser, or

(b) is under the influence of a drug to such an extent as to be incapable of exercising proper control over the vehicle,

shall be punishable for the first offence with imprisonment for a term which may extend to six months, or with fine which may extend to two thousand rupees, or with both; and for a

second or subsequent offence, if committed within three years of the commission of the previous similar offence, with imprisonment for a term which may extend to two years, or with fine which may extend to three thousand rupees, or with both.

LAWS PERTAINING TO TOBACCO AND SMOKING

1. **The cigarettes and other Tobacco products (Prohibition of advertisement and regulation of trade and commerce, production, supply and distribution) act, 2003-** It has been universally regarded that tobacco is one of the major public health hazards. The previously existing legislation, The Cigarettes Act, 1975, merely stipulates the statutory warning on cigarette packets. The 39th World Health assembly in its fourteenth plenary meeting on 15th May 1986 urged the member states to implement the measures to ensure that effective protection is provided to non smokers from involuntary exposure to tobacco smoke and to protection of children and young people from being addicted to use of tobacco. Similarly in 43rd World Health assembly in its fourteenth Plenary meeting on 17th May 1990 urged member states to consider their tobacco control strategies plans for legislation and other effective measures for protecting their citizens with special attention to risk groups such as pregnant women and children from involuntary exposure to tobacco smoke, discourage the use of tobacco and impose progressive restrictions and take concerted action to eventually eliminate all direct and indirect advertising, promotion and sponsorship concerning tobacco.

To prohibit the consumption of cigarettes and other tobacco products which are injurious to health and in view of article 47 of the constitution of India for protection of public health, The cigarettes and other Tobacco products (Prohibition of advertisement and regulation of

trade and commerce, production, supply and distribution) act, 2003 came into existence on 18th May 2003, which extends to whole of India. As per this act

1. Smoking in public places is prohibited. "Public places means any place in which the public have access and includes auditoria, hospital buildings, railway waiting room, amusement centers, restaurants, public offices court buildings, educational institutions, libraries, public conveyance and the like which are visited by general public but does not include any open space."
2. No person engaged in the production, supply or distribution of cigarettes or any other tobacco products is allowed to advertise and no person is allowed to take part in any advertisement which directly or indirectly suggests or promotes the use or consumption of cigarettes or any other tobacco products.
3. No person shall sell, offer for sale, or permit sale of, cigarette or any other tobacco product-(a) to any person who is under eighteen years of age and (b) in an area within radius of 100 yards of any educational institution.
4. No person is allowed, directly or indirectly to produce, supply or distribute cigarettes or any other tobacco products unless every package of cigarettes or any other tobacco products bears thereon, or on its label, the specified warning including a pictorial depiction of skull and cross bones and the prescribed warning.
5. For the purpose of testing nicotine and tar contents in cigarettes and any other tobacco products the Central Government shall by notification in the official gazette grant recognition to such testing laboratory as the Government may deem necessary.

6. Any person who produces or manufactures cigarettes or tobacco products, which do not contain, either on the package or on their label, the specified warning and the nicotine and tar contents, shall in the case of first conviction be punishable with imprisonment up to two years, or with fine up to five thousand rupees, or with both, second and subsequent conviction is punishable with imprisonment up to five years and with fine up to ten thousand rupees.
 7. Punishment for smoking in public place is fine up to two hundred rupees and it is a compoundable offence.
 8. Whoever violates the Section of prohibition of advertisement of cigarettes and other tobacco products, shall be punished (1) in the case of first conviction, with imprisonment up to two years, or with fine up to one thousand rupees, or with both, and (2) in the case of second and subsequent conviction, with imprisonment up to five years and with fine up to five thousand rupees.
 9. Punishment for sale of cigarettes or any other tobacco products in certain places or to persons below the age of eighteen years is fine up to two hundred rupees. All offences under this section are compoundable and are to be tried summarily.
- This act empowers central Government to make rules to carry out provisions of this act called "The cigarettes and other Tobacco products (Prohibition of advertisement and regulation of trade and commerce, production, supply and distribution) Rules, 2004. According to these rules
1. The owner or the manager or in charge of the affairs of a public place shall cause to be displayed prominently a board, of a minimum size of 60cmx30cm in the Indian languages(s) as applicable, at least one at the entrance of the public place and one at conspicuous place(s) inside, containing the warning "No Smoking area-Smoking here is an offence".
 2. The owner or the manager or in charge of the affairs of a hotel having thirty rooms or restaurant having seating capacity of thirty persons or more and the manager of the air port shall ensure that (i) the smoking and nonsmoking areas are physically segregated;(ii) the smoking area shall be located in such manner that the public is not required to pass through it in order to reach the nonsmoking area and (iii) each area shall contain boards indicating "Smoking Area/Non-Smoking Area".
 3. The size of board used for advertisements for cigarettes and any other tobacco products displayed at the entrance or inside a warehouse or a shop where cigarettes and any other such tobacco products are offered for distribution or sale shall not exceed 90 cm x 60cm and number of such board shall not exceed two. Each board shall contain in the Indian language as applicable, one of the following warnings occupying 255 of the top area of the board namely (I) Tobacco causes cancer or (ii) Tobacco Kills,. Board shall contain the brand name or picture of tobacco product and no other promotional message and picture.
 4. The owner or the manager or the in-charge of the affairs of a place where cigarettes and other tobacco products are sold shall display a board of minimum size of 60cmx 30cm at conspicuous place(s) containing the warning "Sale of tobacco products to a person under the age of eighteen years is a punishable offence", in Indian language(s) as applicable. The onus of the proof that the buyer is not a minor lies with the seller of the tobacco products.

