The handbook is a part of resource material that has been developed for training of general duty medical officers. Though a comprehensive manual for physicians is already available, but a need was felt to develop another concise handbook for physicians. The handbook covers the main areas of substance use disorders which are of clinical and practical utility. All chapters have been kept brief and focused to provide a ready reference for physicians. Though primarily designed for physicians, it shall be useful for all professionals involved in the care of patients with substance use disorders.

Substance Use Disorders

Handbook for Physicians

Editors
Rakesh Lal, Raman Deep Pattanayak

Substance Use Disorders: Handbook for Physicians

Rakesh Lal, Raman Deep Pattanayak

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NORTH BLOCK, NEW DELHI-110001

Foreword

National Drug Dependence Treatment Centre (NDDTC) has been conducting training courses for General Duty Medical Officers since 1989. The Centre has also undertaken a national exercise on capacity-building for imparting training to medical officers in 300 districts of the country by March 2014.

2. Government of India (Ministry of Finance) has decided to extend full financial support for conducting the training courses and developing the resource material for the training.

3. In the meeting of the Expert Group on 'Finalization of Curriculum and Review of Existing Resource Materials' for training physicians, held on 3-4 February, 2011, a need was felt to develop a concise Manual which would provide relevant clinical and practical information for quick reference.

4. NDDTC deserves appreciation for bringing out the new Physician Training Manual capable of serving as a useful resource material for the physicians and other professionals involved in the care and treatment of substance use disorders at a ground level.

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Preface

It has been a matter of great pleasure to compile this handbook on substance use disorders for physicians. The handbook is a part of resource material that has been developed for training of General Duty Medical Officers, aimed at enhancing their knowledge and skills in identification and treatment of substance use disorders at the ground level.

To set the background for development of this handbook, the National Drug Dependence Treatment Centre (NDDTC) was graciously entrusted by the Ministry of Finance, Department of Revenue to coordinate a national exercise on 'capacity building of medical professionals on treatment of substance use disorders' jointly with Ministry of Health and Family Welfare. In one of the expert meetings to 'review the existing resource material' for training physicians, it was suggested that the existing manual published in Oct 2005 was perceived to be too comprehensive and elaborate by the physicians. It was felt that there is a need to develop another concise and simpler resource which may be practically more useful.

The handbook has been envisaged to cover the main areas of substance use disorders deemed to be beneficial for general physicians. It has been designed carefully in a way to emphasize on practical information for quick reference. The visual medium is exploited extensively, with a clear enlisting of useful facts. The areas which do not have a clinical relevance or which require a higher degree of training have not been described in detail. The chapters have been deliberately kept brief with minimal essential information as the physicians will have continual access to the more comprehensive manual already in existence.

This handbook would not have been possible without the unconditional support of Ministry of Finance, Department of Revenue. It is noteworthy that even though the primary focus of Ministry of Finance is on supply

reduction, but it has actively supported and encouraged the development of this new handbook as part of capacity building and demand reduction.

Though the handbook has been primarily designed for physicians, it shall also be useful for all professionals who are involved in the care of patients with substance use disorders.

We look forward to any suggestions for continued improvement and changes, if any.

Rakesh Lal
Raman Deep Pattanayak

Acknowledgements

We wish to express our sincere gratitude towards all people and agencies which contributed at various stages of development of the handbook. At the outset, I would like to gratefully acknowledge the generous funds provided by the Ministry of Finance, Department of Revenue to develop this handbook.

I would like to especially thank the Ministry of Health and Family Welfare (Government of India) for their constant support and encouragement. Acknowledgments are due to the Director as well as 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. This work would just not have been possible without the contributors of this handbook and a special thanks are due to all of them. Finally, the first edition (1999) of the Physician's manual, which was more like a handbook, acted as a framework for reference during the development and editing of this Physician's handbook, which is duly acknowledged.

Rakesh Lal
Raman Deep Pattanayak

1

Substance use disorders: Concept and overview

Raman Deep Pattanayak, Rakesh Lal

Introduction

Substance use disorders are chronic, relapsing disorders, which affect various aspects of physical, psychological and socio-occupational functioning. They are quite prevalent and pose a huge burden on the society.

Concept

Substance use has been viewed by the society from several different perspectives such as moral, legal or cultural. However, when the use of a substance begins to create problem/s for the user or ceases to be entirely volitional , it becomes a reason for seeking help from medical professionals.

The use of a substance may broadly follow one of these patterns:

(1) Occasional, controlled or social use: This is not considered to be a disorder, and simply means a pattern of use not associated with any harm.

(2) Harmful use/ abuse: Clinically diagnosable but non-dependent substance use.

- Harmful use: Pattern of use associated with damage to physical health e.g. hepatitis or mental health e.g. depression. (ICD-10, World Health Organization, 1992)
- Abuse: Maladaptive pattern of use in physically hazardous situations, or associated with role impairment, legal or social problems (DSM-IV TR, American Psychiatric Association, 2000)

(3) Substance dependence (addiction).

Substance dependence is a cluster of behavioral, cognitive and physiological phenomena which develop after repeated substance use. Of the six diagnostic criteria specified in ICD-10 there are two behavioral, two cognitive and two physiological phenomena.

Behavioral

- Progressive neglect of alternative pleasures or interests
- Persisting with substance use despite clear evidence of overtly harmful consequences

Cognitive

- Strong desire or sense of compulsion to take the substance (craving)
- Difficulties in controlling substance-taking behavior in terms of its onset, termination, or levels of use (diminished control)

Physiological

- Physiological withdrawal state
- Evidence of tolerance

This maladaptive pattern of use leads to distress and clinically significant impairment in one or more spheres of life. Following are often observed in a dependent substance user:

✓ There is a narrowing of the personal 'repertoire' of patterns of substance use (e.g. a tendency to drink alcohol in the same way on weekdays and weekends, regardless of social/ family/ job constraints).

✓ The use becomes compulsive, with increasing pre-occupation and neglect of alternate activities.

✓ Person experiences a loss of control over limiting the intake of substance.

✓ Drug- seeking behavior is one of the central features of the dependence.

✓ Emergence of negative emotional states (e.g. dysphoria, irritability) when access to the drug is prevented.

Dependence progresses from impulsivity to compulsivity in a three-stage cycle of

- Pre-occupation/anticipation
- Binge/ intoxication
- Withdrawal/ negative affect

As one progresses with chronic use of a substance, the motivation for taking substance shifts from positive reinforcement (i.e. experiencing the pleasurable effects) to that of negative reinforcement (i.e. continued use in order to prevent withdrawals).

Several neurobiological changes occur during the progression from use to dependent use, and may take years to normalize even after stopping the substance. The associated familial, social and occupational difficulties may also take a long time to recover even after abstinence. These biological and psychosocial factors contribute to frequent relapses, observed in as many as 60-80% of the substance users.

The substance use disorders can be viewed on these dimensions:

(a) *Narrow vs. Broad:* Former includes only drug dependence, while latter includes both drug and behavioral dependence (e.g. pathological gambling).

(b) *Disease vs Learned behavior* : Former views it as a primary disorder caused by an interaction between a substance and a biologically vulnerable person, In the latter, substance use is seen as a learned behavior which can be unlearned and is modifiable.

(c) *Social vs Medical model:* This dimension is based more on how to respond to the problem of substance use disorders, rather than the essential nature of these disorder. The social model lay stress on social support network of recovering people for continual support. The medical model stresses on assessment, treatment, planning by trained professionals.

Behavioral dependence vs. physiological dependence

In addition to a behavioral syndrome as described above, the term 'dependence' has also been used to convey a state of physical/ physiological dependence, which can occur due to an alteration in neural systems in response to chronic administration of a psychoactive drug. An example is use of prescribed morphine in chronic pain patients. Although tolerance and withdrawals do occur, but accompanying behavioral manifestations are lacking in physiological dependence. In order to avoid confusion, it is recommended that the term 'neuroadaptation' or 'physiological dependence' should be used to describe this state.

Causation

There is no single answer to the question why people use drugs despite obvious harms. The cause appears to be **multi-factorial** with an interaction of genetic, innate biological, psychological, sociocultural, environmental and drug-specific factors. Further, there appear to be **multiple pathways** to developing dependence and in a given individual , some or all of these factors may predominate.

Both the etiology of substance use and the treatment needs of the individual should be viewed through a biopsychosocial framework, with role of biological/genetic vulnerabilities; psychological components; and the social/ environmental factors such as peer pressure. This framework facilitates the integration of the diverse research findings from various fields and necessitates a multidimensional assessment and individualized treatment.

Common drugs of abuse

A psychoactive drug is a substance that, when taken in or administered into one's system, affect the mental processes, e.g. cognition or affect. The term is used to refer to all licit and illicit substances which are consumed for their specific mind-altering (usually pleasurable) effects.

Tobacco as well as alcohol (in most states of India) are licit drugs, and their use is widely prevalent across various sections of society. As per World drug report 2012, cannabis and amphetamine-type stimulants have emerged as commonest illicit drugs across the world followed by opioids and cocaine.

The major drugs of abuse in India, apart from tobacco and alcohol, are cannabis, opioids and prescription drugs. It is worthwhile to mention here that the leaves of cannabis (used to prepare bhang) have been exempted from control in view of their religious/cultural use in India.

Table 1 shows the frequently used substances in India

Table 1. Common substances of abuse in India

Tobacco (smoking and smokeless)	Beedi, cigarette, gutkha, khaini, zarda, hookah
Alcohol	Beer, wine, spirits (rum, whisky, vodka, brandy), illicit alcohol, home brewed alcohol (sarai, arak)
Opioids	Heroin (smack, brown sugar), Afeem, Doda, Post, Codeine cough syrup, Dextropropoxyphene capsules
Cannabis	Bhang, Charas/Ganja, Hashish
Sedative/hypnotics	Nitrazepam, Diazepam, Alprazolam
Inhalants or solvents	Petrol, Glue, Typewriter erasing/ correction fluid

Club drugs is a category of convenience often used to describe the recreational drugs usually abused by youth population in rave parties. These include a diverse range of drugs viz. stimulants e.g. Hallucinogens e.g. LSD, Methamphetamine (Meth) MDMA (Ecstasy) or drugs like Flunitazepam (Rohypnol), GHB (Gamma hydroxy butyrate) .

Epidemiology: Indian scenario

In first of its kind, a 'National survey on extent, pattern and trends of drug abuse in India' was undertaken using multiple data sources to get a comprehensive picture of substance use across India (Ray et al, 2004). The current one- month prevalence in a nationally representative household male sample was as follows:

- Alcohol: 21.4%
- Cannabis: 3%
- Opioids: 0.7% (Heroin: 0.2%, opium: 0.4%, other opioids: 0.1%)
- Injection drug use: 0.1%
- Any Illicit drug: 3.6%

Among treatment seekers across various settings in India, the primary drug of abuse was alcohol (43.9%), followed by opioids (26%) and cannabis (11.6%). Drug abuse is also prevalent among women and adolescent population.

There are an estimated 62.5 million alcohol users, 8.7 million cannabis users and 2 million opiate users in the country, of which 17-26% are likely to be dependent users.

Policy and Programmes in India

The constitution of India, under Article 47, states 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 onus of responsibilities lies with central and state governments The various Ministries dealing with the problem of substance use and their respective roles are as follows:

(a) Ministry of Home Affairs, Ministry of Defense (Department of Revenue) and State Governments : Control on illicit drug trafficking and production in India (supply reduction)

(b) Ministry of Social Justice & Empowerment (MSJE): Provision of counseling services and rehabilitation of substance users. (demand reduction)

(c) Ministry of Health & Family Welfare (MOHFW): Provision of treatment services and after care (demand reduction)

The Drug De-addiction Programme (DDAP) of the Ministry of Health & Family Welfare started in 1987-88, and was modified in 1992- 93 as a scheme under Central sector assistance to States. Under the scheme, a one-time grant in aid of Rs. 8 lakhs is given for construction of de-addiction centres and a recurring grant of Rs 2 lakhs is given to the centres established in North Eastern Region. At present, 124 de-addiction centres have been established in various settings across India, including community health centres, district hospitals and departments of psychiatry at medical colleges. Of these, the six de-addition centres established in Central Government hospitals and institutions are:

1) AIIMS, New Delhi
2) Dr. RML. Hospital, New Delhi
3) Lady Hardinge Medical College, New Delhi
4) PGI, Chandigarh
5) JIPMER, Pondicherry
6) NIMHANS, Bangalore

The centre, established under AIIMS, New Delhi, is located at Ghaziabad and is a national nodal centre. It has been designated as National Drug Dependence Treatment Centre (NDDTC).

The MOHFW periodically evaluates the functioning of the de-addiction centres. The NDDTC, AIIMS, with financial assistance from W.H.O, has been involved in this periodic evaluation, which has served as a valuable input for reformulation of the National Drug De-addiction Programme which is under consideration of the Ministry.

Currently, there are 401 Treatment-cum-Rehabilitation Centres and 41 Drug Awareness and Counseling Centres supported by MSJE. The de-addiciton programmes by MSJE and MOHFW appeared to run parallel to each other for a long time, with little/no cooperation. It was envisioned in several meetings that an effective linkage would be established between the centres supported by MSJE and the de addiction centres supported by the MOHFW, by following means:

- Identification of NGOs to be linked with de-addiction centres
- NGOs would recommend cases requiring treatment to the de-addiction centres. The de-addiction centres, in turn, would refer patients after completion of their treatment to identified NGOs for rehabilitation and monitoring.
- MSJE would consider funding one counselor in each de-addiction centre run by the MOHFW.

National Policy: Recent Developments

Recently, in the year 2012, the National Policy on Narcotic Drugs and Psychoactive Substances (NDPS) has been approved by Union Cabinet, which was drafted by the Department of Revenue, Ministry of Finance in consultation with other concerned Ministries, organizations and State Governments. For the first time, a clear policy has been spelt towards narcotic drugs and psychotropic substances in India. The policy aims to serve as a guide to various Ministries, organizations and agencies, with a time bound plan of action, detailing the steps to be taken in response to the recommendations of the International Narcotics Control Board. Apart from issues related to supply reduction, the policy also contains provisions for harm reduction, treatment and rehabilitation of substance users.

MSJE is also in the process of drafting the policy on alcohol, which is expected to be out in near future. The National Alcohol Policy highlights harms, provides guidelines to reduce harm, tries to balance supply and demand reduction, and presents a framework to plan, implement and evaluate strategies to reduce harm. It takes cognizance of individual rights and burden on families affected by alcohol users. It underscores need for state governments to commit a percentage of revenue earned from alcohol sales to funding activities to reduce harm. Identification of needs and gaps in service is also a priority.

About this handbook

This handbook is meant to serve as a simple and concise resource aimed at physicians who deal with substance use disorders. It has been developed as part of the resource material to facilitate the training of general physicians.

The handbook attempts to cover the key areas which were deemed to be of clinical significance for physicians managing the substance use disorders in primary and secondary care settings. A total of 13 chapters have been written by various experts from all over the country. Physicians are advised to consult the Manual for Physicians for more elaborate and additional information as well as the Case book for clinical discussion of cases with substance use disorders.

2

Assessment and diagnosis of substance use disorders

Pratima Murthy, Prabhat Chand

Introduction

A person in the early stage of substance abuse may visit a General Practitioner (GP) for physical problems which may be directly or indirectly related to substance use. However, most physicians are poorly oriented or equipped to identify the substance use problems. For instance, a person who presents with symptoms suggestive of gastritis may not spontaneously mention his heavy alcohol intake. In such a context, early identification and assessment becomes crucial and has much better treatment outcomes.

GPs can be well suited to identify and treat the substance use disorders. However, there are several barriers to delivering these services (Box 1).

Box 1: Barriers for general practitioners

- Perception that it is not their mandate to enquire about their patients' drug and alcohol use
- Perception that drug users are chaotic and non-compliant
- Lack of adequate training as undergraduates and postgraduates
- Scepticism and pessimism about treatment effectiveness
- Perceived patient resistance
- Discomfort discussing substance misuse
- Time constraints

Assessment

Assessment is the process of gathering information about the person's drug use pattern, related problems and various psychosocial aspects. It is important in order to understand the severity of problem, determine the willingness to quit and helps in planning the intervention.

It is best to *directly* ask every patient attending the clinic or hospital about substance use (especially alcohol and nicotine) as part of a life style assessment. Some clues to substance use may be present in history or examination (Box 2).

Box 2 : Possible clues to substance use

Alcohol use

- Poor appetite, heart burn
- Tremors, sweating, palpitations
- Flushing, bloated face, periorbital puffiness
- Repeated injuries
- Reduced libido, obesity

Tobacco Use

- Stained teeth, blackening of lip, fibrosis marks
- Cough, wheezing dyspnoea, poorly controlled hypertension

Cannabis use

- 'Red eyes'/blood shot appearance
- Increased appetite
- Anxiety, withdrawal, decline in functioning
- Drowsy, lethargic, irritable
- Bad smell

Injectable drug use

- Healed marks along line of veins
- Venous abscesses
- Trying to hide such marks under clothes

Prescription drug use

- Repetitive request for prescription of sedative/hypnotics
- Sleep disturbance
- Drowsiness, irritability

Interviewing skills

Good verbal and non-verbal communication (facial expression, expression of boredom, impatience or disapproval) communication is important while interviewing the patient along with certain interview skills.

1. Helping the person to relax. It is better to interview the individual first and later call in the accompanying person.
2. Explain the purpose of interview e.g.. 'I will be trying to understand your experiences (both positive and negative) with drugs so far'
3. Be non-judgmental, neutral and do not pass any critical comments
4. Build trust and confidence by ensuring confidentiality

5. Express warmth and concern: 'I can understand how difficult things have been for you'
6. Use more open-ended questions, which encourage the person to speak at length giving a free account of substance use (e.g. can you tell me more about your drinking)
7. Directive questions (which invite a yes/no or a specific fact as answer e.g. have you ever used injected drugs) are more useful towards the later part of interview to clarify facts or rule out commonly associated problems.

Clinical History

The broad outline of history for substance use disorder resembles a good medical history. Patient is the main source of information. In order to corroborate and supplement the information, family members, relatives or friends, past medical records, employers, police/legal report etc. should be sought.