2. The Delhi Prohibition of smoking and non-smokers health protection act 1996-

prohibits smoking in places of public work or use and in service vehicles in National capital territory of Delhi. "Place of public work or use" means a place such as auditoria, hospital buildings, health institutions, amusement centers, restaurants, public offices, court buildings, educational institutions, libraries and the like which are visited by general public but does not include any open place and Banquet halls, monuments and stadia (Closed area only), cinema halls, hotels and restaurants (Provided there is separate place for smokers and nonsmokers in hotels and restaurants). "Public Service vehicle" means any motor vehicle used or adapted to be used for the carriage of passengers for hire or reward, and includes the maxicab, a motor cab, contract carriage and stage carriage (Under Section 2 of Section 35 of Motor Vehicles Act, 1988). This act also prohibits advertisement, sale to minors and storage and distribution (in the vicinity

of educational institutions-Within 100 meters)) of cigarettes and beedis etc.

Punishment for smoking in place of public work or use and in public service vehicles is punishable with fine up to 100 rupees and in subsequent offence, with fine up to 200 rupees, but may extend up to 500 rupees. Punishment for advertising, selling cigarettes etc to minors and distributing it in the vicinity of educational institutions is fine up to 500 rupees and with subsequent offences imprisonment up to three months, or fine minimum up to 500 rupees but may extend up to 1000 rupees or both.

3. The Cable Television Networks (Amendment) Act, 2000-

prohibits direct and indirect tobacco advertising on Cable Channels.

4. As per the bill passed by Parliament of India, from 2nd October 2005, exhibition of smoking in cinemas has been prohibited by the Government.

Suggested Reading

1. Gunn J, Taylor PJ, eds. Forensic Psychiatry- Clinical, Legal and Ethical issues. Butterworth-Heinemann, Oxford 1999, 435-480.
2. Drugs and Cosmetics Act with Rules. Universal Law Publishing Company Pvt. Ltd., Delhi, 2005
3. The Narcotic Drugs and Psychotropic Substances Act, 1985, Universal Law Publishing Company Pvt. Ltd., Delhi, 2005
4. The cigarettes and other Tobacco products (Prohibition of advertisement and regulation of trade and commerce, production, supply and distribution) act, 2003 Universal Law Publishing Company Pvt. Ltd., Delhi, 2005.
5. The Delhi Prohibition of smoking and non-smokers health protection act 1996- Universal Law Publishing Company Pvt. Ltd., Delhi, 2005.
6. Subramanyam BV, ed. Modi's Medical Jurisprudence and Toxicology. Butterworths India, New Delhi, 317-319, 1999.
7. Reddy KSN. The essentials of Forensic Medicine & Toxicology, 19th ed. 2000, K.Saguna Devi Publication, Hyderabad.

Appendix 1:

Suggested Performa for Clinical Assessment in Substance Use Disorder

A. Sociodemographic profile

Name, age, sex, marital status, qualification, occupation, type of family and place of residence.

B.Details of drug use

1. Age of initiation
2. Various drugs abused
3. Frequency of drugs used
4. The quantity of drug taken usually (usual dose)
5. The time lag since the dose last used (last dose)
6. Whether need to increase the quantity of drug consumed in order to produce the same effect (tolerance)
7. The effect of the use of a particular drug and signs and symptoms of intoxication
8. Presence/ absence of physiological/psychological symptoms and signs when the particular drug is not taken/ less than the usual amount of drug is being taken (withdrawals)
9. Compelling need/ urge to take the substance

C. Complications associated with drug use

1. Physical: long term health hazards associated with drug use
2. Psychological: chronic mental effects of continuous use of drug
3. Financial: losses suffered/debts incurred

4. Occupational: frequent absenteeism at work, constant change of job, memos issued, periods of unemployment
5. Familial – social: frequent fight with spouse/ other family members, neglect of responsibility at home, social outcast
6. Legal: involvement in illegal activities to sustain drug use, arrests/ charges on account of drug use, caught driving under intoxicated state, drinking brawl.

D. High risk behaviors: presence of injection use/ unsafe sexual practices

- 1) injection risk: sharing of needles/ sharing syringes/ water used for rinsing; reuse of needles, syringes, unhealthy practice of injecting
- 2) sexual risk: contact with commercial sex workers, unprotected sexual intercourse

E. Past abstinence attempts:

1. number of attempts made
2. duration of each attempt
3. reason for abstinence
4. whether treatment sought
5. nature of treatment sought: pharmacological, psychological or combined
6. reason for relapse

F.Reason for seeking treatment and motivation level of individual: whether seeking treatment by self or brought forcibly by family member;

G. Presence of comorbid psychiatric illness such as affective disorder, psychotic disorder and personality disorder/ traits.

H. Presence of family history of SUD, psychiatric illness, current living arrangements

I. Premorbid personality: especially presence/ absence of ASPD

J. Physical examination

Vital signs – Pulse, Blood pressure, Respiratory rate

Systemic examination – Cardiovascular, Respiratory, Abdominal and Nervous system

K. Mental status examination

General appearance and behavior of the patient (dressing, grooming, mannerism, motor activity, and eye contact); Affect (mood) (does he appear happy, sad, anxious? Is it sustained throughout the interview?); Speech (rate, volume, pitch, coherence, relevance); The content of the patient's thought (delusions, obsessions, depressive thought, suicidal ideas); Perceptual disturbances (illusions, hallucinations) and Cognitive functions of the patient.

Appendix 2

Fagerstrom's Test for Nicotine Dependence

1. How soon after you wake up do you smoke your first cigarette?
After 60 minutes (0)
31-60 minutes (1)
6-30 minutes (2)
Within 5 minutes (3)
2. Do you find it difficult to refrain from smoking in places where it is forbidden?
No (0)
Yes (1)
3. Which cigarette would you hate most to give up?
The first in the morning (1)
Any other (0)
4. How many cigarettes per day do you smoke?
10 or less (0)
11-20 (1)
21-30 (2)
31 or more (3)
5. Do you smoke more frequently during the first hours after awakening than during the rest of the day?
No (0)
Yes (1)
6. Do you smoke even if you are so ill that you are in bed most of the day?
No (0)
Yes (1)

Interpretation of the scores –

- 0-2 –Very low dependence
- 3-4 – Low dependence
- 5 – Medium dependence
- 8-10 – Very high dependence

Appendix 3

CAGE

CAGE is a mnemonic for the following questions:

1. Have you ever felt that you should cut down on your drinking?
2. Have people annoyed you by criticizing your drinking?
3. Have you ever felt bad or guilty about your drinking?
4. Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hangover (eye-opener)?

Interpretation of CAGE questions

Answering Yes to 2 questions – Strong Indication for alcohol dependence

Answering Yes to 3 questions – Confirms alcohol dependence

Appendix 4

The Alcohol Use Disorders Identification Test

Read questions as written. Record answers carefully. Begin the AUDIT by saying “Now I am going to ask you some questions about your use of alcoholic beverages during this past year.” Explain what is meant by “alcoholic beverages” by using local examples of beer, wine, vodka, etc. Code answers in terms of “standard drinks”. Place the correct answer number in the box at the right.