Assessment includes the following areas:

1. Patient's details viz. name, age, gender, address, occupation, living situation. The details of informants, including their relationship to patient, should be noted.
2. Drug use history/ Drug using career
   (a) Age of initiation of substance/s, reasons for initiation and continuing use, acute effects
   (b) Age at which regular daily use started, progression of use over time
   (c) Change effects experienced over time (tolerance)
   (d) Ask when withdrawals first experienced, nature and severity of withdrawals, complicated withdrawals (delirium, seizures etc , if any)
   (e) Any compelling urge (craving) to take substance/s
   (f) Current (past 1 month) consumption : Ask about the usual dose, maximum dose and last dose. Ask the time to last dose
   (g) Ask for routes of drug. If injecting drug use is present, ask about the types of drugs injected, site of injection, mode of injection (IM or IV) and risk from injecting (re-using needles/syringes, sharing)
3. High risk behaviors e.g. unsafe sexual practices, needle sharing etc
4. Periods of abstinence and treatment, if any
   (a) Number/duration of abstinent attempts, reasons for seeking abstinence

(b) Nature/type of treatment sought, duration of treatment

(c) Level of functioning during abstinence

(d) Use/escalation of any other substance during abstinence

(e) Reasons/circumstances of relapse

5. Complications associated with drug use

(a) Physical: short and long term health problems

(b) Psychological effects e.g. guilt, shame, low self-esteem etc

(c) Financial: amount of losses and debts

(d) Occupational: frequent absenteeism, constant change of job, unemployment etc

(e) Familial: frequent fights, poor interpersonal relationships, neglect of responsibilities at home

(f) Social: outcast, stigma

(g) Legal/criminal: arrests, charges, involvement in illegal activities

4. Reasons for seeking treatment, motivation
5. Details of psychiatric illness, if any
6. Past medical history
7. Family history of substance use disorders or mental disorders
8. Personal history, which includes birth, developmental, childhood, education, occupational and marital details
9. Pre-morbid personality

Physical examination

A thorough general physical examination is very important part and adds information to the history. Often patients will be not able to report specific physical symptoms related to substance use.. Physical examination can point to evidence of drug use e.g. injection marks or inhalant stains. The evidence of physical harm as a result of drug use should be looked for.

Mental Examination

Attention is given to the general appearance and behavior, psychomotor activity, mood, speech, thought, perceptual disturbances and higher mental functions.

Assessment of patient's motivation is very important. A patient can be considered to have a good motivation if there is

- Acceptance of the problems associated with drug use
- A strong desire to quit
- A high 'internal locus of control' (takes responsibility for own behavior and actions rather than blaming external factors)

- Treatment sought out of one' own will, without any coercion
- Compliant to the physician's instructions, Regularity of follow-ups
- History of significant prior abstinence

Reaching a Diagnosis

Based on the information obtained during the interview, it will be possible to summarize the patient's problem and understand whether he has a pattern of harmful use or dependence (addiction) as per ICD-10 (International Classification of Diseases, 10th edition).

- **Dependence syndrome:** Three or more of the following should be present together at some time during the a one year period:
    1. A strong desire or sense of compulsion to take substance (**craving**)
    2. **Difficulties in controlling** substance-taking behavior (in terms of its onset, termination or levels of use)
    3. A physiological **withdrawal** state when substance use has ceased or reduced
    4. Evidence of **tolerance**, such as markedly diminished effect with continued use of same dose or, increased doses are required to produce the effects originally produced by lower doses
    5. Progressive **neglect** of alternate pleasures (increased time necessary to obtain, use or recover from the effects of substance)
    6. **Persisting with substance use despite** clear evidence of overtly harmful consequences
- **Harmful use:** It is a pattern of substance use that is causing damage to health. The damage may be physical (e.g. hepatitis) or mental (e.g. depressive episodes). Diagnosis requires a *clear evidence of harm* (physical or mental) resulting from drug use. It is a *non-dependent,* but harmful use.
- **Hazardous drinking** (not an ICD-10 diagnosis, but is a distinct pattern of alcohol use which is of public health significance as identified by W.H.O.) Level of alcohol consumption or pattern of drinking *that is likely to result in harm*, if the present drinking habits persist. Hazardous patterns of drinking include drinking to intoxication, drink driving, becoming violent under the influence, high risk sexual behaviour.

Investigations

- Routine blood investigations: Following may be done routinely in patients with substance use disorders to rule out a medical illness or assess drug-related harm:
    - Complete hemogram
    - Liver function tests (LFTs)
    - Blood sugar, urea, creatinine, electrolytes

- Serum GGT (g-glutamyltransferase) or CDT (carbohydrate deficient transferrin) in patients with suspected heavy consumption of alcohol (as a marker)
- HIV, HBV, HCV, VDRL in patients with history of high risk behaviors (unsafe sex, sharing of needles etc)
- Chest X-ray, ECG
- CT scan (if suspected head injury)
- Urinalysis: may be done to detect the presence of various substances of abuse in urine. ELISA (enzyme-linked immunoassay) kits for drugs like cannabis, opioids etc are easily available and affordable. These tests are also known as dip stick tests or may be available as cassette tests. Thin-layer chromatography (TLC) may be done, where available, to test for various drugs of abuse.

Instruments for screening patients

The screening instruments can be easily used by general practitioners to detect problematic substance use among primary care patients . These are brief, easily available and have a high sensitivity. These include:

Box 3: CAGE questionnaire

- Have you ever felt you should **C**ut down on your drinking?
- Have people **A**nnoyed you by criticizing your drinking?
- Have you ever felt **G**uilty about drinking?
- Have you ever had a drink first thing in the morning to steady your nerves or get rid of a hang-over (**E**ye-opener)?

- CAGE questionnaire to screen for alcoholism. A score of 2 or more is considered to be significant. (Box 3)
- AUDIT (Alcohol Use Disorder Identification Test): to detect excessive drinking. (Appendix 1)
- ASSIST (Alcohol, Smoking and Substance Involvement Screening Test): to screen for various substances. (Appendix 2)

Conclusion

It is very important that all health care providers ask for a history of substance use from every patient seeking a consultation. When such use is reported, the physician must be aware of the basic assessment for substance use. A good assessment by a caring physician can itself be the first step in enhancing patient's motivation to stop the substance use.

3

Acute and chronic effects of psychoactive substances

Shilpa Adarkar

Introduction

The knowledge of acute and long-term effects of commonly abused psychotropic substances is necessary for a primary care physician for proper diagnosis and management. This chapter deals with the acute and chronic effects (physical and psychological) of commonly abused drugs viz. alcohol, opioids, cannabis and sedative/hypnotics.

The effects of psychotropic substances are broadly determined by the following factors:

1. Patterns of use: quantity, frequency, duration, route of administration and preparation.
2. Individual factors: naive or experienced user, genetic susceptibility, mental set and expectations.
3. Social factors: group influence, social ambience and shared values.

ALCOHOL

Ethanol is the active ingredient and its concentration varies across the alcohol preparations (Table 1). Alcohol is primarily metabolized in liver by oxidation. It is first converted by alcohol dehydrogenase(ADH) to acetaldehyde, which is thereafter converted by acetaldehyde dehydrogenase (ALDH) to acetate. Acetate is rapidly converted to carbon dioxide and water.

Table 1: Alcohol Preparations

Preparation of alcohol	Alcohol by volume (% ABV)
Beer (standard)	3-5
Beer (strong)	8-11
Wines	5-13
Fortified wines	14-20
Spirits (Whisky/Rum/ Gin/Vodka/Brandy etc)	38-43

*One standard drink =(10 ml absolute alcohol)= ½ bottle of Standard Beer = ¼ bottle of Strong Beer = 30 ml (1 peg) spirits = 125 ml. of table wine = 60 ml fortified wine.

- Blood alcohol concentration (BAC) reaches its peak in 30-60 minutes of consuming alcohol on an empty stomach.
- Carbonated beverages like soda increase and food decrease the rate of alcohol absorption.
- The peak BAC achieved is 20% higher in women due to less water content in their body compared to men. Due to same reason, fat people achieve relatively higher BAC.
- For an average person, one standard drink (30ml spirits) causes the BAC to increase by nearly 20 mg/dl (may vary with gender, weight and other factors)
- Alcohol is metabolized at the approx rate of 1 standard drink per hour. So, alcohol may be detected in his blood for nearly as many hours as number of drinks a person had.
- Some Asian individuals may have a genetic variant of ALDH, which is inherently slow to metabolize. It leads to accumulation of acetaldehyde in body, producing vasodilatation, flushing and 'aversive reaction', each time alcohol is taken.

Acute psychological effects

Clinically, a person is said to be intoxicated if he exhibits significant maladaptive behavioural or psychological changes (e.g., in-appropriate sexual/ aggressive behaviour, mood lability, impaired judgement, impaired social or occupational functioning) 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 of attention or memory, and stupor or coma

The common mental and behavioural effects are shown in Table 2

Table 2: Common acute effects at increasing blood alcohol concentrations (BAC)

BAC (mg/dl)	Mental and behavioural effects
< 80	Euphoria, feeling of relaxation and talking freely, clumsy movements of hands and legs, reduced alertness
80 – 100	Noisy, moody, impaired judgement, impaired driving ability
100 – 200	EEG 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

Acute physical effects

Gastrointestinal effects:

- An appetizer in moderation
- Gastritis with hyperaemia.
- Vomiting, gastric bleeding.
- Gastro-oesophageal reflux, oesophagitis.
- Vomiting after a drinking bout: Mallory-Weiss tear may lead to profuse gastro-intestinal bleeding.

Cardiovascular effects

- Ventricular premature beats
- Blood pressure fall (with small or large doses), rise with moderate doses.
- Vasodilatation: warm, flushed skin and a feeling of warmth.
- Loss of heat: risk of hypothermia.
- Relief from anginal pain (analgesia due to central depression/generalised vasodilatation).

Respiratory effects

- Stimulation by small or moderate doses, depression by large doses (CNS depressant).
- Vomiting: Aspiration pneumonia.

Musculoskeletal effects

- Alcoholic myopathy.
- Muscle pain, muscular swelling and progressive weakness of lower limb muscles.

Renal effects

- Asymptomatic or acute rhabdomyolyis with myoglobinuria, acute tubular necrosis and fatal renal failure

Diuresis

- Initially, alcohol suppresses antidiuretic hormone (ADH) and causes diuresis.
- Later, urine volume generally reflects fluid intake.

Health hazards of long term alcohol use

Regular drinking of alcohol is associated with a wide range of medical complications as shown in Table 3. Most of the complications require evaluation and management by a specialist. The Alcoholic liver disease and neurological manifestations are described briefly.

Table 3: Medical complications of chronic alcohol use

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

Alcoholic Liver Disease (Fatty liver, Alcoholic hepatitis and Cirrhosis)

Fatty Liver

- Often asymptomatic
- Painless hepatomegaly on examination
- Elevated LFTs
- Treatment: Complete abstinence from alcohol must be emphasised
- Reversible with abstinence (but progresses if alcohol use continues)

Alcoholic hepatitis

- Clinical features: Anorexia, nausea, vomiting, pain in abdomen, fever
- Signs: Icterus, tender hepatomegaly
- Elevated LFTs, prolonged prothrombin time
- Complications: Fulminant hepatic failure, ascites, encephalopathy, gastrointestinal bleed, coagulopathy
- Treatment: supportive, glucocorticoids

- Usually reversible with abstinence.
- Poor prognostic factors are very high levels of bilirubin, encephalopathy and prolonged prothrombin time that is unresponsive to Vitamin K.

Cirrhosis

About 10-40% of chronic alcohol abusers may develop cirrhosis.

- Patients suspected of cirrhosis should be referred to a secondary/tertiary care hospital for an initial evaluation and subsequent treatment can be carried out in a primary care setting based on the specialist's advice.
- Symptoms: Anorexia, weight loss, abdominal discomfort, distension of abdomen
- Common signs: Jaundice, spider naevi, clubbing, parotid enlargement, palmar erythema, distended veins over abdomen, hepatomegaly or shrunken liver, splenomegaly, ascites etc
- Complications: Ascites, variceal bleed, hepatic encephalopathy, spontaneous bacterial peritionitis, hepatic failure, renal failure
- Investigations to be done: LFTs; Ultrasound abdomen; Liver biopsy; Endoscopy (for varices); Ascitic fluid analysis (for bacterial peritonitis)
- Treatment
  - Abstinence from alcohol
  - Good nutrition : 2000 - 3000 calories / day
  - Protein: 1 gm/kg, if no encephalopathy
  - Vitamin supplementation (thiamine and folate)
  - Treatment of associated complications in a hospital setting

Central Nervous System Manifestations

Wernicke-Korsakoff syndrome

- Clinically, this term is best conceptualized as 2 distinct syndromes:
  (a) Wernicke encephalopathy: an acute/subacute confusional state characterized by classic triad (confusion, ataxia, opthalmoplegia/ nystagmus),often reversible;
  (b) Korsakoff syndrome: chronic, persistent and usually irreversible characterized by anterograde amnesia, confabulation, hallucinations.
- Wernicke encephalopathy results from acute thiamine deficiency, whilst Korsakoff's syndrome is a chronic neurologic sequela.
- Acute glucose load, in the form of an IV glucose drip, must be always preceded by adequate thiamine supplementation to prevent Wernicke's syndrome in chronic alcohol users and malnourished people.

- Treatment of Wernicke's encephalopathy (medical emergency, 20% mortality if not treated promptly)

  Inj. Thiamine 50mg IV + 50mg IM stat; followed by 50 mg IM daily till patient recovers followed by oral supplementation
- The acute neurological signs subside with treatment, but memory deficits, (korsakoff's syndrome) may become apparent. Nearly 80% of patients may not recover the ability to learn new and remember new information.

Alcohol-related dementia

- Alcohol has a direct effect on brain cells. A person drinking heavily for long term may develop frank dementia.
- It is characterized by memory impairments, multiple cognitive deficits, difficulty in carrying out everyday tasks, decline in socio-occupational functioning.
- Usually reversible in early stages with abstinence from alcohol and replacement of vitamin deficiences

Alcoholic cerebellar degeneration

- Ataxia affecting the trunk and lower limbs, broad based stance and gait difficulty.
- Slow progressing disease
- Abstinence from alcohol and nutritional supplementation may lead to some improvement.

Peripheral neuropathy

- Paraesthesias, more prominent in the distal parts of limbs ('glove and stocking' distribution), symmetric, usually more prominent in lower limbs
- Loss or diminution of ankle jerks, loss of superficial touch, position and vibration sense
- Usually as a result of vitamin deficiencies, especially thiamine, pyridoxine and pantothenic acid).
- Effect on autonomic nerves may result in impotence, postural hypotension and bladder or bowel dysfunction.
- Treatment comprises of vitamin supplementation and physical therapy.

Alcoholic myopathy

- Progressive muscle weakness (proximal lower limb muscles).
- Difficulty in climbing staircases or walking on an uneven ground.
- Examination reveals difficulty in getting up from squatting position without support.

- Diagnosis is made by muscle biopsy.
- Treatment is abstinence and physiotherapy.

Alcohol and Accidents

- Under Motor Vehicle Act, the legal limit of alcohol for driving has been specified as maximum 30 mg/100 ml of blood
- Alcohol consumption leads to road traffic accidents, accidents at home and at work place. More than 20% of head injury cases have recent alcohol consumption.
- A possibility of head injury should be considered in all alcohol users presenting with intoxication withdrawal symptoms or disturbed consciousness.
- Subdural hematoma may present with altered sensorium, headache, vomiting, seizures, neurological signs such as papilloedema, hemiparesis and extensor plantar response. Brain imaging can confirm the diagnosis.
- Referral to tertiary care centre, if necessary.

OPIOIDS

Opioids are the psychoactive drugs that works by activating the opioid receptors, mainly found in central nervous system and gastrointestinal tract. Opium is derived from poppy plant (papaver somniferum) and contains nearly 10% morphine, 3% codeine and non-narcotic alkaloids like thebaine, papaverine etc.

Opioids can be classified into three broad classes:

1. Naturally occurring opioids : morphine, codeine
2. Semi-synthetics: heroin, oxycodone, hydrocodone (produced by modifying natural opium alkaloids).
3. Pure synthetics: fentanyl, methadone

While the term 'opioid' may be used for any psychoactive compound that activates opioid receptors, the term 'opiate' is specifically limited to the natural alkaloids (and at times, their semi-synthetic derivates). Commonly abused opioids are shown in Table 4.

Opioids undergo extensive metabolism in liver and the resulting metabolites may be active e.g. heroin is metabolised into morphine. The duration of action of heroin and morphine is nearly 4 hours, needing frequent use in a day. The metabolites are eliminated through renal excretion and over 90% of urinary excretion of morphine occurs within 24 hours. Opioids display a 'multi-compartmental' distribution, redistribution occuring first into muscle followed by fat. The accumulation in body and saturation of tissue binding leads to prolonged effects with chronic use of opioids.

Table 4: Commonly abused opioids and their routes of administration

Opioids	Routes of use
Heroin (*smack, brown sugar*)	Chasing (inhaling the vapors from a heated metallic foil), smoking, snorting, intravenous, intramuscular, subcutaneous injections (skin popping)
Opium/*Afeem* (dried latex obtained from unripe seeds of poppy plant)	Orally, smoked (in a chillum)
Doda, post, bhuki (dried poppy husks/straw)	Orally
Pentazocine (Inj Fortwin†), Buprenorphine (Inj Norphine†)	Intravenous, Intramuscular injections
Dextropropoxyphene (Cap. Proxyvon†)	Orally
Codeine cough syrups	Orally

†commonly available brand name given as an example
Pl note: Poppy seeds(khus khus) are widely used for culinary/cooking purposes as they contain only trace amounts of opium

Acute psychological effects

- Acute effects of opioids differ in the naïve users and experienced users.
  - First time/ naïve users: a subjectively unpleasant reaction (unless it is used for pain or anxiety, which is relieved)
  - In experienced users: it produces euphoria and a state of relaxation. The effects show tolerance with prolonged use.
  - Injectable users often describe a sensation of 'rush', which is a short lived intense experience of profound euphoria.
- Acute effects include relaxation, a dreamlike state, decreased responsiveness to the environment, analgesia and sedation.
- Opioid intoxication is a clinically significant maladaptive behavioural or psychological changes (initial euphoria followed by apathy, dysphoria, psychomotor agitation or retardation, impaired judgement or impaired social or occupational functioning) that develop during or shortly after opioid use.
- A triad of pinpoint pupils, respiratory depression and coma is seen in opioid overdose.

Acute physical effects

- Gastrointestinal effects

  Nausea and vomiting (stimulation of the chemoreceptor zone in the medulla), Anorexia and constipation (decreased GI motility)

- Respiratory and cardiovascular effects

  Respiratory depression and suppression of cough reflex. Bradycardia and postural hypotension may occur at higher doses. Pulmonary oedema may occur with intravenous use.

- Skin : Warm and flushed(peripheral vasodilatation), Itching (histamine release).

- Sexual : Delayed ejaculation. Prolonged use may lead to impotence.

Long term health hazards

They are related to the mode of administration as well as adulterants in the street sample. Regular use leads to social deterioration, neglect of personal hygiene and a decline in living standards. Nutritional deficiencies and infections may set in. Mortality rates are high due to overdose, non-sterile injecting procedures, serious accidents, HIV infection etc.