1. How often do you have a drink containing alcohol?
 - (0) Never [Skip to Qs 9-10]
 - (1) Monthly or less
 - (2) 2 to 4 times a month
 - (3) 2 to 3 times a week
 - (4) 4 or more times a week
2. How many drinks containing alcohol do you have on a typical day when you are drinking?
 - (0) 1 or 2
 - (1) 3 or 4
 - (2) 5 or 6
 - (3) 7, 8, or 9
 - (4) 10 or more
3. How often do you have six or more drinks on one occasion?
 - (0) Never
 - (1) Less than monthly
 - (2) Monthly
 - (3) Weekly
 - (4) Daily or almost daily
4. How often during the last year have you found that you were not able to stop drinking once you had started?
 - (0) Never
 - (1) Less than monthly
 - (2) Monthly
 - (3) Weekly
 - (4) Daily or almost daily
5. How often during the last year have you failed to do what was normally expected from you because of drinking?
 - (0) Never
 - (1) Less than monthly
 - (2) Monthly
 - (3) Weekly
 - (4) Daily or almost daily
6. How often during the last year have you needed a first drink in the morning to get yourself going after a heavy drinking session?
 - (0) Never
 - (1) Less than monthly
 - (2) Monthly
 - (3) Weekly
 - (4) Daily or almost daily
7. How often during the last year have you had a feeling of guilt or remorse after drinking?
 - (0) Never
 - (1) Less than monthly
 - (2) Monthly

- (3) Weekly
 - (4) Daily or almost daily
8. How often during the last year have you been unable to remember what happened the night before because you had been drinking?
- (0) Never
 - (1) Less than monthly
 - (2) Monthly
 - (3) Weekly
 - (4) Daily or almost daily
9. Have you or someone else been injured as a result of your drinking?
- (0) No
 - (2) Yes, but not in the last year
 - (4) Yes, during the last year

10. Has a relative or friend or a doctor or another health worker been concerned about your drinking or suggested you cut down?

- (0) No
- (2) Yes, but not in the last year
- (4) Yes, during the last year

Skip to Questions 9 and 10 if Total Score for Questions 2 and 3 = 0

Interpretation of AUDIT scores:

Total scores of 8 or more are recommended as indicators of hazardous and harmful alcohol use, as well as possible alcohol dependence. AUDIT scores in the range of 8-15 represent a medium level of alcohol problems whereas scores of 16 and above represented a high level of alcohol problems.

Appendix 5

Michigan Alcohol Screening Test

Please answer YES or NO to the following questions:

1. Do you feel you are a normal drinker? ("normal" - drink as much or less than most other people)
YES or NO
2. Have you ever awakened the morning after some drinking the night before and found that you could not remember a part of the evening?
YES or NO
3. Does any near relative or close friend ever worry or complain about your drinking?
YES or NO
4. Can you stop drinking without difficulty after one or two drinks?
YES or NO
5. Do you ever feel guilty about your drinking?
YES or NO
6. Have you ever attended a meeting of Alcoholics Anonymous (AA)?
YES or NO
7. Have you ever gotten into physical fights when drinking?
YES or NO
8. Has drinking ever created problems between you and a near relative or close friend?
YES or NO
9. Has any family member or close friend gone to anyone for help about your drinking?
YES or NO
10. Have you ever lost friends because of your drinking?
YES or NO
11. Have you ever gotten into trouble at work because of drinking?
YES or NO
12. Have you ever lost a job because of drinking?
YES or NO
13. Have you ever neglected your obligations, your family, or your work for two or more days in a row because you were drinking?
YES or NO
14. Do you drink before noon fairly often?
YES or NO
15. Have you ever been told you have liver trouble such as cirrhosis?
YES or NO
16. After heavy drinking have you ever had delirium tremens (D.T.'s), severe shaking, visual or auditory (hearing) hallucinations?
YES or NO
17. Have you ever gone to anyone for help about your drinking?
YES or NO

18. Have you ever been hospitalized because of drinking?

YES or NO

19. Has your drinking ever resulted in your being hospitalized in a psychiatric ward?

YES or NO

20. Have you ever gone to any doctor, social worker, clergyman or mental health clinic for help with any emotional problem in which drinking was part of the problem?

YES or NO

21. Have you been arrested more than once for driving under the influence of alcohol?

YES or NO

22. Have you ever been arrested, even for a few hours because of other behavior while drinking?

(If Yes, how many times _____)

YES or NO

Scoring

Please score one point if you answered the following:

1. No

2. Yes

3. Yes

4. No

5. Yes

6. Yes

7 through 22: Yes

Interpretation of the scores:

0 - 2 No apparent problem

3 - 5 Early or middle problem drinker

6 or more Problem drinker

Appendix 6

Drug Abuse Screening Test (DAST)

The following questions concern information about your involvement and abuse of drugs. Drug abuse refers to

- (1) the use of prescribed or “over the counter” drugs in excess of the directions
- (2) any non-medical use of drugs

The questions DO NOT include alcoholic beverages. The DAST does not include alcohol use.

The questions refer to the past 12 months. Carefully read each statement and decide whether your answer is yes or no. Please give the best answer or the answer that is right most of the time. Click on the box for Yes or No.

1. Have you used drugs other than those required for medical reasons?
☐ Yes ☐ No
2. Have you abused prescription drugs?
☐ Yes ☐ No
3. Do you abuse more than one drug at a time?
☐ Yes ☐ No
4. Can you get through the week without using drugs?
☐ Yes ☐ No
5. Are you always able to stop using drugs when you want to?
☐ Yes ☐ No
6. Have you had “blackouts” or “flashbacks” as a result of drug use?
☐ Yes ☐ No
7. Do you ever feel bad or guilty about your drug use?
☐ Yes ☐ No
8. Does your spouse (or parents) ever complain about your involvement with drugs?
☐ Yes ☐ No
9. Has drug abuse created problems between you and your spouse or your parents?
☐ Yes ☐ No
10. Have you lost friends because of your use of drugs?
☐ Yes ☐ No
11. Have you neglected your family because of your use of drugs?
☐ Yes ☐ No
12. Have you been in trouble at work because of your use of drugs?
☐ Yes ☐ No
13. Have you lost a job because of drug abuse?
☐ Yes ☐ No
14. Have you gotten into fights when under the influence of drugs?
☐ Yes ☐ No
15. Have you engaged in illegal activities in order to obtain drugs?
☐ Yes ☐ No
16. Have you been arrested for possession of illegal drugs?
☐ Yes ☐ No
17. Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?

☐ Yes ☐ No

Interpretation of Scores

18. Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc.)?

0 none reported

1 - 5 low level

☐ Yes ☐ No

6-10 moderate level

19. Have you gone to anyone for help for a drug problem?

11-15 substantial level

☐ Yes ☐ No

16-20 severe level

20. Have you been involved in a treatment program especially related to drug use?

☐ Yes ☐ No

Appendix 7

Reference for 'Addiction Severity Index' Scale:

http://www.tresearch.org/resources/instruments/ASI_5th_Ed.pdf

Appendix 8

List of Drug De-addiction Centres

Central Institute/Hospitals

1. All India Institute of Medical Sciences, New Delhi
2. Dr.R.M.L.Hospital, New Delhi
3. Lady Hardinge Medical College & Hospital, New Delhi
4. P.G.I.M.E.R., Chandigarh
5. J.I.P.M.E.R., Pondicherry
6. NIMHANS, Bangalore

Centres of Excellence (Funded by UNDCP)

7. K.E.M. Hospital, Bombay
8. I.P.G.M.E.R., Calcutta

Andhra Pradesh

9. Osmania General Hospital (Shifted to Institute of mental health, Hyderabad), Hyderabad
10. SVRRGG Hospital, Tirupati
11. Govt. General Hospital, Warangal

Assam

12. Guwahati Medical College, Guwahati
13. Assam Medical College, Dibrugarh
14. Silchar Medical College, Silchar
15. District Hospital, Jorhat
16. Civil Hospital, Dhubri
17. Civil Hospital, Diphu
18. Civil Hospital, Tejpur
19. Civil Hospital, Karimganj
20. Civil Hospital, Nalbari
21. Civil Hospital, Nagaon

Chandigarh Administration

22. Govt. Medical College, Chandigarh

Delhi

23. Central Jail, Tihar, New Delhi
24. Institute of Human Behaviour & Allied Sciences, Delhi

Gujarat

25. Medical College, Baroda
26. Medical College, Ahmedabad

Goa

27. Asilo Hospital, Mapusa (Goa)

Haryana

28. Medical College Rohtak
29. District Hospital, Ambala

Himachal Pradesh

30. Indira Gandhi Medical College, Shimla
31. District Hospital, Mandi
32. District Hospital, Dharamshala

Jammu & Kashmir

33. Medical College, Jammu
34. Medical College, Srinagar
35. District Hospital, Baramulla
36. District Hospital, Kathua

Karnataka

37. Govt. Medical College, Bangalore

Kerala

38. Govt. Medical College, Trivandrum
39. General Hospital, Erankulam

- 40. Medical Collge, Kottayam
- 41. Medical Collge, Kozhikode
- 42. Medical College, Trissur
- 43. Academy of medical Sciences, Pariyaram, Kannur, Kerala