- Cellulitis, thrombophlebitis, septicaemia, endocarditis (injectable drug use)
- Hepatitis B and C, AIDS (injectable drug use/high risk behaviors)
- Pulmonary hypertension, Chronic bronchitis
- Nutritional deficiencies
- Recurrent infections, pulmonary tuberculosis
- Overdose (accidental, deliberate)
- Accidents

CANNABIS

Cannabis is derived from the plant cannabis sativa and its main psychoactive ingredient is THC (tetrahydrocannabinol). Various forms of cannabis are derived from various parts of the plant:

- Bhang: dried leaves of the plant; 1-3% THC
- Ganja: flowering tops of the female plant; 6-20% THC
- Charas (hashish): pure resin; 10-20% THC
- Hashish oil (extracted from resin using non-aqueous solvent): 15-30% THC

Blood levels of THC peaks within minutes. Due to its high lipid solubility and development of tolerance, the blood concentration correlate only moderately with its intoxication effects. The subjective intoxication usually

peaks in half an hour and acute effects last for nearly 2 hours. As the plasma half-life of THC as well as its metabolites is very long (>50 hours), it may be detected upto a month. Residual effects may continue for several days and persistent activity in the body may lead to impairment in cognitive functioning even after 48 hours of acute intoxication. It may also lead to long-term adverse effects on cognitive functioning of regular users.

Modes of consumption

Bhang is used orally as a milk-based drink (thandai) commonly during the social/religious occasions. It is also used as a sweet (majun) or in snacks. Manukka (a dry slightly sweetish sticky preparation consisting of bhang paste and other materials) is used to increase appetite and for its other uses.

Cannabis is also used by smoking in cigarettes (dried bhang leaves or ganja or charas mixed with tobacco), in chillum (clay pipes) or hookah (water pipes). Smoke passes through water before being inhaled (modern 'bong'). Cannabis preparation are rarely used intravenously as there is a risk of anaphylaxis from undissolved particulate matter.

Acute psychological effects

A person with cannabis intoxication displays clinically significant maladaptive behavioural or psychological changes (e.g., impaired motor coordination, euphoria, anxiety, sensation of slowed time, impaired judgement, social withdrawal) developing during or shortly after cannabis intake and 2 or more of characteristic signs (conjunctival injection, increased appetite, dry mouth, tachycardia) developing within two hours of cannabis use (DSM-IV). Similar to other drugs, cannabis causes a diffuse CNS depression and at times, paradoxical excitement. The manifest behaviour in the individual depends upon his personality, mental set and the setting.

Rise in blood level of THC causes euphoria, state of well being/enjoyment, dreamy, hypnagogic hallucinations (just prior to falling asleep), dreamy state with an increased tendency to fantasize and to accept suggestions followed by ataxia and drowsiness. In addition, several peculiar effects seen with cannabis are as follows:

- Slowing of reaction time
- Impaired coordination: hand-steadiness and dexterity affected
- Subjective sense of time is slowed
- Distortion in depth perception: scenes appear to have greater depth.
- Increased sensory acuity: sounds and colors are perceived to be more intense
- Depersonalization: one's own body feels as if unreal
- Derealization: world feels as if unreal

- Short term (hours to days) memory affected
- At times, there is sudden increase in anxiety/panic attacks, fear and dysphoria ('bad trip').

Above effects(increased reaction time, impaired coordination, sensory and perceptual distortions) make the use of cannabis particularly unsuitable for driving and operating heavy machinery, increasing the risk of accidents.

Some individuals may develop an acute psychotic reaction, which is polymorphous in nature, characterized by emotional turmoil, excitement, paranoid or hypomanic symptoms and vivid hallucinations. Usually it is self-limiting.

Physical effects

- Gastrointestinal Effects: dry mouth, thirst, increased appetite and constipation.
- Cardiovascular effects: Rise in BP, tachycardia, vasodilatation and conjunctival reddening, postural hypotension. Serious cardiac complications may occur with pre existing heart disease.
- Respiratory effects: Increase in carboxyhemoglobin and retention of tar in respiratory tract leading to irritation, mild bronchoconstriction followed by bronchodilation.
- Ophthalmic effects: At low doses, decreased intraocular pressure, and rarely photophobia, nystagmus and conjunctival injection. Ptosis and miosis may occur at high doses.

Long term effects

- In vulnerable individuals, cannabis can precipitate schizophrenia-like psychosis
- A motivational syndrome (withdrawn, apathetic state may be seen in long term users.

SEDATIVES/HYPNOTICS

The sedative/hypnotics are often misused by drug users to potentiate the effects of other drugs e.g. opioids or to control the withdrawals of other drugs or to induce sleep. The use of benzodiazepines alone as a drug of abuse should alert the physician to look for underlying anxiety/depressive disorder which may be undetected. Use of benzodiazepines may be an attempt to self-medicate for anxiety symptoms. The misuse of benzodiazepines may also begin iatrogenically, where a person starts using it over and above the prescribed doses eventually developing dependence.

Acute psychological effects

Initially, a relief from tension, a feeling of relaxation, mild euphoria and sexual enhancement may be seen. Later, sleep is induced and the person

remains sedated. Use of benzodiazepines carries a risk of serious accidents with driving and operating heavy machinery.

Large dose produces staggering, blurred vision, impaired thinking, slurred speech, impaired perception of time and space, slowed reflexes and breathing, reduced sensitivity to pain. Overdose may cause unconsciousness, coma and death. Tolerance develops over a period of time.

The risk of drowsiness, ataxia and confusion increases even further in elderly. The elderly are more prone to experience falls and other adverse effects of benzodiazepines.

Physical effects

Neurological: As benzodiazepines are CNS depressants, they produce drowsiness and sleep. Attention and memory are impaired. Loss of balance and impaired co ordination are seen. Symptoms include drowsiness, poor concentration, muscle weakness, dizziness and mental confusion.

Paradoxical stimulant effects: Uncommonly, benzodiazepines may cause paradoxical excitement with increased anxiety, insomnia, nightmares, hallucinations at the onset of sleep, irritability, hyperactive or aggressive behaviour, and exacerbation of seizures in epileptics. Attacks of rage and violent behaviour may be seen. This may be due to inhibition of higher centres of brain causing behavioural tendencies normally suppressed by social restraints

Long Term Health Hazards

- General deterioration in physical and mental health.
- Cognitive impairment s may occur with long-term use
- Affective and behavioural problems,
- 'Emotional anaesthesia'(the inability to feel pleasure or pain), is a common complaint of long-term benzodiazepine users. It is probably related to the inhibitory effect of benzodiazepines on activity in emotional centres in the brain. Long term use may cause anxiety or depressive symptoms.

Conclusion

Alcohol, opiates, cannabis, inhalants and benzodiazepines exert profound mental and physical effects acutely as well as over a long period. 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, knowledge of acute effects and thorough assessment will aid accurate diagnosis. Looking for the long-term health complications of substance use forms an integral part of overall care of drug and alcohol dependent individuals.

4

Treatment principles

Anju Dhawan

Introduction

Certain principles of treatment are common across the management of various substances that are abused. Understanding of these basic principles is important for planning and providing interventions. These include:

1. Treatment needs to be *matched* to the individual's problems and needs
2. Treatment needs to be *readily available and accessible,* so that persons in early stages of addiction can seek help
3. Treatment should focus on *multiple needs* (and not just on drug abuse) of the individual
4. Remaining in treatment for an *adequate length* of time is critical
5. *Medications* are an important element of treatment for many patients, especially in combination with psychosocial treatment
6. *Behavioral interventions* form an important part of treatment
7. Treatment plan needs to be modified as necessary to meet the *changing needs* of the patients
8. Medically-assisted detoxification is the only the first phase of treatment and needs to be followed by *long term treatment to prevent relapse*
9. Associated *mental disorders* should be assessed and treated
10. Continuing drug use or lapses must be *monitored* during treatment.
11. *Associated infections* such as HIV, Hepatitis B & C, T.B. should be assessed and targeted risk reduction counseling should be provided.

Philosophy of treatment

The philosophy underling the treatment of substance use disorder may be based on:

(a) **Abstinence-based approach,** aiming at a life free of any kind of drugs or,

(b) **Harm-reduction:** Even if complete abstinence does not occur, the concept of harm reduction aims at a significant reduction in quantity, frequency

and severity of drug use and/or reduction of the adverse health, psychosocial, economic and legal problems associated with drug use. (see Box 1)

Nearly 70-80% of individuals are unable to achieve a lasting abstinence and may relapse within three months. Drug use is often compared to chronic medical illnesses such as diabetes and hypertension because **control rather than cure** is a more realistic option in treatment of drug abuse.

Box 1: Harm reduction

Principle: There is a broad spectrum of drug-related risks , which are hierarchical (less severe- most severe). Most damaging consequences should be prioritized first and contained at the earliest.

Interventions may target Individual, family, community or society

Common examples:

- Agonist substitution (e.g. buprenorphine/methadone maintenance)
- Needle syringe exchange programmes
- Safer sex practices e.g. condom distribution programmes
- 'Safe' or 'Responsible' drinking
- Providing psychoeducation for adverse consequences/risks

Goals of treatment

The ultimate goal of treatment is psychosocial rehabilitation and reintegration of the individual in the family and society. The various goals of substance use treatment have been shown in Box 2.

Box 2: Goals of treatment

- Abstinence
- Harm reduction (when abstinence is not immediately achievable)
- Improvement in physical and psychological health
- Improvement in psychosocial functioning
- Improvement in quality of life

The goals of treatment needs to be revised from time to time depending on the phase of treatment. For instance, if a patient presents to a medical setting with an abscess due to injecting drug use, the short term goal may be treating the infection and the subsequent goals would be motivating the patient to take treatment for drug use. Later on, the goal would need to be revised to rehabilitation.

The goals of treatment can also vary depending on the motivation of the individual. The treating professional can provide information about which

treatment options are likely to work well in a patient's case. Ultimately, however, it is the patient's decision to exercise his own choice with the help of the treating physician.

Box 3: Treatment settings

- Specialized de-addiction centres (Out-patient /In-patient)
- Psychiatric clinics/hospitals
- Community-based clinics
- Non-specialized settings e.g. medical OPD
- Non-governmental organizations
- Prisons

Treatment settings

The treatment for substance use disorders can be provided in several settings (Box: 3). The long term treatment outcome does not depend on a particular treatment setting, rather it is the length of time for which a patient remains in treatment which is important. Effective integration of treatment with general health care (medical colleges, district hospitals, CHCs) and various health programmes will go a long way to make the treatment more accessible.

It is appropriate to treat most patients on outpatient basis as it is less cost- and resource-intensive. Patients should be encouraged to come for regular follow-up for a minimum of 6-12 months. Usually, patients who do well in **out-patient setting** include:

a) Those with mild to moderate dependence

b) Medically stable patients

c) Good social support

d) Geographical proximity (<5 kms).

Some patients may require **in-patient treatment** for short-term (usually between 2-4 weeks). These include those with:

a) Severe or complicated withdrawals

b) Risk of developing complicated withdrawals based on past history

c) 'Failed outpatient treatment' (inability to give up substances in spite of regular out-patient treatment)

d) Recent relapse (can be admitted briefly to restart long term treatment)

e) Definite risk of relapse, if patient remains in his natural environment

f) Crisis that requires immediate intervention

g) Patients with intravenous drug use or those with multiple drug abuse

h) Associated medical illness, needing close monitoring of patient

i) Significant psychiatric comorbidity (needs admission in a specialized psychiatry unit)

j) Geographical distance / Outstation patients

Other non-hospital settings

Certain non-hospital settings where interventions for substance use are provided include:

- Therapeutic Community (TC) : emphasize on giving to the community a way to facilitate one's and each other's recovery. Experienced residents help orient new residents take on responsibities to maintain the facility and volunteer to participate in activities and management. Role modeling is an essential component.
- Self-help groups e.g. Alcohol or Narcotics Anonymous (AA or NA) : People with similar problems unite to form a group for mutual help. These groups are voluntary, self-sufficient and provide mutual assistance to all its members.

The effectiveness of these interventions is also related to the length of time the patient remains in contact with them. Attending AA/NA meetings can go on simultaneously, while continuing treatment in medical settings. Some hospitals have also made efforts to establish linkage with AA/NA groups. Overall, it is important to have a menu of options available for the patient to chose based on their suitability.

Personnel

Often, the treatment team is multidisciplinary in nature and comprises of various categories of staff (doctors, nurses, psychologists, social workers, laboratory staff). The role of each team member depends on the skill level and expertise, however certain responsibilities may be overlapping and shared. For example, after brief training, the nurses can carry out following activities besides dispensing of medication and provision of nursing care:

- Assessment and monitoring of patients
- Brief Interventions, aimed at harmful substance use
- Counseling of patients
- Psycho education of family members about illness and its treatment

Levels of care

There are various levels of care, from least complex to most comprehensive interventions. A given patient may do well even with brief interventions and not necessarily require a more comprehensive treatment. The appropriate level of care needs to be matched to the patient's needs. Various levels of care are:

Level 1: Management of acute intoxication, overdose or withdrawal symptoms

Level 2: Short-term pharmacotherapy, Brief Interventions, general measure of rehabilitation

Level 3: Multiple psychosocial interventions, Long-term pharmacotherapy, Regular monitoring and follow-up

Phases of treatment

Figure 1: Phases of treatment

After initial assessment, the phases of treatment include:

1. **Detoxification**: The term 'detoxification' is a misnomer as it implies removal of toxins from the body which is not true. It refers to the initial phase of treatment where the primary goal is to treat the acute withdrawal symptoms. Secondary goals are to establish a therapeutic relationship with patient and assessment of health/ psychosocial harms. Withdrawals may be treated by using
   - Medicines which have similar pharmacological effects as original substances of use e.g. benzodiazepines for alcohol withdrawal, buprenorphine for heroin withdrawal etc (*most common method*)
   - Medicines with specific pharmacological properties to suppress symptoms of withdrawals e.g. clonidine can suppress hyper-adrenergic withdrawal symptoms
   - Medicines providing general symptomatic relief e.g. sedatives, anti-emetics, analgesics etc

Detoxification usually lasts from 1-4 weeks, depending on several factors:

- Type of substance used (e.g. more in heroin than alcohol users)
- Severity of substance use disorder
- Treatment setting (faster in in-patient setting)
- Subjective ability to tolerate withdrawals
- Presence of physical and psychological comorbidity

It is important to note that the initial phase of detoxification is not sufficient in itself to maintain long term abstinence, and should be followed by long term treatment.

2. **Long term treatment**: It comprises of several pharmacological (agonists, antagonists, deterrents, anti-craving drugs) and psychosocial interventions which are aimed at preventing relapse and improving the socio-occupational functioning. It may last from several months to an year or more.

   Long term treatment is a desirable option because of several valid reasons:

- Addictive disorders are chronic, relapsing in nature ('revolving door phenomenon'). Long term treatment is important to prevent relapse
- Even though withdrawals do not persist beyond few days, but there may be a persistence of craving.
- Neurobiological changes as a result of long-term substance use takes a long time to normalize.
- Patient may need some form of treatment till his socio-occupational functioning is regained.

In clinical practice, only a very small percentage of patients (those with a very short drug use history and good motivation) may not be given long-term treatment and kept 'drug-free'. The literature base supporting such a method is minimal and mostly it is the default plan when patient belongs to a very distant place, is unable to follow-up or afford medicines.

Treatment modalities

Pharmacological treatment , in combination with psychosocial interventions, is a key element in the management of substance use disorders. Medications are used for reversal of acute effects (overdose and intoxication), amelioration of acute withdrawals, reducing the craving, treating any associated medical complication/s and prevention of relapse

Non-pharmacological treatment vary in their intensity from brief interventions that focus on persons who are at the milder end of the spectrum of substance use disorder (harmful or hazardous users and not yet dependent) to more intensive interventions. The psychosocial interventions may include individual, group and family-based interventions. Various behavioral interventions, delivered in individual or group setting, includes those that enhance motivation to change, provide incentives for abstinence, build skills to resist drug use, replace drug using activities with constructive and rewarding activities (alternate sources of pleasure), improve problem solving skills and facilitate better interpersonal relationships. Family-based therapies are important in management of substance use disorders, especially in adolescent substance users. Efforts should also be made to actively involve the family members in the process of treatment.

Enhancing treatment seeking

One of the major challenges is to bring persons who have substance-related problems into treatment. Only 2% of alcohol dependent patients and 18% of opioid dependent patients had sought any kind of help in the national survey. Community-based efforts can help in bringing people into treatment. These may include efforts through peer groups, community leaders or other important stakeholders in the community (e.g schools, youth clubs, work places), health workers, outreach workers, spreading information and awareness through mass media. The key messages would include information about the nature of disorder, process of treatment and the positive message that treatment works.

Conclusion

The principles of treatment of substance use are common for various substances. A general understanding of these broad principles can go a long way in planning and providing management to patients. Treatment (goals, settings, interventions) should be matched to the individual's problems and needs. Since substance use disorders are chronic relapsing disorders, long term treatment is required in a majority of patients. Both pharmacological and psychosocial treatment modalities should be employed for effective integration of an individual in the society.

5

Pharmacotherapy of alcohol dependence

Vivek Benegal, Sahoo Saddichha

Introduction

With an increased understanding of the neurobiological mechanisms, various pharmacological agents have been examined in their potential to support the alcohol dependent patients in achieving abstinence or cutting down their alcohol consumption.

This chapter shall discuss the management of withdrawals, and long term pharmacological management of alcohol dependence.

Management of withdrawals (detoxification)

Alcohol withdrawal symptoms

The severity of withdrawals depend on the amount of consumption and duration of use. Alcohol withdrawals may develop few hours after stopping or reducing heavy and prolonged alcohol use. Common withdrawal symptoms are shown in Box 1. The early withdrawals are common and usually milder in severity. A small percentage of patients may develop generalized tonic-clonic seizures as early as 6 hours of last alcohol intake. In patients with heavy prolonged use, seizures may happen even after cutting down the amount of alcohol and not necessarily on stopping it altogether.

Delirium tremens (DT) is a delayed and especially severe withdrawal symptom seen in nearly 5% of patients in withdrawal (box 1). Risk factors include a prolonged duration of alcohol use, history of prior DT, age more than 30 years and presence of concurrent illness. All patients in alcohol withdrawals should be asked questions to assess the orientation to time, place and person. Any sign of disorientation or impaired sensorium must be taken seriously. DT is a medical emergency, requiring prompt management (mortality risk is 5-15%).

Box 1: Alcohol withdrawal symptoms

	Early withdrawals	Late withdrawals (delirium tremens)
Prevalence	Commonly seen	5% of patients in withdrawals
Clinical	Anxiety, restlessness features Sweating, tachycardia Fine tremors Insomnia, vivid dreams Anorexia Nausea, vomiting Seizures (seen in up to 5%)-usually generalized tonic-clonic	Severely impaired sensorium (which may be fluctuating) Disorientation, confusion, agitation Coarse tremors Marked autonomic hyperactivity (tachycardia, hypertension, fever sweating tachypnoea etc) Hallucinations (visual, tactile, auditory) Seizures may occur
Time frame	Onset: 6-48 hours of last drink peaks at 24-36 hours	Onset: 24 hours up to a week of of last use, usually peaks at 72-96 hours

Assessment of severity of withdrawals

A thorough clinical examination and laboratory assessment should be done for all patients with alcohol use disorders, which has been dealt in a separate chapter. Special attention must be given to head trauma or acute/chronic medical problems related to alcohol use e.g. gastritis, gastrointestinal bleeding, electrolyte imbalances, nutritional deficiencies, liver disease, cardiomyopathy, pancreatitis and neurological impairments, including peripheral neuropathy.

The best validated tool to assess severity of withdrawals is the Clinical Institute Withdrawal Assessment for Alcohol-Revised (CIWA-Ar) symptom scale. (Scale provided at the end of chapter). It takes only a few minutes to administer and may be repeated when re-evaluation is necessary. CIWA-Ar scores of <8 are suggestive of minimal to mild withdrawal symptoms, while those >15 confer an increased risk for confusion and seizures. In addition, a complete assessment of the patient's medical condition, including assessment of coexisting medical and psychiatric conditions, the severity of previous withdrawal symptoms, and the risk factors for withdrawal complications must be done before initiating treatment for alcohol withdrawal.

General measures

- Assess and monitor vitals (pulse rate, BP, respiratory rate, temperature).
- Correction of fluid and electrolyte disturbances (if any)
- *Prophylactic administration of thiamine* to prevent onset of Wernicke-Korsakoff syndrome during the phase of withdrawals in alcohol dependent patients who are chronically thiamine deficient.

- It is best given intramuscularly (Inj Thiamine 100 mg i.m. daily for 5-7 days); followed by orally for three months
- Due to a small risk of anaphylaxis, an intradermal sensitivity test is done prior to injection thiamine.
- If it cannot be given intramuscularly, an oral dose of 100 mg three times a day is appropriate.
- Important: Thiamine should always be given *before* administering glucose containing fluids, to avoid the risk of precipitating Wernicke syndrome (as glucose load depletes the already deficient store of thiamine).

- Correction of nutritional deficiencies: An oral multivitamin formulation and hematinics, if anemia is present, may be added .
- Supportive treatment e.g. ranitidine or proton pump inhibitors for gastritis, domperidone for vomiting etc
- Calm, well-lit, predictable, non-threatening environment

Management of simple, uncomplicated withdrawals

- Benzodiazepines are the mainstay of treatment for alcohol withdrawals. Commonly used drugs and their usual dosages are:

  Chlordiazepoxide (50-120 mg/day), or

  Diazepam (20-60 mg/day)

  Lorazepam (4-12 mg/day)

- Lorazepam (with relatively shorter half-life than chlordiazepoxide/ diazepam) is a safer alternative for elderly patients or in patients with hepatic dysfunction
- Dose is tapered gradually over 7-10 days, depending on patient's comfort and withdrawals. The daytime doses should be tapered off first followed by the nighttime dose.

4 *Dosing regimens:*

(a) Fixed dose schedule: where benzodiazepines are administered at a pre-determined intervals and dose. (most common) Additional dose can given as required if there are persistent signs of withdrawal. Dose may be skipped if patient is drowsy/over-sedated. This regimen is especially suitable for patients with moderate to severe dependence or those with a high risk of complicated withdrawals. *As a rough estimate on first day, an alcohol dependent person taking 750 ml whiskey daily can be initiated on diazepam 40 mg/day (or chlordiazepoxide 100 mg) divided in 3-4 doses.*

(b) **Front-loading method**: This can be used in milder (but not severe) cases of alcohol dependence. It involves administration of high doses of benzodiazepines in the early stages of alcohol withdrawal so that patient practically needs no further dosing thereafter. e.g. diazepam 20 mg can be repeated *orally* every 2 hours till the patient is sedated or withdrawal signs subside (a total of 40-80 mg may be reached). As diazepam and its metabolites are long-acting, these have a self-tapering effect and patient does not require medication from next day onwards. An advantage of such regimen is cutting down the duration of detoxification phase.

It can be typically used if patient has :

(i) Mild to moderate alcohol dependence ; (no heavy use/ no morning drinking)

(ii) No evidence of hepatic dysfunction

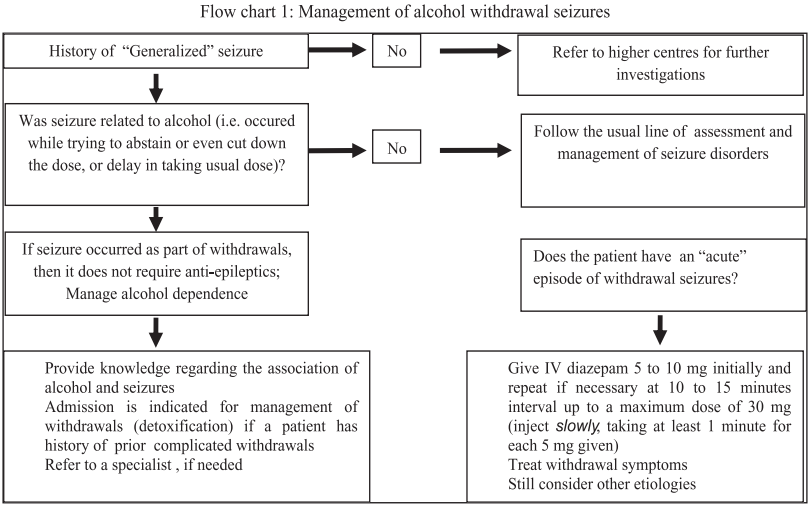
(iii) No history of complicated withdrawals (seizures or delirium tremens)

(c) **Symptom-triggered therapy**: It provides an individualized treatment regimen for patients. The withdrawal severity is monitored using an objective scale and medication is given as and when the scores cross a particular threshold (e.g. diazepam 10 mg/chlordiazpoxide 25 mg given when CIWA-Ar is 8 or more). Patients with more prominent symptoms are monitored hourly (or less) and in milder cases, 4-6 hourly using CIWA-Ar. However, such regimen is not suitable for patients who are at risk of complicated withdrawals, or have significant medical or psychiatric morbidity yielding unreliable CIWA-Ar scores.

Management of alcohol withdrawal seizures

- The Flowchart no.1 provides the steps and guidance on management of alcohol withdrawal seizures.
- Treatment of choice is intravenous (i.v.). diazepam 5-10 mg initially and repeat, if necessary, at 10-15 minutes interval up to a maximum of 30 mg . (inject *very slowly* taking 1 minute for each 5 mg given) .
- Needs close monitoring and hospitalization
- Carefully assess by reviewing history and investigations, if needed; consider other causes of seizures
- Refer to a specialist, if necessary
- Phenytoin or other anticonvulsants should be used for patients with a probable/established seizure disorder (seizures caused solely by alcohol withdrawals are best managed by benzodiazepines).

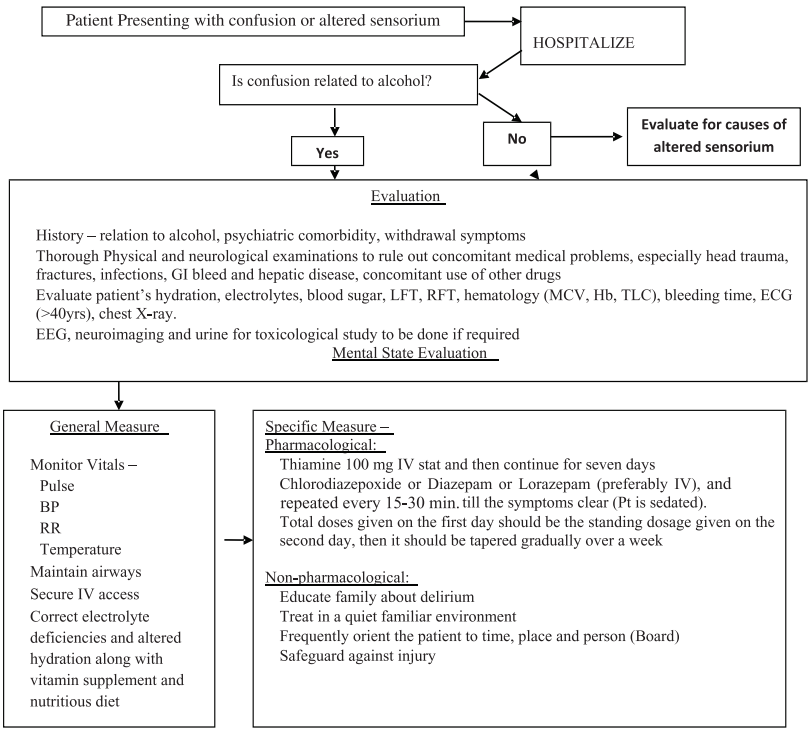
Flow chart 1: Management of alcohol withdrawal seizures



Management of delirium tremens (DT)

- The Flowchart no.2 provides the steps and guidance on management of DT.
- Immediate hospitalization; Regular monitoring of vitals
- Chlordiazepoxide or diazepam or lorazepam: given intravenously, and repeated till the symptoms clear (or patient is lightly sedated). An example could be Inj diazepam 10 mg i.v stat followed by 5-10 mg repeated every 15 minutes till light sedation is achieved. Patients will require periodic monitoring; and further oral benzodiazepines may be used, if required.
- Total dose given on the first day should be the standing dosage given on the second day, then it should be tapered gradually over 7-10 days.
- Safeguard against injury as patient is frequently confused, disoriented and agitated
- Refer to a specialist, if necessary.

Flow chart 2: Management of delirium tremens



Long term management of alcohol dependence

The pharmacological agents used for long term management are:

(a) Deterrant agents : Disulfiram

(b) Anti-craving agents : Acamprosate and Naltrexone

(c) Others: Topiramate, Baclofen, SSRIs

An alcohol dependent individual may be initiated on a combination of disulfiram and an anti-craving agent for their differing mechanisms of action.

Disulfiram

Disulfiram acts by inhibiting the activity of aldehyde dehydrogenase, an enzyme in the pathway of alcohol metabolism. As a result, use of alcohol results in the accumulation of toxic levels of acetaldehyde in the liver and systemic blood circulation, causing a host of unpleasant signs and symptoms. Disulfiram deters the person from drinking, causing an unpleasant 'reaction'

if alcohol is used in any form. In mild to moderate cases of Disulfiram-Ethanol Reaction (DER), it can result in flushing, headaches, sweating, dizziness and nausea and can be managed by symptomatic treatment. In severe cases, vomiting, respiratory depression, shock, cardiovascular collapse, arrhythmias, myocardial infarction, sudden cardiac arrest, convulsions and unconsciousness may result. This should be treated in the emergency department.

Preparation:

Available as Dizone[‡] or Esperal[‡] (250 mg tablet); cost Rs 1-2/ tablet

Initiation and Dosing

- Disulfiram is initiated only after a written informed consent from patient is taken. (consent form provided at the end of chapter)
- LFTs should be done prior to initiation. Do not start if SGOT/SGPT are raised by 2-3 times above normal.
- It should be started after 12 hours or more have elapsed since last alcohol use to prevent an adverse reaction
- Dosing: 250 mg/day, as single dose in the mornings.

  Some patients may need an increase to 500 mg/day due to metabolic differences.
- Disulfiram therapy works best if dosing is supervised by a family member to ensure compliance.

Precautions

- Disulfiram counseling should be done for all patients (and supervising family member).
- Certain beverages should be avoided while on disulfiram: any alcoholic beverage, vinegar, cough medications, elixirs or even mouth-washes which contain ethanol.
- DER may occur up to 2 weeks of last dose of disulfiram (therefore,'one cannot stop medication and use alcohol the next day'). Advice not to drink for 2 weeks after stopping.
- Common, benign side-effects are drowsiness (shift to nighttime if it is experienced), tiredness, headaches and a metallic/garlic-like aftertaste. Uncommon side-effects are optic neuritis, peripheral neuritis, hepatic damage, psychosis and allergic hypersensitivity.
- Disulfiram is contraindicated in patients with significant liver damage, history of seizures or psychosis, cerebrovascular disease, peripheral neuropathy, pregnancy etc.

- LFTs should be monitored every 3 months and ophthalmologic examination done yearly to monitor for adverse effects.

Naltrexone

Naltrexone, a potent opioid-receptor antagonist, blocks the effects of endogenous opioids, thereby, preventing the dopamine release normally produced by alcohol consumption. It reduces the re-inforcing effects of alcohol, which may lead to reduction of alcohol-seeking behaviors, binge drinking and alcohol cravings. It is, therefore, useful for individuals who drink on cues, have a strong craving or young persons with binge drinking pattern. It may be used as a harm reduction approach to reduce quantity of alcohol consumed by an individual.

Preparation

Available as Naltima†, Nodict† (25/50/100 mg) tablets; approximate cost Rs 55 /tablet for 50 mg tablet

A long acting depot preparation of Naltrexone has been recently approved for treatment, however, it is not currently available in India.

Dosing and precautions

- Given in a dosage of 50 mg once daily.
- Some of the common side-effects are nausea, vomiting, dizziness and decreased appetite which are self limiting.
- It can cause hepatotoxicity in higher doses, hence it is to be avoided in liver cirrhosis, acute hepatitis and liver failure.
- LFTs should be done prior to initiation of naltrexone and every 3 months thereafter.

Acamprosate

Acamprosate is thought to work by decreasing the craving for alcohol, through precise mechanism of action is not yet clear.

Preparation

Available as Acampral† (333 mg) tablets, Rs 8/tablet approximately

Dosing

- It is given as 6 tablets/ day in three divided doses (i.e. 2-2-2) for patients weighing 60 kg or above and 4 tablets/day (i.e. 2-1-1) for patients below 60 kg.
- Common side effects are a mild, transient form of diarrhea, headache, dizziness, pruritis etc.
- No interactions with concomitant use of alcohol, diazepam, or disulfiram
- It is contraindicated in patients with renal insufficiency (as it is mainly excreted through kidneys).

- Patients with mild to moderate liver dysfunction may take acamprosate, but avoided in cirrhosis and severe hepatic decompensation.

Topiramate

Topiramate works by decreasing reinforcing effects of alcohol and craving. Several studies have demonstrated that topiramate is an effective and safe add-on therapy in non-respondent alcohol-dependent patients.

Most frequent adverse events are paresthesia, headache, taste perversion, fatigue, anorexia, nausea and dizziness etc. Available as 25, 50, 100 and 200 mg tablets, the usual dosage for alcohol dependence is around 200 mg/day. Since it is excreted by the kidney, caution needs to be exercised in renal impairment.

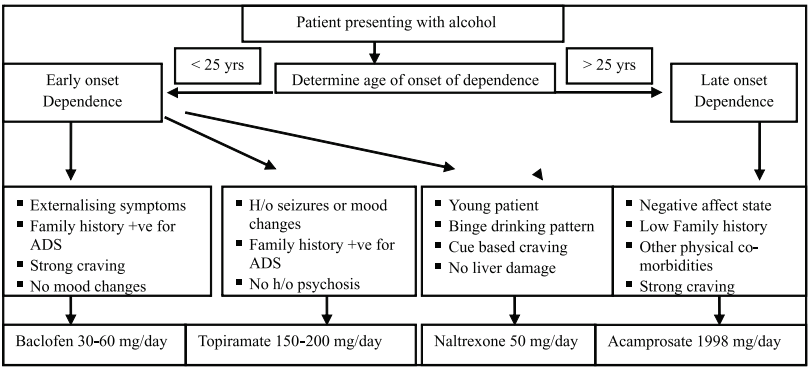
Baclofen

Baclofen, a selective GABA-B receptor agonist, possibly acts by mediating stress reactions by acting on the brain stress circuitry and therefore modulates alcohol seeking and drinking behavior.

Baclofen has been used in several studies for the management of alcohol withdrawal as well as relapse prevention and found to be moderately useful. It is particularly effective in patients who become dependent on alcohol early on in their lives. The major side effect being sedation, it is a relatively safe drug even in patients with liver cirrhosis.

SSRIs (Selective Serotonin Reuptake Inhibitors)

SSRIs such as sertraline, fluoxetine and citalopram have been studied in primary alcohol dependence without co-morbid mood or anxiety disorders with moderate effect on relapse prevention. In the presence of depression or anxiety, SSRIs have been shown to be more effective than other agents .



Above represents only a probable profile of patients better suited for a particular type of medication based on some research studies Naltrexone and Acamprosate remain the commonest medications to be used in clinical situations.

Conclusion

The severity of withdrawals depend on the amount of consumption and duration of use, and may develop as early as 6 hours after last use. Alcohol withdrawal may be complicated by seizures or delirium tremens, both of which may be serious and potentially fatal complications needing immediate medical attention. Benzodiazepine substitution is the most effective management of alcohol withdrawals. Various long term pharmacotherapies are available to deter an individual from drinking and to reduce craving.

† indicates commonly available brand names and does not suggest endrosement or preference of a particular brand/company

CONSENT FORM FOR DISULFIRAM THERAPY

Disulfiram alcohol reaction: Disulfiram plus alcohol may produce reactions. Even a small amount of alcohol taken while on disulfiram may produce redness of the face, throbbing in the head and neck, headache, breathing difficulties, stomach distress, vomiting, sweating, thirst, chest pain, fast heartbeat, faintness, marked uneasiness, weakness, sensation of surroundings revolving around you, blurred vision, and confusion. Rarely in severe reactions, there may be a decrease in breathing, shock, acute heart failure, unconsciousness, convulsions, and death.

Side effects: Side effects of disulfiram taken alone may include drowsiness, numbness in extremities, metallic taste, and/ or allergic skin reaction. Liver damage is an uncommon reaction.

I have been informed that I must not drink alcoholic beverages while receiving disulfiram. I have been warned to avoid alcohol in disguised form i.e. sauces, vinegars, cough mixtures, mouthwashes and even aftershave lotions and backrubs. I understand that reactions, as described above, may occur with alcohol up to 14 days after ingesting disulfiram.

I have been counseled by the undersigned physician about disulfiram, the dosage, the need for administration of the disulfiram and the precautions and possible complications resulting from drinking alcoholic beverages, and the absorption or inhalation of alcohol in disguised form while taking disulfiram. I have had an opportunity to ask questions, and understand the benefits and risks of disulfiram.

I have been given the disulfiram booklet. This contains an identification card along with relevant information about disulfiram alcohol reaction with consequent treatment in advent of a disulfiram alcohol reaction.

I understand that disulfiram will be given to me on a monitored/ unmonitored basis.