Madhya Pradesh

- 44. District Hospital, Mandsaur
- 45. District Hospital, Ratlam
- 46. District Hospital, Ujjain
- 47. District Hospital, Indore
- 48. District Hospital, Gwalior
- 49. District Hospital, Jabalpur

Chattisgarh

- 50. District Hospital, Raipur

Maharashtra

- 51. Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardhi
- 52. District Hospital, Nasik

Manipur

- 53. Regional Institute of Medical Sciences, Imphal
- 54. District Hospital, Imphal
- 55. District Hospital, Sajiva
- 56. District Hospital, Chandel
- 57. District Hospital, Churachandpur
- 58. District Hospital, Ukhrul
- 59. District Hospital, Moreh
- 60. District Hospital, Thoubal
- 61. District Hospital, Bishnupur
- 62. District Hospital, Senapati
- 63. District Hospital, Tamenglong

Meghalaya

- 64. District Hospital, shillong

Mizoram

- 65. District Hospital, Aizawal
- 66. District Hospital, Lunglei

- 67. District Hospital, Saiha
- 68. District Hospital, Champhai
- 69. District Hospital, Serchhip
- 70. District Hospital, Lawngtlai

Nagaland

- 71. Naga Hospital, Kohima
- 72. District Hospital, Mukokchung
- 73. District Hospital, Tuensang
- 74. Civil Hospital, Dimapur
- 75. Civil Hospital, Wokha
- 76. Civil Hospital, Mon
- 77. District Hospital, Zunheboto
- 78. District Hospital, Phek

Orissa

- 79. S.C.B.Medical College, Cuttack

Pondicherry

- 80. General Hospital, Karaikal
- 81. Govt. General Hospital, Pondicherry

Punjab

- 82. Medical College, Patiala
- 83. Medical College, Amritsar
- 84. District Hospital, Bhatinda
- 85. Medical College, Faridkot

Rajasthan

- 86. SMS Medical College, Jaipur
- 87. Medical College, Udaipur
- 88. Medical College, Jodhpur
- 89. Medical College, Kota
- 90. Medical College, Ajmer
- 91. Medical College, Bikaner

Sikkim

- 92. STNM Hospital, Gangtok
- 93. District Hospital, Namchi
- 94. District Hospital, Gyalshing (W.Sikkim)

Tamil Nadu

95. Madras Medical College, Madras
96. Medical College, Madurai
97. Govt. Headquarters Hospital, Nagercoil
98. Govt. Stanley medical College and Hospital, Chennai
99. Govt. Medical College and Hospital, Coimbatore
100. Govt. Medical College and Hospital, Tirunelveli
101. Govt Mohan Kumaramangalalm Medical College and Hospital, Salem
102. Govt. Medical College and Hospital, Thanjavur
103. Govt. Medical College and Hospital, Tuticorin
104. Govt. Kilpauk Medical College and Hospital, Chennai
105. Govt. Chengaipattu Medical College and Hospital, Chengaipattu
106. Govt. KAP Viswanathan Medical College Hospiatl, Tirichirapalli

Tripura

107. Kumarghar Rural Hospital, Darchai

Uttar Pradesh

108. Institute of medical Sciences, Banaras Hindu University, Varanasi

109. Gorakhpur Medical College, Gorakhpur
110. King George Medical College, Lucknow
111. Medical College, Meerut

Uttranchal

112. Base Hospital Sringar, Garhwal

West Bengal

113. North Bengal Medical College, Siliguri
114. Burdwan Medical College, Burdwan
115. Bankura Medical College, Bankura

Arunachal Pradesh

116. District Hospital, Tezu
117. District Hospital Changlang
118. District Hospital, Khonsa

Bihar

119. Jawaharlal Nehru Medical College, Bhagalpur,
120. Shri Krishna Medical College, Muzaffarpur
121. Anurag Narayan Medical College, Gaya
122. Sadar Hospital, Munger

List of Contributors

Amardeep Kumar

Department of Psychiatry and National Drug
Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

Anju Dhawan

Department of Psychiatry and National Drug
Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

Arindam Mondal

Department of Psychiatry and National Drug
Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

BN Gangadhar

Department of Psychiatry
National Institute of Mental Health and Neu-
rosciences
Bangalore - 560 029.