Signature of person to receive disulfiram	Date and Time
Signature of witness	Date and Time
Signature of the counseling physician	Date and Time

Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised (CIWA-Ar)

Patient:_____ **Date:** _____ **Time:** _____ (24 hour clock, midnight = 00:00)

Pulse or heart rate, taken for one minute:_____ **Blood pressure:**_____

NAUSEA AND VOMITING -- Ask "Do you feel sick to your stomach? Have you vomited?" Observation.
0 no nausea and no vomiting
1 mild nausea with no vomiting
2
3
4 intermittent nausea with dry heaves
5
6
7 constant nausea, frequent dry heaves and vomiting

TACTILE DISTURBANCES -- Ask "Have you any itching, pins and needles sensations, any burning, any numbness, or do you feel bugs crawling on or under your skin?" Observation.
0 none
1 very mild itching, pins and needles, burning or numbness
2 mild itching, pins and needles, burning or numbness
3 moderate itching, pins and needles, burning or numbness
4 moderately severe hallucinations
5 severe hallucinations
6 extremely severe hallucinations
7 continuous hallucinations

TREMOR -- Arms extended and fingers spread apart. Observation.
0 no tremor
1 not visible, but can be felt fingertip to fingertip
2
3
4 moderate, with patient's arms extended
5
6
7 severe, even with arms not extended

AUDITORY DISTURBANCES -- Ask "Are you more aware of sounds around you? Are they harsh? Do they frighten you? Are you hearing anything that is disturbing to you? Are you hearing things you know are not there?" Observation.
0 not present
1 very mild harshness or ability to frighten
2 mild harshness or ability to frighten
3 moderate harshness or ability to frighten
4 moderately severe hallucinations
5 severe hallucinations
6 extremely severe hallucinations
7 continuous hallucinations

PAROXYSMAL SWEATS -- Observation.
0 no sweat visible
1 barely perceptible sweating, palms moist
2
3
4 beads of sweat obvious on forehead
5
6
7 drenching sweats

VISUAL DISTURBANCES -- Ask "Does the light appear to be too bright? Is its color different? Does it hurt your eyes? Are you seeing anything that is disturbing to you? Are you seeing things you know are not there?" Observation.
0 not present
1 very mild sensitivity
2 mild sensitivity
3 moderate sensitivity
4 moderately severe hallucinations
5 severe hallucinations
6 extremely severe hallucinations
7 continuous hallucinations

ANXIETY -- Ask "Do you feel nervous?" Observation.
0 no anxiety, at ease
1 mild anxious
2
3
4 moderately anxious, or guarded, so anxiety is inferred
5
6
7 equivalent to acute panic states as seen in severe delirium or acute schizophrenic reactions

HEADACHE, FULLNESS IN HEAD -- Ask "Does your head feel different? Does it feel like there is a band around your head?" Do not rate for dizziness or lightheadedness. Otherwise, rate severity.
0 not present
1 very mild
2 mild
3 moderate
4 moderately severe
5 severe
6 very severe
7 extremely severe

AGITATION -- Observation.
0 normal activity
1 somewhat more than normal activity
2
3
4 moderately fidgety and restless
5
6
7 paces back and forth during most of the interview, or constantly thrashes about

ORIENTATION AND CLOUDING OF SENSORIUM -- Ask "What day is this? Where are you? Who am I?"
0 oriented and can do serial additions
1 cannot do serial additions or is uncertain about date
2 disoriented for date by no more than 2 calendar days
3 disoriented for date by more than 2 calendar days
4 disoriented for place/or person

Total **CIWA-Ar** Score _____
Rater's Initials _____
Maximum Possible Score 67

 This assessment for monitoring withdrawal symptoms requires approximately 5 minutes to administer. The maximum score is 67 (see instrument). Patients scoring less than 10 do not usually need additional medication for withdrawal.

Sullivan, J.T.; Sykora, K.; Schneiderman, J.; Naranjo, C.A.; and Sellers, E.M. Assessment of alcohol withdrawal: The revised Clinical Institute Withdrawal Assessment for Alcohol scale (**CIWA-Ar**). *British Journal of Addiction* 84:1353-1357, 1989.

6

Pharmacotherapy for opioid dependence

Atul Ambekar

Introduction

The management of opioid dependence (or indeed, any drug dependence) proceeds through several distinct phases as seen in figure 1. This chapter will focus on detoxification and long-term pharmacological treatment of opioid dependence. The psychosocial treatment has been discussed in a separate chapter of this handbook.

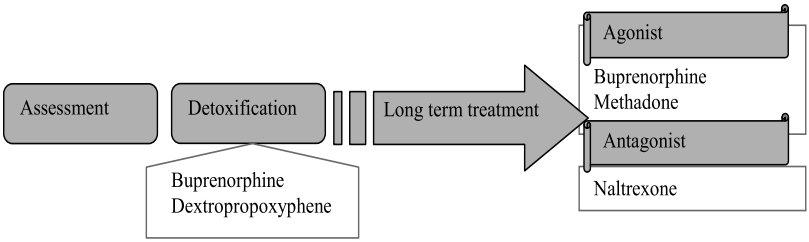


Figure 1: Phases of treatment

Detoxification (Treating the phase of withdrawals)

The primary goal of this phase is the treatment of opioid withdrawal symptoms.

Opioid withdrawal symptoms

Most of the commonly abused opioids are short-acting. Consequently the withdrawal symptoms start manifesting as soon as the effect of last dose starts weaning off. In case of heroin, the withdrawal symptoms typically:

- Start within 6 hours of last dose
- Increase and reach a peak by 3rd day
- Start reducing in intensity, from 4th day onwards
- Usually disappear within 10 days to 2 weeks

In case the user is dependent on a longer acting opioid like buprenorphine,

the time line proceeds slowly so that the peak is experienced around 7th day and the acute phase of withdrawals lasts usually around 3-4 weeks.

The common opioid withdrawal symptoms are listed in Table 1. The withdrawal symptoms are usually the exact opposite of acute effects of opioids. Thus, if one is familiar with the acute effects of opioids (pain-relief, 'closing of holes of body' i.e. contraction of sphincters, a feeling of euphoria, relaxation and sedation) it should not be difficult to remember the withdrawal symptoms. A common way to remember the opioid withdrawals is to remember that opioid withdrawals lead to 'opening of holes of body' (diarrhoea, vomiting, lacrimation rhinorrhea) in addition to other symptoms e.g. aches and pains, insomnia, irritability.

Even after the 'acute' withdrawals are over, some patients may continue to experience mild discomfort in the form of pains and aches, low mood, difficulty in sleeping, craving for opioids and sexual dysfunctions. These symptoms lasts for the many weeks and even up to several months and are collectively known as protracted withdrawal symptoms. It must be noted that the treatment phase of detoxification is limited to providing relief from just the acute withdrawal symptoms but not the protracted withdrawal symptoms.

Table 1: Opioid withdrawal symptoms

Acute withdrawal symptoms (lasting for days to weeks)	Protracted withdrawal symptoms† (lasting for weeks to months)
Pupillary dilation Lacrimation (watery eyes) Rhinorrhea (runny nose) Yawning, sweating, chills, gooseflesh Stomach cramps, diarrhea, vomiting Aches and Pains,Muscle spasms ("kicking") Restlessness, anxiety, irritability, insomnia	Deep muscle aches and pains Insomnia, disturbed sleep Poor appetite Premature ejaculation, Reduced libido, impotence, anorgasmia Depressed mood, anhedonia Drug craving

†Some patients may continue to experience discomfort for several weeks to months. It must be noted that detoxification is limited to providing relief from just the acute withdrawal symptoms but not the protracted withdrawal symptoms

Standard scales are available for systematically assessing the opioid withdrawals, both subjectively (i.e. symptoms as experienced by the patient) and objectively (i.e. signs as elicited by the clinician). These scales have been appended at the end of this chapter.

Medication choice for detoxification

The time-tested, gold-standard method of treating opioid withdrawal symptoms is substitution with another longer acting opioid agonist, followed by a gradual taper. The dose of opioid agonist depends on various factors as follows:

- Potency of the opioid being abused by the patient (e.g. those using heroin will require a higher dose compared to those using *doda*)
- Time elapsed since the last dose (e.g. those who took heroin 1-2 days back will require a higher dose compared to those who had taken it 4-5 days back, since opioid withdrawals peak on day 3 and then start reducing).
- Severity of dependence as determined by duration of consumption, route of administration etc. (e.g. an injecting drug user would require a higher dose compared to an oral user)
- Concomitant use of other CNS depressant drugs e.g. alcohol or benzodiazepines
- Presence of general medical disorder or psychiatric comorbidity.
- Individual biological and psychological variables.

The two agents most commonly used for opioid detoxification in India are:

1) Buprenorphine (brand name:Tab Addnok[†]) is available as a sublingual tablet of 0.2, 0.4, 2 and 8 mg. The lower strengths (0.2/0.4) are used for purpose of detoxification. Most Indian patients require an initial daily dose ranging between 1.2 mg and 6 mg given in three divided doses. It is gradually tapered over next two weeks. As buprenorphine requires supervised administration, it is advisable to admit the patient during the phase of detoxification.
2) Dextropropoxyphene (brand names: Cap Proxyvon/Parvodex[††]) is available as oral capsules containing 65 mg of Dextropropoxyphene. The initial dose required by most Indian patients vary between 6-12 capsules daily, given in three divided doses (i.e. 2-4 caps TDS). It is advisable not to go beyond the given dose range in view of risk of seizures at a higher dose. It can be given in outpatient setting, usually for mild to moderate opioid dependence.

Along with opioid agonist, most patients would need medication for insomnia. The drug of choice for insomnia in opioid withdrawal patients is a longer-acting benzodiazepine e.g. diazepam or nitrazepam 5-20 mg given at bedtime. Clonazepam 1-2 mg may be used as an alternative drug.

Box 1: Typical initial prescription for detoxification phase

Initial prescription	
• Stop heroin	
• Tab. Buprenorphine (0.4 mg)	3 – 3 – 3
or,	
Cap. Dextropropoxyphene (65 mg)	3 – 3 – 3
• Tab. Diazepam 10 mg	1 h.s
• Tab Ibuprofen	1 s.o.s.
Review after 4 days	
Subsequent prescription*	
• Tab. Buprenorphine (0.4 mg)	3 – 2 – 3 × 1st day
or, Cap. Dextropropoxyphene (65 mg)	2 – 2 – 3 × 2nd day
	2 – 2 – 2 × 3rd day
	(and so on…)
• Tab. Diazepam 10 mg 1 h.s	
• Tab Ibuprofen	1 s.o.s.

**Tapering may be more gradual in out-patient setting*

At the time of initiating treatment, the patient should not be intoxicated or under influence of drugs. Preferably, he/she should already be experiencing some withdrawals. For heroin users, a minimum of 6 hours should have elapsed after last use. A typical initial prescription for detoxification is shown in Box 1. The agonist dose for detoxification should be titrated depending on the nature/ amount of opioid abused, severity of withdrawals etc. The patient should be comfortable on the initial dose for nearly 4 days, after which the process of tapering may begin. A simple and useful guide for tapering would be reduction of one unit per day. Tapering should be done gradually after a careful assessment of withdrawals and discussion with the patient. Benzodiazepines can be tapered slowly *after* the opioid agonists have been tapered and stopped completely.

During the phase of detoxification, the process of assessment and management of the health related harms may commence. Additionally, preparing the patient for relapse prevention and involvement in psycho-social interventions should also begin during this phase.

Long term pharmacological treatment

Substance use disorders are chronic relapsing conditions. The short term phase of detoxification is unlikely to be successful in achieving long term abstinence in majority of opioid dependent patients. These patients require a long-term treatment aimed at preventing relapse.

Two approaches for long term pharmacological treatment of opioid dependence are:

1) Agonist maintenance
2) Antagonist

Agonist maintenance

It is also known by a variety of other names e.g. oral substitution treatment, opioid substitution treatment etc. Agonist maintenance treatment is based on the principle of harm reduction and its basic philosophy is shown in figure 2. Agonist maintenance eliminates drug hunger and produces cross-tolerance or blockade so that the person would not experience the euphoric effects of an illicit drug.

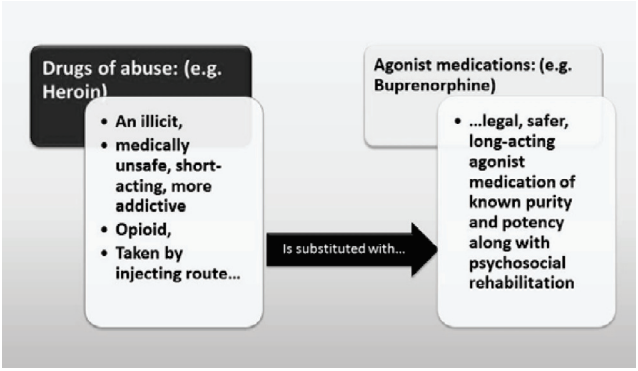


Figure 2 Philosophy of agonist maintenance

Ideally, an agonist maintenance agent should possess certain characteristics listed below:

- Should be able to control opioid withdrawals
- Should reduce craving for opioids
- Should be able to produce blockade of exogenously administered opioids
- Should be long acting (so that multiple dosing is not required)
- Should not produce significant euphoria on its own
- Should have a low/no abuse liability
- Should be safe, non-toxic and have minimal side-effects
- Should have an easy and safe route of administration (oral/sublingual)
- Economical

In India, the most commonly used agent for agonist maintenance treatment is Buprenorphine. In addition, Methadone has been recently being launched in India. These have been described below:

(a) Buprenorphine*:* Being a partial μ- opioid agonist, it produces similar, but sub-maximal effects compared to full agonists. Buprenorphine has several unique and interesting properties, which are of clinical utility.

(i) It has a very *high binding affinity*, but a *low intrinsic activity*, at the opioid receptors. Because of its higher receptor affinity, full agonists e.g. morphine, heroin cannot displace it and exert their effects

(ii) It has a *slow dissociation rate* from the opioid receptors, as a result of which it leads to a prolonged suppression of opioid withdrawals and blockade of exogenous opioids. It enables once a day or even alternate day dosing.

(iii) It has a *ceiling effect* since it is a partial agonist, which means that higher doses do not result in an increasing effect.

The morphine-like effects of buprenorphine reach a 'ceiling' at about 8-16 mg of sublingual dose, beyond which no greater effect is observed. Thus, higher doses of buprenorphine can be given with fewer adverse effects (e.g., respiratory depression) than are seen with higher doses of full agonist opioids.

Administration

Buprenorphine is administered as a sublingual preparation (2/8 mg) as it has a poor bioavailability by oral route. The tablets should be placed under the tongue and allowed to dissolve. Chewing and swallowing of tablets will make it less effective. It dissolves within 2-8 minutes, effects begin within 30-60 minutes, reaches a peak at two hours and may last up to 1-2 days, depending on dosage. For most patients in India, a dose of 6-8 mg/day is likely to be an effective maintenance dose (see box 2). It can be administered safely every 48 hours by doubling the dose Thus, patients may take the drug either daily (once a day) or once in two days (i.e. every alternate day).

Side effects and contra-indications

The usual side-effects seen with buprenorphine are sedation, drowsiness and constipation. Tolerance develops to these effects gradually. Most subjective experiences reported by the patients while on buprenorphine are either symptoms suggestive of higher than required dose (such as sense of 'high', lethargy, drowsiness) or suggestive of lower than required dose (such as generalized weakness, muscle aches, yawning, constipation, lacrimation, craving, anxiety and sleeplessness). In both the situations, the dose should be adjusted accordingly.

Box 2: Effective maintenance dose

An effective maintenance dose is one, on which the patients:

- Do not experience opioid withdrawals
- Do not experience effects of opioid intoxication
- Do not experience craving for opioids
- Do not experience effects of other opioids administered on top of agonist medications (e.g. a patient on effective maintenance dose of agonist will fail to achieve an intoxication if he attempts to take heroin on top of it)

It should be used cautiously in patients suffering from bronchial asthma, severe chronic lung disease and hepatic dysfunction. Concurrent use of high doses of sedative/hypnotics, alcohol or opioids leads to aggravation of respiratory depression. It is contraindicated in certain conditions e.g pheochromocytoma, inflammatory bowel disease, hypothyroidism, prostatic hypertrophy and should be used with caution along with cimetidine, anaesthetic agents or phenothiazines.

Buprenorphine-naloxone combination

It must be remembered that since buprenorphine is an opioid agonist with a significant abuse liability – it should always be dispensed as a daily observed therapy under supervision. This is the primary reason why this treatment is available at very few places in India. A formulation (Addnok-N)[†] containing a combination of buprenorphine and naloxone in ratio of 4:1 is available in India. It has exactly same effects as buprenorphine on sublingual administration. However, it has the added advantage that it is inactive in case taken by intravenous route and therefore, if at all dispensing is to be done to a patient, it can be dispensed for 'take home' in view of less risk of abuse by intravenous route.

(b) Methadone: It is a synthetic narcotic analgesic compound. Methadone maintenance treatment (MMT) is being used in many countries around the world and recently, it has been launched in India for long term treatment of opioid dependence.

Upon acute administration, methadone acts as a typical μ-receptor agonist and produces euphoria, analgesia, and other typical morphine-like effects. However, upon long-term oral administration, methadone displays several properties making it a useful maintenance agent. These include (i) its reliable absorption and bioavailability after oral administration, (ii) the delay of peak plasma levels until 2 to 6 hours after ingestion, and (iii) the binding to tissues that creates a large reservoir of methadone in the body. This large reservoir, along with slow action, protects patients

against sharp peaks in euphoria. The reservoir also results in minimum withdrawal, making it possible to administer as a once-a-day regime. The mean plasma half-life ranges from 22-56 hours in methadone-maintained patients. Minimum effective dose is 60 mg. A dose below 50 mg enhances the risk of patient drop-out, and optimum doses lead to longer retention and greater reduction in illicit opioid use.

Important operational issues for agonist maintenance treatment

Choice of patients

Opioid users should be assessed for suitability of this form of treatment. Most treatment guidelines suggest that patient with following characteristics are suitable for agonist maintenance treatment:

(i) A diagnosis of opioid *dependence* (occasional users who do not fulfil criteria for dependence syndrome should not be offered agonist maintenance)

(ii). Long duration of opioid use (more than 3 years)

(iii). Multiple failed abstinence attempts in the past

(iv). Logistics and feasibility (patient provides consent to follow treatment protocol, commit to visit the treatment centre daily to take medications under observation)

Careful dispensing practices

All centres involved in providing agonist maintenance treatment must follow careful dispensing practices to allow only supervised, daily observed therapy and follow the locally applicable policies and procedures. All attempts at diversion must be minimized.

Careful monitoring of patients

All patients on agonist maintenance treatment should be carefully monitored at each follow-up visit for outcome of treatment on following parameters:

- Status of illicit opioid use (continuing / reduced / ceased)
- Abuse of other drugs (e.g. alcohol)
- Side effects of treatment, if any
- Improvement in psychosocial status (in terms of occupation, earnings, relationship with family, position in society etc.

As far as possible, information about the progress must be obtained from a variety of sources including patients themselves and family members. Testing of urine to detect presence of illicit opioids is also a very helpful strategy. However, the results of urinalysis should not be used to penalise the patient ('since your urine is positive for morphine, I will not prescribe you buprenorphine').

Duration of agonist maintenance treatment

As stated earlier, opioid dependence is best seen as a chronic, relapsing disorder. The substance use disorders are akin to other chronic non-communicable disorders like hypertension, or diabetes mellitus in several aspects. A short-term treatment is unlikely to be effective in bringing about lasting changes and hence, an adequate duration of treatment is essential for a positive outcome.

While there is no specified duration for which agonist maintenance treatment should be continued, in general, *longer the treatment, better is the outcome*. The experience in India indicates that it may take 3-6 months of treatment to bring about a stable change in patients' drug use status. A change in psychosocial and occupational status, however, takes much longer. Most patients display a change in these parameters only after being on treatment for more than a year.

The best guide for deciding the treatment-duration would be attainment of treatment goals. All patients must be explained that they should continue this treatment till the goals of treatment – a drug free, productive healthy lifestyle – have been achieved. Many patients will have to be on agonist maintenance for many years before they can achieve all the treatment goals. Indeed, some patients may have to be on treatment for life-long.

Discontinuation of treatment

The decision about discontinuation should always be made in consultation and agreement with the patient. It should be a well-planned process involving gradual reduction of dose of agonist medication (say reduction of about 1 mg / day of buprenorphine, every week). Careful monitoring is essential to look for withdrawal symptoms or relapse to drug use.

2) Antagonist treatment

Opioid antagonists are by themselves devoid of any subjective effects, but they block the opioid receptors and stop agonists from exerting their effects. Thus, if a patient on an antagonist like naltrexone consumes heroin, he will fail to achieve a euphoric or pleasurable effect. The drug-seeking behavior gradually fades away while on naltrexone as euphoria is no longer experienced despite drug intake. Taken over long-term, the antagonist treatment helps a motivated patient in achieving a drug free life style.

Naltrexone (available as 50 mg tablets) is rapidly and completely absorbed following oral administration and reaches peak plasma concentration within an hour. Its half-life is about 4 hours and that of its active metabolite is 10-12 hours. However, the duration of opioid receptor blockade is much longer and therefore, it can be administered at longer intervals and a convenient dosing regimen.

Administration

Naltrexone can be administered as follows:

- Daily dose (i.e. 50 mg /day)
- Thrice a week dosing (i.e. 100 mg on Mondays and Wednesdays and 150 mg on Friday)
- Twice a week dosing (i.e. 200 mg on Mondays and 150 mg on Fridays).

One of the most important requirements of initiating naltrexone treatment is that patients have to be opioid-free for minimum of 72 hours before naltrexone can be administered. If administered earlier, then it may precipitate severe and distressing opioid withdrawal symptoms. Naltrexone can only be started in opioid dependent patients who have undergone detoxification and are opioid free for at least three days.

Some treatment guidelines also advocate conducting a naloxone challenge test to determine whether patients are opioid free. The patient is administered an injection of naloxone (a short acting opioid antagonist) through subcutaneous or intravenous route in the dose of 0.8 mg. If some opioid receptors are occupied with opioid agonists, naloxone will displace those agonists and precipitate opioid withdrawals. Unlike naltrexone, the withdrawal precipitated by naloxone are milder and short lasting. These opioid withdrawals would be an indication that patient is yet not suitable to initiate naltrexone treatment.

Administration of naltrexone should be supervised at hospital, or at home by family members, to ensure compliance.

Side effects and contra-indications

In general, naltrexone is a well-tolerated drug and most patients do not report any side-effects at all. Some patients may experience adverse effects like gastrointestinal distress (nausea, vomiting, diarrhoea, and abdominal pain), anxiety, restlessness, dysphoria, mild hypertension, headache and insomnia. Many of these symptoms may be attributed to a mild, temporary abstinence syndrome influenced by naltrexone's complete opiate blockade. Usually these symptoms are transient in nature and improve after few days.

The potential for hepatotoxicity is a more serious concern. As a precaution, patients should receive a full battery of liver function tests prior to receiving naltrexone. Liver function tests should be repeated monthly for the first 3 months and every 3-6 months thereafter, on naltrexone treatment. If liver enzymes remain elevated, naltrexone should be discontinued. Naltrexone is contraindicated in patients with liver failure or acute hepatitis.

Patient selection

In general naltrexone treatment is likely to acceptable and effective for a sub-group of opioid dependent patients with following characteristics:

(i) Good motivation for treatment

(ii) Short duration of drug use (3 years or less)

(iii) Good social support

(iv) Relatively better occupational functioning

(v) Working in an occupational setting where taking opioid agonists may be inappropriate (pilot, train driver, surgeon etc)

(vi) Patients who have been on agonist maintenance for several months/years and has achieved abstinence from illicit opioids along with good occupational and social functioning may be shifted to antagonist

(vii) Opts for antagonist maintenance when given an informed choice

(viii) Clearly prepared for a total abstinence (free of any kind of opioids)

While most of the western studies have not found naltrexone to be very beneficial, Indian experience suggests that outcome of naltrexone treatment is not so bleak.

Duration of treatment

Like agonist maintenance treatment, there is no specific duration of treatment with naltrexone either. In general, longer the treatment, better is the outcome expected. If a patient has achieved abstinence for a long-duration and has achieved occupational and psychosocial improvement, discontinuation may be considered. However, treatment with naltrexone will be required for at least 6-12 months for most patients to achieve lasting abstinence and bringing about a change in their psycho social status.

Conclusion

The management of opioid dependence comprises of detoxification (short-term management of withdrawals) and long term treatment to prevent relapse. Agonist maintenance and antagonist are the two broad approaches for long term treatment of opioid dependence. It is important to determine the suitability of the patient for agonist or antagonist, before initiating the treatment. Medication should be supervised and patient should be closely monitored at regular intervals. The duration of treatment is governed by the achievement of treatment goals, and may typically require several months to years.

† The mention of a brand name does not imply endorsement of a particular product
†† Cap Parvodex contains 100 mg propoxyphene napsylate, which is equivalent of 65 mg dextropropoxyphene HCl. Proxyvon is available as 32.5/65 mg dextropropoxyphene, at times in combination with paracetamol or other analgesics

Objective Opioid Withdrawal Scale (OOWS)

Date ……..…….. Time …….

OBSERVE THE PATIENT DURING A
5 MINUTE OBSERVATION PERIOD
THEN INDICATE A SCORE FOR EACH OF THE OPIOID WITHDRAWAL SIGNS LISTED BELOW (ITEMS 1-13). ADD THE SCORES FOR EACH ITEM TO OBTAIN THE TOTAL SCORE

	SIGN	MEASURES		SCORE
1	Yawning	0 = no yawns	1 = ≥ 1 yawn	
2	Rhinorrhoea	0 = < 3 sniffs	1 = ≥ 3 sniffs	
3	Piloerection (observe arm)	0 = absent	1 = present	
4	Perspiration	0 = absent	1 = present	
5	Lacrimation	0 = absent	1 = present	
6	Tremor (hands)	0 = absent	1 = present	
7	Mydriasis	0 = absent	1 = ≥ 3 mm	
8	Hot and Cold flushes	0 = absent	1 = shivering / huddling for warmth	
9	Restlessness	0 = absent	1 = frequent shifts of position	
10	Vomiting	0 = absent	1 = present	
11	Muscle twitches	0 = absent	1 = present	
12	Abdominal cramps	0 = absent	1 = Holding stomach	
13	Anxiety	0 = absent	1 = mild - severe	
	TOTAL SCORE			

Range 0-13
Handelsman, L., Cochrane, K. J., Aronson, M. J. et al. (1987) Two New Rating Scales for Opiate Withdrawal, *American Journal of Alcohol Abuse,* 13, 293-308

Opioid Withdrawal Scale (Subjective)

The subjective opiate withdrawal scale (SOWS)

Date ..... Time .....

		PLEASE SCORE EACH OF THE 16 ITEMS BELOW ACCORDING TO HOW YOU FEEL NOW CIRCLE ONE NUMBER				
	Symptom	Not At All	A little	Moderately	Quite A Bit	Extremely
1	I feel anxious	0	1	2	3	4
2	I feel like yawning	0	1	2	3	4
3	I am perspring	0	1	2	3	4
4	My eyes are teary	0	1	2	3	4
5	My nose is running	0	1	2	3	4
6	I have goosebumps	0	1	2	3	4
7	I am shaking	0	1	2	3	4
8	I have hot flushes	0	1	2	3	4
9	I have cold flushes	0	1	2	3	4
10	My bones and muscles ache	0	1	2	3	4
11	I feel restless	0	1	2	3	4
12	I feel nauseous	0	1	2	3	4
13	I feel like vomiting	0	1	2	3	4
14	My muscles twitch	0	1	2	3	4
15	I have stomach cramps	0	1	2	3	4
16	I feel like using now	0	1	2	3	4

Range 0-64. Handelsman, L., Cochrane, K. J. Aranson. H. J. et al. (1987) Two New Rating Scales for Opiate Withdrawal, Amensan Journal of Akohol Abuse, 13, 29-3-308.

7

Management of other substances of abuse (benzodiazepines, cannabis, inhalants, multiple drugs)

C.R.J. Khess

Management of benzodiazepine dependence

There is no precise data on the prevalence of benzodiazepine (BZD) abuse/ dependence in India, but given its relatively inexpensive nature coupled with lax pharmacy dispensing, the prevalence of the problem is likely to be substantial. Iatrogenic benzodiazepine dependence is quite common. BZD abuse at supra-therapeutic doses is strongly associated with alcohol and polydrug abuse.

Withdrawal symptoms

The abrupt discontinuation of benzodiazepine use may produce withdrawals which include anxiety, insomnia, nightmares, agitation, diaphoresis, tremor, hypertension, tachycardia. Less commonly seen are grandmal seizures, delirium, psychosis, and even death. The risk of withdrawal complicated by seizures or delirium is highest in patients taking high doses of benzodiazepines over long periods. The onset of withdrawal and its peak severity is earlier with agents having short half-lives, and, if not tapered gradually, withdrawals may be severe compared to agents with long half-lives. Concurrent use of other sedative-hypnotics (eg. barbiturates or ethanol) may alter the time course and severity of the benzodiazepine withdrawal syndrome.

Management

In case of patients who are physiologically dependent on a licit prescription of short-acting benzodiazepine (e.g. alprazolam), literature supports switching to a long-acting benzodiazepine (e.g. clonazepam) followed by its graded reduction. Some other methods of managing the benzodiazepine withdrawals are shown in Box 2.

The basic principle underlying safe withdrawal is gradual tapering of the

benzodiazepine dose. Initially, the dose is reduced by approximately 10-25%, and the patient is observed for any signs and symptoms of withdrawal. Subsequent reductions depend on how the patient responds to initial changes and require individualization. The discontinuation may take several days to weeks, and sometimes even longer. Patients taking high therapeutic doses of a benzodiazepine for over a year or more may require a longer time to stop the medicine, not primarily for pharmacological reasons, but as they can learn alternative strategies for coping with anxiety. Adequate preparation of patient, provision of relevant information and short courses of relaxation may be helpful.

The management may be more difficult in case of patients abusing supra-therapeutic doses of benzodiazepines or using benzodiazepines concurrently with other drugs/alcohol. These patients taking very high doses of benzodiazepines may require hospitalization because of the greater medical risks associated with complicated withdrawals e.g. seizures. These patients may be tapered using the benzodiazepine that they have been taking or preferably, switched to a drug with a long elimination half-life e.g. clonazepam or diazepam using the dose equivalencies shown in the box 1. The estimated equivalent dose is administered in divided dose on day 1 to ensure that an appropriate dose equivalency is established. While some clinicians stabilize the patients on that dose for 2- 3 days, others prefer to reduce the dose by 25% on the second day, followed by 5- 10% daily reductions. Most high-dose detoxification can be completed in 2 weeks or less using this protocol. For some patients, the dose of benzodiazepines cannot be reduced rapidly and more gradual and longer tapers are required.

Box 1: Therapeutic equivalent oral doses (approximate only)

Alprazolam	1 mg
Chlordiazepoxide	25 mg
Clonazepam	0.5-1mg
Diazepam	10 mg
Lorazepam	2 mg
Oxazepam	30 mg

Box 2: Various strategies for managing the benzodiazepine withdrawals

(a) Benzodiazepine substitution followed by a gradual taper: Patients using short-acting benzodiazepines are substituted with longer acting benzodiazepines followed by a gradual taper. (most common)

(b) Benzodiazepine taper: The benzodiazepine used by the patient is slowly tapered off (by 10% daily in indoor setting and more gradually in out-patient setting).

(c) Phenobarbital substitution: The short-acting benzodiazepine is substituted by phenobarbital (withdrawal equivalency dose or after a phenobarbital challenge test), which is gradually tapered off under close supervision.

(d) Anti-convulsant attenuated benzodiazepine withdrawal: Use of carbamazepine or divalproex in high-dose benzodiazepine withdrawal prevents seizures, attenuating the severity of withdrawals. Use of anti-epileptics often permits larger dose reductions in the tapering of benzodiazepines.

In case of patients abusing the supra-therapeutic doses of benzodiazepines, where the exact dose cannot be determined or is unknown, 20 mg of diazepam may be given to estimate tolerance. The dose should be repeated every 2 hours until mild sedation occurs. The total dose needed to induce mild sedation is then considered the initial dose and detoxification then proceeds as previously described. Withdrawal from the non-benzodiazepine hypnotics zolpidem, zaleplon and eszopiclone is usually treated with benzodiazepines, although some case reports have described a gradual taper of the non-benzodiazepine hypnotic.

Additional psychological therapies may be used for managing benzodiazepine withdrawals, such as anxiety management training, conitive behavioral and supportive therapies. However, these do not appear to definitely increase the effectiveness of graded discontinuation. Overall, the short-term cessation rates are reported in nearly two-thirds of patients with benzodiazepine abuse/dependence. Data on long-term outcome of benzodiazepine discontinuation is limited, but some degree of relapse appears common.

Management of cannabis abuse/ dependence

Nearly 2.3 million of adult Indian males are estimated to abuse cannabis. There is a popular perception that cannabis is a totally harmless herb. Indeed, it is true that many of the physical and social harms associated with other illicit drugs are not a significant issue with cannabis. It is nearly impossible to die of an overdose of cannabis. The crimes associated with procurement

of cannabis are limited as it is relatively cheap in most markets. However, use of cannabis is not totally risk-free. The growth of high-potency cannabis in many countries is another cause of concern.

There are serious mental health consequences associated with cannabis use, including a risk of precipitation and aggravation of psychosis, and acute dysphoric episodes. The risks appear to be higher for people who start consuming cannabis during adolescence. As a rule, the earlier the age of initiation, the more often it is used and higher the risk of dependence. Tolerance to cannabis develops on regular use. There are no significant physical withdrawals associated with cannabis use. Abstinence after long-term use results in symptoms of irritability, anxiety, depressed mood, general feeling of fear and dissociation, physical tension, decreased appetite, vivid dreams and night sweats etc which may last up to 4 weeks. Patients should be observed every three to four hours to assess for worsening anxiety, which may require medication. Mostly, it subsides with symptomatic treatment.

Although many users may succeed in quitting without professional help, there is a need to assist those who are unable to stop on their own. There are currently no approved medications for cannabis withdrawal or dependence. Cannabis withdrawals are managed by providing supportive care in a calm environment, and symptomatic medication as required. The preferred treatment for cannabis dependence is psycho-social treatment. Treatment can be provided on an outpatient basis using psychosocial approaches such as cognitive-behavioral therapy that may substantially reduce rates of cannabis use, even if the proportion of patients who achieve enduring abstinence is rather modest. Data suggests that continuous abstinence rates with psychological therapy are 15 percent or less at the end of 6 months. Patients who have been using large amounts of cannabis may experience psychiatric disturbances such as psychosis; if suspected, refer these patients for psychiatric care.

Management of Inhalant abuse/dependence

Inhalants are breathable chemical vapors or gases that can be abused for their psychoactive (mind-altering) effects. These are often readily available in the form of cheap household or commercial products which are perceived as innocuous. Their use is more common in younger population (children and adolescents) compared to adults. Street children population is especially vulnerable to use inhalants, as they are cheap and easily accessible. In the Indian context, it appears that the ink eraser fluid (correction fluid), petrol and glue are commonly used inhalants.

Unlike other substances, inhalants are defined solely by their route of administration. They are commonly used by:

- huffing (soaking a rag with the substance, placing the rag in the mouth and inhaling)

- sniffing/snorting (inhaling through the nose)
- bagging (inhaling from a bag that contains the substance)

The effects of inhalants resemble that of other CNS depressants e.g. alcohol. Initial effects comprise of stimulation, disinhibition and euphoria. These sensations may be followed by hallucinations and then a general depression including slurred speech and disturbed gait, dizziness, disorientation, and drowsiness or sleep within seconds to minutes.

Inhalant use remains a hidden problem. The clues for possible inhalant abuse are:

- Any unusual odor or stains over body/clothes
- Sniffer's rash around nose and mouth, rhinorrhea, injected sclera
- Appears drowsy, incoordinated
- A recent change in child' behavior (secretive behavior, bunking school/ classes, stealing)
- Impairments in attention, memory or other cognitive functions

Contrary to popular belief of inhalants being a harmless substance, the use of inhalants can result in several medical problems, including sudden death which can occur even on single use

Box 3: Medical complications of Inhalant use

Organ system	Complications
Neurological	Encephalopathy (acute/chronic), cerebellar ataxia, cranial and peripheral neuropathies, parkinsonism, tremor, visual loss/optic neuropathy, white matter degeneration
Neuropsychiatric & neuropsychological	Apathy, dementia, depression, psychosismemory deficits, deficits in attention and executive functions,
Cardiovascular	Dysarthymias, hypoxic-induced heart block, myocardial fibrosis**sudden sniffing death syndrome** (due to sudden release of catecholamines resulting in ventricular fibrillation or due to suffocation, choking on vomit, accidents)
Respiratory	Cough, wheezing, dyspnoea, emphysema, pneumonitis, Goodpasture's syndrome
Abdominal	Hepatotoxicity, nausea and vomiting
Renal	Acid-base disturbance, acute renal failure, renal tubular acidosis, Fanconi's syndrome
Haematological	Aplastic anemia, bone marrow suppression, leukaemia
Dermatologic	Burns, contact dermatitis, peri-oral eczema
Reproductive /Fetal exposure	Low fertility, Increased risk of abortion, possible neonatal withdrawals, low birth weight and craniofacial abnormalities, growth retardation and cognitive/speech/motor deficits in later life

Careful consideration should be given to laboratory workup geared towards assessment of health damage. The tests should include following:

- Complete blood count
- Biochemistry tests (especially potassium, phosphorus, creatine kinase and liver function tests)
- Chest X-ray
- Electrocardiogram.
- Urine drug screen may done to rule out other substances of abuse. Lead levels may be indicated, if there is a history of use of leaded petrol as inhalant
- Neuropsychological function tests (done by clinical psychologists) to rule out/document memory and other cognitive deficits, which may occur with inhalant use
- Brain imaging may be indicated in patients suspected of having cerebrovascular complications of inhalant use.