Debasish Basu

Department of Psychiatry
Postgraduate Institute of Medical Education
& Research
Chandigarh

Deepak Yadav

National Drug Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

HK Sharma

National Drug Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

Hem Raj Pal

Department of Psychiatry and National Drug
Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

Indra Mohan

Department of Psychiatry and National Drug
Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

K Srinivasan

Department of Psychiatry
St. John's Medical College Hospital
Bangalore

K S Chandramouli

Department of Medicine
St. John's Medical College Hospital
Bangalore

Kul Bhushan

Department of Psychiatry
National Institute of Mental Health and
Neurosciences
Bangalore - 560 029.

Manoj Kumar Sharma

National Drug Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

Mohan Isaac

Department of Psychiatry
National Institute of Mental Health and
Neurosciences
Bangalore - 560 029

Parmanand Kulhara

Department of Psychiatry
Postgraduate Institute of Medical Education
& Research
Chandigarh

Prabhat K Chand

Department of Psychiatry
National Institute of Mental Health and
Neurosciences
Bangalore - 560029

Pratima Murthy

Department of Psychiatry
National Institute of Mental Health and
Neurosciences
Bangalore - 560029

Rajat Ray

Department of Psychiatry and National Drug
Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi - 110029

Rajesh Bhushan

Director, Deaddiction Services
Ministry of Health and Family Welfare
New Delhi

Raka Jain

Department of Psychiatry and National Drug
Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

Rakesh Lal

Department of Psychiatry and National Drug

Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

Ravindra V Rao

Department of Psychiatry and National Drug
Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

Renuka Jena

Department of Psychiatry and National Drug
Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi - 110029

S Lalwani

Department of Forensic Medicine
All India Institute of Medical Sciences
New Delhi – 110029

Shubhangi Parker

Department of Psychiatry
K E M Hospital
Mumbai

T D Dogra

Department of Forensic Medicine
All India Institute of Medical Sciences
New Delhi – 110029

Vivek Benegal

Department of Psychiatry
National Institute of Mental Health and
Neurosciences
Bangalore - 560 029.

Yatan Pal Singh Balhara

Department of Psychiatry and National Drug
Dependence Treatment Centre
All India Institute of Medical Sciences
New Delhi – 110029

Glossary

Abuse: This term essentially connotes a pattern of unhealthy, prolonged consumption of drug, which interferes with social, occupational, or personal functioning of an individual. (N.B: The word 'abuse' when used non-specifically may cover both abuse and dependence phenomena. Thus, used loosely, a drug 'abuser' (earlier called 'addict') is a person who uses drug(s) in a pathological fashion and may meet the technical definition of either 'abuse' or 'dependence').

Attributable risk: Proportion of new cases arising in a population that are attributable to exposure under study.

Case control study: It involves two populations-cases and controls. In case control studies, the unit is the individual rather than the group. The focus is on a disease or some other health problem that has already developed. Case control studies are basically comparison studies.

Cohort study: It is a type of observational study which is usually undertaken to refute or support the existence of an association between suspected cause and disease.

Cohort: It is defined as a group of people who share a common characteristic or experience within a defined time period (e.g., age, occupation etc)

Community: Social structural aspect: As a "social organism" comprises of rural helmets/ villages to urban neighborhood. The focus is on people living in the community, the social networks and institutions located in the community.

Comorbidity: Comorbidity is defined as the presence, either simultaneously or in succession, of two or more specific disorders in an

individual within a specified period.

Consciousness: Our own awareness of ourselves and the world; the mental processes that we can perceive; our thoughts and feelings.

Craving: A powerful, intense, often uncontrollable, desire for drugs.

Cross-sectional study: These studies are performed in a defined 'target population' with clearly defined 'cases'. The subjects need to be assessed only once. These studies are especially useful for defining the health care needs of a given population.

Delirium: an etiologically non-specific syndrome characterised by concurrent disturbances of consciousness and attention, perception, thinking, memory, psychomotor behaviour, emotion and the sleep-wake cycle.

Dementia: a syndrome due to the disease of the brain, usually of a chronic or progressive nature, in which there is a disturbance of multiple higher cortical functions, including memory, thinking, concentration, orientation, comprehension, calculation, learning capacity, language and judgement. However, the consciousness is not clouded.

Denial Unconsciously refusing to admit that someone is addicted.