The inhalant withdrawals are usually non-specific, relatively mild and short-lasting for a few days. Craving may be prominent and may persist. Common inhalant withdrawals include headache, nausea, lethargy, irritability, restlessness and insomnia.

The basic approach to management is:

- Supportive care and symptomatic medication (e.g.analgesics, anxiolytics/sedatives) should be given for withdrawal management
- Provide a calm, quiet environment for the patient in initial phase.
- Educate about the health risks to all users, including the risk of life-threatening complications. Advise never to use inhalants with a bag on the head (*bagging*) or in secretive, enclosed spaces as consciousness may be lost due to inadequate oxygen supply. Advise never to use inhalants while alone. Risk of arrthymias increase if the person has engaged in an exercise/ physical exertion prior to use or is suddenly alarmed.
- No specific pharmacological treatment is available for long term
- Psychosocial approach to treatment is recommended for all cases along with close monitoring and follow up visits.
- Involve the family in the treatment process, wherever family is available
- Life-skills of the inhalant users are often deficient, especially street children who may need training in basic life skills e.g. money management, personal care.

- Brief Intervention, using motivational interviewing, (as described in chapter 8) should be provided to all inhalant users, as and when, there is a contact with health professionals.

Chronic inhalant users will often have polysubstance involvement and careful monitoring and treatment of withdrawal from other substances (such as alcohol) should be undertaken. Psychiatric comorbidites, if any, should be identified and referred to an expert for management.

8

Psychosocial interventions

Deepak Yadav, Garima Srivastava

Introduction

Psychosocial interventions include a broad range of psychological and behavioural strategies which can be used either alone or in combination with pharmacotherapy. The type, frequency and duration of these interventions may vary depending upon the treatment approach and setting. The goals of psychosocial interventions include enhancing the treatment compliance, making life style changes, acquisition of skills that reinforce the abstinence and improve the overall quality of life.

Psychosocial assessment

Assessment is a vital prelude to treatment planning. It provides the opportunity to understand the patient, develop a therapeutic relationship and enhance the level of motivation. A basic psychosocial assessment consists of gathering key information and engaging in a process with the patient that enables the therapist to

(a) understand the patient's problem areas (emotional, social or interpersonal, familial, occupational, financial, medical and legal), readiness to change, disabilities, and strengths

(b) assess the logistics (resources and barriers) of remaining in treatment e.g. distance from the treatment centre, ability to follow up, working hours, transportation needs, or any other significant problems

Assisting patients very early with apparently simple problems e.g. talking to the employer for permission to follow-up, discussing with family members about transportation etc can help tremendously with treatment compliance. Assessment is not always an easy or straightforward process. The therapist must be cautious about the fact that the patient may misreport their substance use due to guilt, fear or stigma etc.

Brief Intervention

Brief Intervention is typically employed for patients with a hazardous or harmful use of alcohol (or other substances), those who are still in the early

stages of drinking, present with a medical complication and are unaware of the real or potential harms related to substance use. It can be easily delivered by a primary care physician working in a busy clinical setting. Patients with a dependent use require more extended interventions. A typical process of screening and brief intervention is described below in the figure 1.

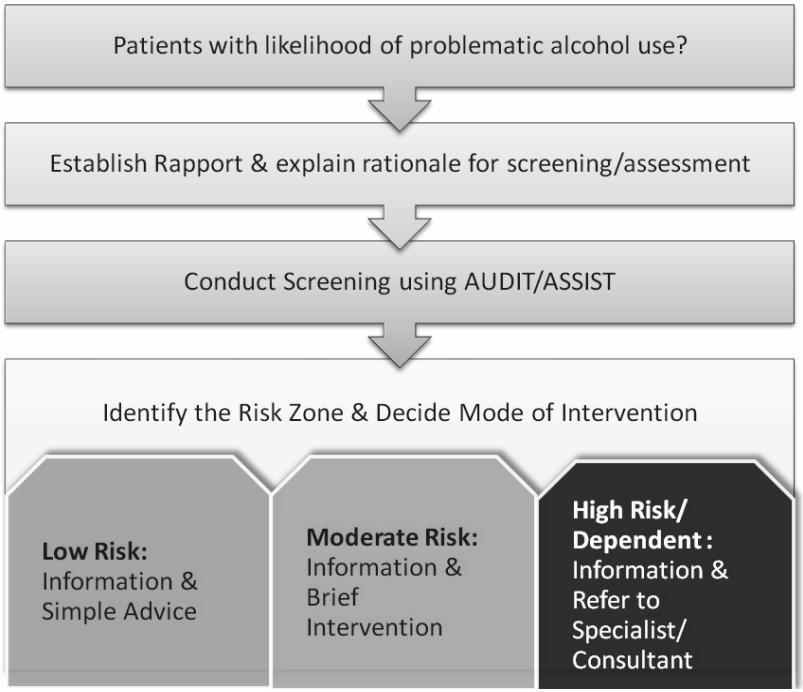


Figure 1: Process of Screening and Brief intervention

Brief intervention is often described by using the acronym FRAMES for Feedback, Responsibility Advice, Menu of options, Expressing Empathy, Supporting Self Efficacy.

(a) Feedback: It is the provision of personally relevant information to the client about his or her alcohol use. Much of the feedback can be delivered by telling the scores of screening instruments, or informing the client about the risks associated with the alcohol use. It is important to give feedback based on the objective reports (e.g. liver function tests) or other obvious familial, financial or occupational harm experienced by user.

Sample Excerpt (Feedback)

Therapist: Would you like to see the results of the questionnaire you just responded to?

Patient: Yes, please

Therapist: (shows the ASSIST/AUDIT feedback report card): These are your scores for alcohol use. You have scored 14 for alcohol, which puts you in the moderate risk range. Even if you are not experiencing any problems now, you are at risk of developing several health-related and other problems in the future.

(b) Responsibility: A key principle of intervention with substance users is to acknowledge and accept that they alone are responsible for their own behaviour and choices about their substance use. Placing responsibility of change on the clients serve to reduce the resistance and enables the client to understand his responsibility for the behaviour as well as its consequences.

Sample Excerpt (Responsibility):

While communicating with clients, use phrases promoting client's sense of responsibility and control such as:

"Are you interested in seeing your screening score"

"What you do with this information I'm giving you is up to you"

"How concerned are you by your score"

(c) Advice: The physician should provide a clear advice to cut down or stop the substance use to reduce the harms associated with substance use. It may help the patients to consider changing their behaviour. Advice should be delivered in an objective and non-judgemental manner. Avoid use of language such as "I think you should stop using (substance)."

Sample Excerpt (Advice):

Communicate advice in a clear and objective language e.g.:
"The best way you can reduce your risk of (e.g., liver problems, depression, low appetite, inability to spend time with kids, family or job problems etc.), is to cut down or stop using substance".

(d) Menu of options: The physician should discuss a range of various treatment options available to the patient. The goals may vary from person to person, ranging from complete abstinence to safe drinking. The patient can be enabled to choose between a range of available options e.g. talking to the counselor, taking alternative hobbies, self-help resources, medication etc to help him achieve the desired goal.

(e) Empathy: In a clinical situation, empathy comprises an accepting, non-judgmental approach that tries to understand the person's point of view. Avoid the use of labels such as 'alcoholic' or 'drug addict'. It is especially important to avoid confrontation and undue criticism of the client.

Sample Excerpt (Empathy)

Therapist: Given the pressures of work, I can understand that it may be difficult for you to give up drinking, but there are other alternatives which may help use cope with work pressures better.

(f) Supporting self efficacy: Many persons do not strive to achieve to achieve the desired goal if they think that the goal is too difficult to be achieved. It is important for the therapist to enable the patients to believe that that goal is achievable and they have all the skills and potentials to achieve it.

Sample Excerpt (Supporting self-efficacy)

Therapist: You have the ability to reduce your alcohol or drug use. Whenever you feel like using alcohol or drugs, you may tell yourself "I can do it".

Motivation Enhancement Therapy

Motivation is not a static trait which a person has or not, rather it is a dynamic process There are several stages of change (figure 2). Several aspects of a person's environment may mediate the need for a change. Thus, motivation can be induced/influenced and there are things a therapist can do in order to increase motivation for change.

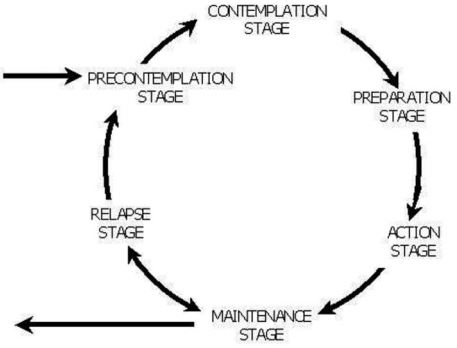


Figure 2: Stages of motivational change

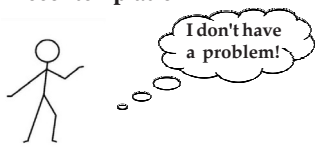
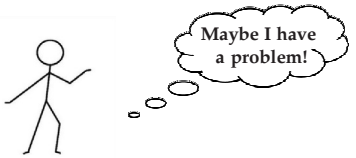
Broadly, the motivation enhancement therapy is based on the five principles of motivational interviewing (see box). Motivational interviewing is a collaborative, person-centered form of guiding to elicit and strengthen motivation for change. The key feature is that the therapist enables the clients to recognize a discrepancy between their future goals and their current behaviour e.g. 'How does drinking fit in with having a family and a stable job?' **(developing discrepancy)**

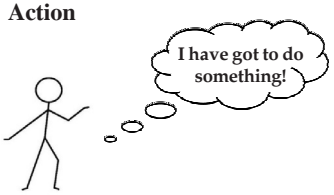
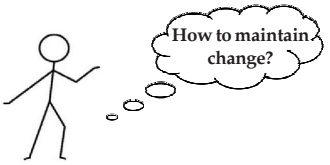
Five principles of Motivational Interviewing:

1. Develop Discrepancy
2. Express Empathy
3. Avoid Argumentation
4. Roll with client's resistance
5. Supporting self-efficacy

The various motivation enhancement strategies likely to be beneficial for each stage of change are shown in table 1

Table 1: Strategies to enhance motivation according to various stages of change

Stage of change	Strategies likely to help
Precontemplation  No intent to change in foreseeable future	Establish rapport and build trust Elicit the patient's perception of substance use or any related problems Give factual information on potential risks Provide personalized feedback about assessment findings Examine the discrepancies in patient's and other family member's perceptions of substance use Avoid confrontation Express concern and keep doors open
Contemplation 	Normalize the ambivalence Facilitate the analysis of 'pros' and 'cons' of continued substance use

Thinking about changing; Seeking information	Help in the realistic appraisal of 'good' and 'not so good' things about substance
Action  Actively modifying problem behaviours; Some overt change has been initiated	Engage the patient in treatment Support a realistic view of change through small steps Help to lay a definite plan of action Acknowledge the difficulties likely to be experienced in early stages
Maintenance  Engaged in long-term strategies for maintaining changes that have been accomplished	Try to involve a family member or significant other. Enable the person to identify and pursue the alternative pleasurable activities (alternate 'highs') Avoid the high risk situations such as drug-using friends, negative mood states etc which may cause relapse Support the lifestyle changes

Role of Family

Families play an important role in influencing the course and outcome of the substance use problems. In Indian scenario, where family systems are much more intact than western societies and families do have say in the matters of individuals, it is important to involve the family members in the process of treatment and recovery. Often, the family members have been adversely affected as a result of adverse inter-personal, psychosocial or financial consequences of drug use. They may have little or no trust in the treatment efforts of the substance user and may not be willing to extend the help or support required by the patient. Continued familial conflicts are likely to create a high risk situation for an early relapse and fail to provide the resources necessary to work towards the goal of recovery. It is, therefore, important to psychoeducate the family members about the various aspects of the substance use disorder and its treatment.

Some of the ways in which the family can be of help are:

- Providing help with logistics of treatment e.g. transportation to and from the clinic

- Monitor the patients' compliance to medication
- Help to cut down the environmental cues which remind the patient of substance use
- Try to reduce the loneliness and boredom of patient during the process of recovery; Engage in pleasant activities as a reward for sobriety and behavior change
- Try to spend quality time with the patient and encourage him/her to pursue alternate hobbies and interests
- Offer support and talk to patients when they are experiencing craving
- Avoid discussing the past behaviours which might have hurt the family members; Avoid unnecessary criticism and blaming of patient for past behaviours and instead, focus on future goals
- Acknowledge patient's efforts and support his/her self-efficacy

Try to engage at least one family member in the treatment and encourage his/her presence in the follow up visits to appraise him/her of the patient's progress or set-backs. At the same time, encourage the patient to be more open about the substance use in front of the family members and make them the partners in recovery. Advise the patient that he cannot expect to have the full trust of family members with immediate effect, rather he has to work towards gaining the respect and trust of family members by keeping away from substance and working towards recovery, which may take several months.

9

Referral to tertiary care settings

BS Chavan, Ajeet Sidana

Introduction

Primary care physicians have an important role to play in the identification and treatment of patients with substance use disorders. With brief training, the medical officers are capable of managing most of the patients with substance use disorders. A minority of patients may require referral to a tertiary care hospital for further management. Such conditions requiring a referral and specialist treatment should be identified early and referred appropriately.

Patients who require referral

Following are some of the conditions for which patients might need referral:

(a) Drug overdose, posing a serious risk of respiratory depression

(b) Severe or complicated withdrawals

(c) Past history of severe or complicated withdrawals

(d) Co morbid medical disorders, for which adequate medical facilities are not available.

(e) Comorbid moderate to severe psychiatric conditions

(f) Patients with multiple psychosocial issues

(g) Multiple substance abuse

(h) Medico-legal cases requiring expert opinion

(i) Patients requiring maintenance therapy

(j) Special population groups (e.g., women, adolescents, HIV-positive patients)

Procedure for referral

Physician-to-physician communication is vital to the success of an outpatient referral. The minimum communication involves transfer of relevant clinical information in both directions (from the referring physician to the specialist and vice-versa). Breakdowns in communication can lead to poor continuity

of care, delayed diagnoses, unnecessary investigations and polypharmacy. The difficulties with referrals usually take place because of physician time constraints, lack of clarity about reasons for referrals, patient self-referrals, and unclear follow-up plans.

In many cases, the requesting physician do not specify the reason of referral and the specialist may refuse to give due attention to the patient stating 'I don't understand why your doctor have sent you here.' Majority of referring physicians do not receive feedback from the specialists. All these communication problems discourage the referral of patients from physician to specialists.

Most important component in referral is the content of referral letters (Box 1). The referral letter should include

(a) diagnosis and statement of the problem,

(b) current medication,

(c) results of investigations done, if any and

(d) a clearly stated reason for referral.

It is always helpful for the patient, if the physician speaks to the specialist at referring centre before sending the patient. If possible, the patient should be sent to a particular specialist rather than a general referral. Tertiary care hospitals should have a dedicated phone where a designated person is available for answering the queries of the physicians.

Box 1: Desired content of a referral letter

(a) Name and contact details of referring doctor

(b) Diagnosis or differential diagnosis

(c) Treatment already offered and its effectiveness

(d) Important investigations carried out along with reports

(e) Reasons for referral -elaborate them for clarity and understanding

(Severe withdrawal/ complicated withdrawal/co-morbid medical illness / associated mental disorders/ multiple relapses in the past/ severe psycho-social issues requiring urgent intervention/ medico-legal case/ others)

Patients who refuse referral

The primary care clinician has a responsibility to patients who refuse to accept referral to treatment and such patients should not be denied treatment. In such scenarios, the primary care clinician should:

- Continue treating any associated medical problems, including those related to substance use, rather than refusing treatment.
- Encourage family members and friends to motivate the patient and clearly inform them of risks involved in further delay.
- Try to explore the reasons for refusal, address the patient's concerns and fears, and explain the likely benefits of specialist treatment
- Try to get in touch with specialized staff in tertiary care hospital and discuss the difficulty experienced in managing a particular case. Telephone help lines, emails and teleconferencing facilities at tertiary care hospitals may be helpful in such situations.

Most of the conditions requiring a referral to tertiary care setting have been discussed elsewhere in this handbook. Co morbid psychiatric disorders are often under-recognized and need special attention. The management of common mental disorders and the need for referral to a specialist have been described below.

Psychiatric co morbidity

Patients with common mental disorders (depression and anxiety) can be easily treated by a primary care physician, after undergoing a brief period of training. Patients suffering from severe mental disorders or those presenting with a risk of harm to self/others or those requiring a specialized psychiatric management should be referred to an expert.

Co-morbid depression and anxiety disorders are highly prevalent in patients with alcohol and drug use disorders. Nearly one-third to one-half of patients with substance use disorders suffer from major depression sometime during their lives. Anxiety disorders may be commonly seen. While the use of drugs or alcohol may temporarily relieve the distressing symptoms of depression, in the long run it is often a deadly mix that can lead to severe dependence and possibly, even suicide. Unless the co-morbid psychological or psychiatric problem is identified and treated, there are high chances that patient would stop the treatment in between or have an early relapse. It is , therefore, important to identify and treat the comorbid mental disorders along with the management of substance use disorders.

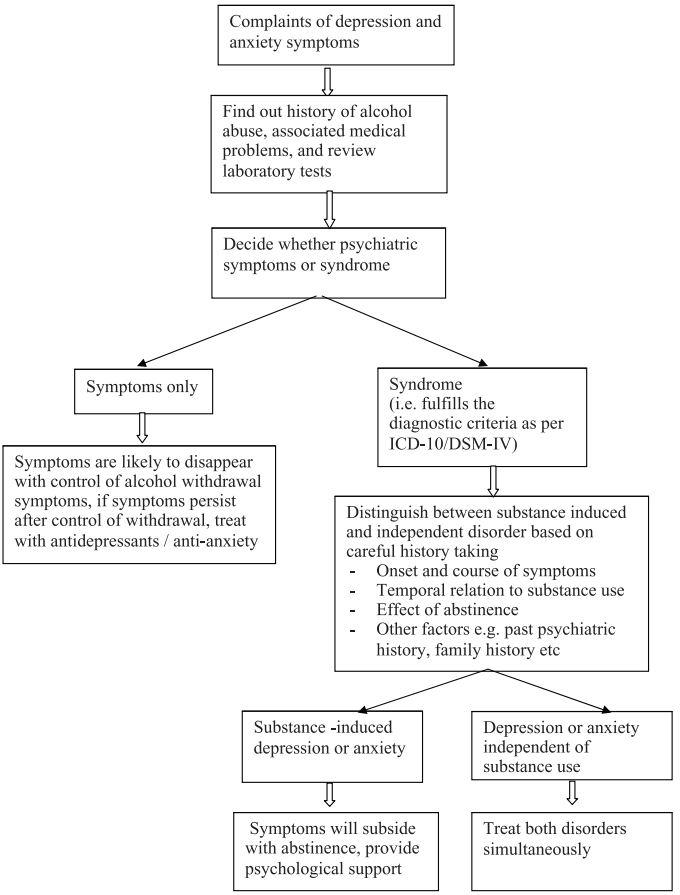
Common symptoms of depression and anxiety are shown in table 1. The depressed mood can be easily be picked up by asking simple questions such as 'how is your mood these days' in a clinical interview.