Dependence: A cluster of physiological, behavioural and cognitive phenomena in which use of a substance or a class of substances takes on a much higher priority for a given individual than other behaviours that once had greater value. (N.B: **Addiction** is a much older term than both 'abuse' and 'dependence'. It is now omitted from technical language because of its pejorative connotation. However, the term still

is retained in popular usage. It denotes either abuse or dependence).

Descriptive study: Distribution of persons who abuse various kinds of substances according to various socio-demographic variables is assessed. This can give information about regional variation and change in trends over time.

Detoxification. A process of withdrawing a person from a specific psychoactive substance in a safe and effective manner.

Drug: any chemical which, when administered, alters the functioning of one or more systems of the organism.

Dual Diagnosis: Patients with a substance use disorder with a comorbid psychiatric manifestation.

Hallucination: false sensory perception not associated with any real, external stimuli.

Illusions: misperception or misinterpretation of real external sensory stimuli.

Incidence: Occurrence of *new* cases in members of a target population over time.

Insight: ability of the patient to understand the true cause and meaning of a situation.

Intoxication: a transient condition following the administration of a psychoactive substance, resulting in disturbances in level of consciousness, cognition, perception, behaviour or affect, or other psychophysiological functions and responses.

Judgement: ability to assess a situation correctly and to act appropriately within that situation

Lapse: the initial (single) episode of drug use following a period of abstinence, synonymous with “slip.”

Mentally Ill Chemical Abuser (MICA)/ Mentally Ill Substance Abuser (MISA)/ Chemical Abusing Mentally Ill (CAMI): Terms used to

describe patients with a psychiatric disorder having a comorbid substance use disorder.

Motivation: The internally generated state that stimulates us to act.

Narcotics: morphine and related group of drugs.

Opiates: Any of the psychoactive drugs that originate from the opium poppy or that have a chemical structure like the drugs derived from opium.

Opioid: Any chemical that has opiate-like effects.

Prevalence: Proportion of a population that has a particular occurrence at a point or period in time. The former definition refers to as point prevalence and latter as period prevalence.

Problem Drinking. An informal term describing a pattern of drinking associated with life problems prior to establishing a definitive diagnosis of alcoholism. Also, an umbrella term for any harmful use of alcohol, including alcoholism.

Psychosis: inability to distinguish reality from fantasy; impaired reality testing.

Psychotropic drug: chemical which induces change primarily in some aspect(s) of mental functioning; for example, an anti-depressant is meant to relieve mental depression. (N.B: when we refer to ‘drugs’ in the manual we mean alcohol, cannabis, heroin or morphine. Although they are all psychotropic agents, they are rarely taken for a particular effect or illness. Rather, they are consumed voluntarily to alter one’s mood, thinking, perception or other mental functions so as to *induce pleasure* in an artificial manner. In order to differentiate them from other, more generally defined, medicinal drugs, these are now called ‘psychoactive substances’ or simply ‘*substances*’).

Relapse: the failure to maintain abstinence;

resumption of a pattern of substance abuse or dependency

Relative risk: The chance of occurrence of event in the population exposed to risk factor as compared to those not exposed.

Stimulants: A class of drugs that elevates mood, increases feelings of well-being, and increases energy and alertness.

Withdrawal Syndrome. The onset of a predictable constellation of signs and symptoms following the abrupt discontinuation of, or rapid decrease in dosage of a psychoactive substance.

The Drug De-addiction Programme was initiated by the Ministry of Health and Family Welfare, Government of India in 1988. Under this programme, the National Drug Dependence Treatment Centre (previously De-addiction Centre), All India Institute of Medical Sciences, New Delhi has been conducting regular training courses for physicians. A manual was developed and published in 1999 as an aid for physicians attending these courses. Based on the feedback received and accumulation of knowledge, it was decided that an updated revised version of this manual was required. Accordingly this manual has taken shape with inputs from Administrators, Psychiatrist, Laboratory personnel, Forensic Specialists, Psychologists and Social Workers.

All aspects related to substance abuse are covered ranging from Epidemiology, Assessment, Acute effects and Long term hazards, Pharmacological and Non pharmacological treatment, Legal issues, Comorbidity and Management at the Hospital and Community level and Prevention Strategies.

Chapters on Nicotine Dependence and Substance Use in Adolescents and Women have made an appearance.

Various scales for assessment and a list of De-addiction centres in the country have been appended.