Table 1: Common symptoms of depression and anxiety disorders

Depression	Anxiety disorder
• Sadness	• Feeling anxious and tense
• Lack of interest in activities that were once enjoyed	• Trouble concentrating
• Low energy/tiredness	• "Ghabrahat"
• Irritability, anger or hostility	• Anticipating the worst
• Feelings of emptiness, helplessness helplessness or hopelessness	• Restlessness • Pounding heart
• Changes in eating and sleeping habits	• Sweating
• Restlessness and agitation	• Dizziness
• Lack of enthusiasm and motivation	• Shortness of breath
• Dramatic weight loss or weight gain	• Tremors
• Difficulty thinking, concentrating and remembering	• Muscle tension and headaches
• Chronic aches and pains	
• Recurrent thoughts of suicide	

Chronic substance use may lead to substance-induced depression and anxiety disorders. Depression and other mental health problems associated with alcohol misuse may be due to distortion of brain chemistry, and these tend to improve on their own after a period of abstinence. Among those with co-morbid occurrence of depression and substance use disorder, a distinction is commonly made between depressive episodes that remit with alcohol abstinence ('substance-induced'), and depressive episodes that are primary and do not remit with abstinence ('independent') as shown in Figure 1.

Figure 1: Approach to substance-using patients with depressive or anxiety symptoms



It is usually possible to differentiate between the substance-induced and independent disorders by taking a careful history of the patient. This can be achieved by examining the onset and course of the mental disorder, its temporal relationship with onset of substance use and effect of a period of abstinence. The symptoms of alcohol-induced depression or anxiety make their onset after a period of continued/increased substance use or during its withdrawal, and tend to resolve rather quickly with abstinence and supportive treatments only. In contrast, independent depression or anxiety disorders are characterized by symptoms that predate the onset of heavy drinking, persist during extended abstinence and usually resolve only after

a specific treatment. Certain other factors e.g. age of onset, past psychiatric history, family history of mental disorders, a known association of a particular substance to psychiatric symptoms etc also merit a consideration before arriving at a diagnosis.

Physicians can use the selective serotonin reuptake inhibitors (SSRIs) for treating depression and anxiety in patients with substance use disorders. The commonly used medications and their dosages are shown in table 2. Usually, it takes between 2-3 weeks for onset of action and once the symptoms improve over initial few weeks, it is advisable to continue SSRIs for 6-8 months. Benzodiazepines may be used, in conjunction with SSRIs, for short-term relief in anxiety symptoms or insomnia.

In case of patients who do not improve or continue to worsen in spite of treatment, those suffering from severe, suicidal or psychotic depression, or those requiring intensive psychological interventions for depression or anxiety should be referred to a specialist centre. Patients with multiple previous episodes of depression or a history of mania need a thorough assessment and should be referred for an expert psychiatric management

Table 2: Commonly used medication for treatment of depression or anxiety disorders

Generic name & strength	Daily Dose	Frequency
Selective Serotonin Reuptake Inhibitors (SSRIs)†		
Cap.Fluoxetine 20mg	20-40mg, after breakfast/lunch	OD
Tab. Escitalopram 5/10/20mg	5-20mg any time/ preferably night time	OD
Tab. Paroxetine CR 12.5/25/37.5mg	12.5-37.5mg any time/ preferably night time	OD
Tab. Sertraline 50/100mg	50-250mg	OD- BID
Cap. Venlafaxine XR 37.5/75/150mg	37.5-225mg	OD-BID
Cap. Duloxetine 20/30/40mg	20-80mg	OD-BID
Benzodiazepines*		
Clonazepam 0.25/0.5mg	0.25-1.5mg	BID-TID
Alprazolam 0.25/0.5mg	0.25-1.5mg	BID-TID
Lorazepam 1/2mg	1-4mg	BID-TID

† SSRIs should always be started in lower dose with a gradual build-up over a period of 2-4 weeks

* Benzodiazepines carry abuse potential and should be used in minimal required dose; try to discontinue as early as possible to avoid abuse/dependence.

Conclusion

Patients who require referral to a tertiary care hospital should be identified early. These include patients with anticipated or current severe or complicated withdrawals, comorbidites, poly drug use, drug overdose, multiple psychosocial issues etc. The referral letter should contain all the vital information, including the reason for referral. The physician should not deny treatment to a patient who refuses to accept the referral, rather efforts should be made to motivate him and convince the family members. Patients with co morbid depression or anxiety can be easily treated in a primary care setting using commonly available medications. Those suffering from severe mental disorders or presenting with a risk of harm to self/ others or requiring a specialized psychiatric management should be referred appropriately.

10

Setting up services

Rajat Ray, Rishab Gupta

Introduction

Given the huge population of the country and considering the prevalence of various substance use disorders, the number of people requiring help for their substance use related problems is enormous. To add to the worries, there is a dearth of qualified health professionals to treat substance use disorders (SUDs) in the country.

The country faces severe shortage of trained mental health professionals. There are just about 0.4 psychiatrists and 0.02 psychologists per 100,000 people. It is pretty obvious that they are very small in numbers to make any major impact. The substance use treatment is provided mainly through outpatient services in various centres called Drug dependence treatment centres (or DACs) set up by the Ministry of Health and Family Welfare (MoHFW) . These centres (122 in number) exist in various district hospitals and central and state medical colleges. Many are not optimally functional and only a small number have inpatient facilities. A few medical colleges/hospitals also organize community outreach programmes. However, the treatment gap is huge and there is a need to set up more such treatment centres.

It has been realized internationally that there is a need to involve general physicians in the treatment of substance use disorders in order to enhance manpower. There is a need to equip other non-specialised centres and enhance capacity of care givers. The core services to be provided are:

- Early identification
- Prompt and early intervention
- Availability of out-patient services (OPD)
- Providing acute care e.g. for over dose and poisoning
- Initiating treatment through detoxification
- Motivation to seek help and stay in treatment
- Simple advice and brief therapy

- Referral to secondary/tertiary care centres
- Training of health personnel- development of curriculum and resource materials, establishing training methodology

In India, the hierarchy of health care services (within a given district) includes:

- Sub-centres: Most peripheral and first contact between community and primary health care system
  - 1 sub-centre per 5000 in plain areas and per 3000 in hilly/tribal/ desert areas.
  - Purpose is to provide preventive and promotive health care, but it also provides a basic level of curative care.
  - Manpower: At the moment, at least 1 male and 1 female health worker/ANM (Auxiliary Nurse Mid-wife) have been designated for each sub-centre with a recent recommendation for 1 additional female health worker.

    Under National Rural Health Mission (NRHM), the government has introduced Accredited Social Health Activists (one per 1000 population) who would act as bridge between ANMs and village population.
- Primary Health Centres (PHC):
  - Cornerstone of rural health services- a first contact with a qualified doctor for curative, preventive and promotive health care.
  - 1 PHC covers a population of 30,000 in plain areas and 20,000 in hilly, tribal, or difficult areas, and has 6 indoor/observation beds.
  - Referral unit for 6 sub-centres and in turn, refer cases to the CHCs (Community Health Centre) and higher order public hospitals located at sub-district and district level.
  - Manpower: 1 Medical Officer, 1 Staff nurse, 1 female health worker and 1 each of male and female health assistants.
- CHCs (acting as First Referral Units) constitute the secondary level of health care (along with the district hospitals) and are designed to provide referral as well as specialist health care.
  - Each CHC caters to 4 PHCs, thus serving approximately 1, 20,000 population in plain areas and 80,000 population in tribal / hilly/ desert areas.
  - 30-bedded hospital providing specialist care in Medicine, Obstetrics and Gynaecology, Surgery, Paediatrics, Ophthalmology, Dental and Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homeopathy (AYUSH).

- Manpower: 1 specialist for each of above specialties, 6 GDMOs (General Duty Medical Officers), including 2 female GDMOs with some paramedics.

• Sub-divisional and district hospitals

Thus, various categories of non-specialist health staff (doctors, nurses, paramedical) are available who can deliver the substance use management services after basic training and orientation. National Drug Dependence Treatment Centre (NDDTC) has been providing short courses of in-service training to GDMOs since many years. Following the training, these doctors are equipped to identify, assess, diagnose, treat and refer patients for further specialized care. Apart from training GDMOs, short term training programmes for certain paramedical staff (including Anganwadi workers, ASHA and Health workers) are also needed.

One very important point to be noted is that substance use disorders are better managed when detected early. Primary care physicians enjoy a unique position in the chain of health care providers, often being the earliest source of help. They have an opportunity to make early case detection and early intervention, which can prevent various related complications.

Linking substance use disorder treatment with NRHM

MoHFW launched NRHM in 2005, and one of its strategies is to develop capacities for preventive health care at all levels for promoting healthy life styles, reduction in consumption of tobacco and alcohol etc. Efforts may be directed towards training paramedical staff like ASHAs, male community health workers in identifying and motivating substance abusers to seek help. It would also be important to enlist the services of village heads, teachers, and youth societies in helping these paramedics.

Male multipurpose health workers are seen as key players in motivating drug abusers as they can directly approach the substance users in their communities. Since ASHA is a female worker by definition, it is understood that she might not be able to directly influence the predominantly male substance using population, considering the cultural barriers. However it is hoped that ASHA would be able to

(a) mobilize social support for substance abusers by involving female family members.

(b) create awareness among female relatives regarding help-seeking and treatment aspects

(c) reach out to female substance users, who may not otherwise present to health services.

Suggestions by the World Health Organization (WHO) for intervention

WHO has put mental health on the global public health agenda after

recognising that mental, neurological and substance use disorders (MNS) are highly prevalent and burdensome worldwide.

In 2002, WHO endorsed the mental health Global Action Programme in the 55th World Health Assembly. The gap between what is urgently needed and what is available to reduce the burden of MNS disorders is still very wide. The resources are insufficient, inequitably distributed, and inefficiently used, which leads to a treatment gap of more than 75% in low and middle income countries . There is severe shortage of psychiatrists in these countries with <1 psychiatrist per 100,000 population. Mental Health Gap Action Programme (mhGAP) initiated by WHO reflects its continued commitment to closing the gap and scaling up services for MNS disorders especially in low and lower middle incomes. Among MNS disorders, disorders due to alcohol use and illicit drug use have been designated priority conditions which need urgent worldwide attention. WHO aims to tackle alcohol use and illicit drug use disorders through early screening and brief interventions, via trained primary health-care professionals with referral and supervisory support by the specialists.

Preventive services

The old adage 'prevention is better than cure' cannot be overstated with regard to substance use disorders as it would be more fruitful if efforts could be focussed on primordial and primary prevention rather than concentrating on treatment of disorders and related complications. In this regard, GDMOs can play a very crucial role. With the help of available manpower in the form of paramedical workers, awareness campaigns throughout the year could be planned targeting vulnerable population - school children and village youth- as well as general population.

- Activities like poster making, painting competitions, essay writing competitions, and debates on various substance abuse related themes can be held at both village and district level.
- Street plays could be used as a medium to raise awareness in villages and towns.
- Day long health camps can be organized by GDMOs where life skills can be taught to students to develop good coping skills.
- Health talks on local radio/TV channel by GDMOs on the ills of drug abuse could be effective.

These programs could be planned with the help of teachers, village heads, elderly females in villages and youth groups. GDMOs can also contact local NGOs dealing with substance use disorders for such preventive and promotive activities.

11

Drug use and HIV

Alok Agrawal, Aditya Singh, Sophia Khumukcham

Introduction

There is an increasing evidence that people who use drugs remain vulnerable to acquire and transmit HIV infection on account of various high risk behaviours. While Injecting Drug Use (IDU) has been commonly associated with risk of acquiring and transmitting HIV infection, even non-injecting forms of drug use have been associated with increased risk of HIV transmission due to its association with high risk sexual activity.

Substance use and HIV: Risk and vulnerabilities

Any behaviour which increases the likelihood of transmission of infection from one person to another are considered high risk behaviours.

Sexual Risks

As seen in the Figure 1, there are various ways in which substance use can influence the vulnerability of an individual to engage in high risk sexual behaviours.

- Effect of substance: Under the influence of substance, a person may experience enhanced sexual desire, reduced inhibitions and poor decision-making and executing capacity. Condom use is often low, inconsistent or incorrect under the influence of drugs.
- Socio cultural Factors: Use of intoxicating substances and sexual activities may often occur in the same setting. Alcohol and other drugs are often available at brothels (or other sex work settings) and both the sex workers and clients may find it difficult to practice safe sex.
- Economic factors: A host of economic factors enhance people's vulnerability to drug use and risky sex. The rates of drug use among female sex workers are much higher than women in the general population. Many female sex workers have to resort to/ continue working in the sex trade in order to support their drug use habit or to relieve the mental stress associated with working in the sex trade.

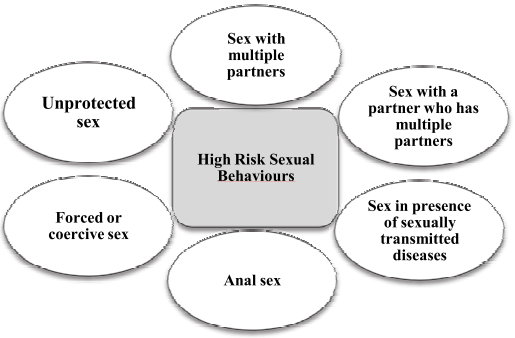


Figure 1: Sexual risks

Injecting risks

Amongst drug users, the risk of acquiring HIV infection is highest for people who inject drugs. Sharing of a needle contaminated with HIV-infected blood is one of the most efficient vehicles for HIV transmission. The risk of HIV transmission with a single act of sharing used needle/syringe is about 15-20 times that of the risk associated with heterosexual intercourse.

Injecting drugs is often a group activity. It is not unusual for a group of injecting drug users to have lesser number of injecting equipment than required, resulting in sharing of their injecting equipment. Such sharing may involve sharing of needles and syringes and sharing of injecting paraphernalia (i.e. the cookers or pots in which drug has been prepared for injecting). Further, the drug use, being an illegal activity, is usually injected in circumstances which are extremely unhealthy and promote risky injecting behaviours. The Injecting drug users inject drugs in places called 'shooting galleries.' These are the locations where needles and syringes provided by a dealer are used in rapid succession, without adequate (if any) sterilization between use, by a number of different users.

Box 1: Reasons for Injecting Drugs

- Perceived faster onset of action of the drug
- Sensation of intense euphoria ("rush")
- More economical route of consumption as the entire drug enters the blood stream and is available to produce high
- Peer group influence
- Habit (person has always used the injecting route)
- Cheaper (some drugs are cheaper than others producing similar effects but can only be injected for e.g. pharmaceutical opioids)
- Personal preference

Epidemiology of injecting drug use and HIV

There are an estimated 16 million Injecting drug users all over the world. In India, IDU is a relatively recent phenomenon, first reported in the 1990s from the north-eastern states of Manipur and Nagaland. Over time, it was observed in bigger cities of the country followed by many other states like Punjab, Haryana, West Bengal etc. Estimating the number of Injecting Drug Users in India has proved to be very challenging due to a variety of factors. As of 2009, there are about 1.77 lakh IDUs in India as per mapping carried out by National AIDS Control Organisation (NACO). The North-eastern states particularly Manipur, Mizoram and Nagaland alone house approximately one-third of the IDU population of the country. The metropolitans (Delhi, Mumbai, Chennai, Bangalore and Kolkata) and some north-western states like Punjab, Haryana and Rajasthan contribute another one third. The remaining third of the IDU population is spread across rest of the country in small pockets.

In India, opioids are the predominant class of drugs injected either alone or in combination with sedative-hypnotics. While in the north-eastern states, heroin and dextro-propoxyphene are the primary drugs injected, injections of pharmaceutical preparations of buprenorphine and pentazocine is common in other regions. A mixed pattern of both heroin and pharmaceutical injecting has been observed in the metropolitan cities.

HIV among Injecting Drug Users

Globally, nearly 3 million out of the estimated 16 million IDUs (i.e. nearly 20%) are infected with HIV making it the group with highest risk of HIV infection. In India, Injecting Drug Users have been consistently found to have a high to very high HIV prevalence. Nearly 1 in every 10 Injecting drug users is living with HIV infection. Additionally, in certain parts of the country HIV positivity rates among IDUs is much higher than the national average e.g. Maharashtra (24%), Manipur (18%), Tamil Nadu (17%), Punjab (26%), Delhi (10%).

Among the high risk population groups (Female Sex Workers, Injecting Drug Users and Men who have sex with Men), IDUs are known to be most vulnerable and at-risk since the spread of HIV epidemic in this population tends to be 'explosive' or rapid in nature. It is estimated that about 2% of all new HIV infections are directly attributable to injecting drug use. Thus, adequate control of infection among the IDU population at an early stage of the epidemic is imperative for overall control of epidemic in a given population.

Preventing HIV among drug users: Harm reduction

One of the most accepted definitions of harm reduction is 'policies and programs that are aimed at reducing the harms from drugs, but not drug use per se.' Harm reduction does not condone or encourage drug use, nor does it reject abstinence. Harm reduction is a flexible approach that stresses

understanding of the needs of the drug user, and responding to these needs in a way as realistic as permissible.

The concept of harm reduction recognizes that strategies that help one individual may not suit another individual and that there is no single strategy, which can adequately address the full range of potential drug-related harms. Therefore, a range of possible interventions and strategies have been developed. UNAIDS, UNODC and WHO have recommended 9 evidence-based interventions for effective control of HIV transmission among IDUs. The combination of these interventions is known as the Comprehensive Harm Reduction package (Figure 2) and has been shown to be more effective than any single intervention in isolation.

Box 2: Comprehensive package of interventions for the prevention, treatment and care of HIV among people who inject drugs

- Needle and syringe programmes (NSPs)
- Opioid substitution therapy (OST) and other drug dependence treatment
- HIV testing and counselling (HTC)
- Antiretroviral therapy (ART)
- Prevention and treatment of sexually transmitted infections (STIs)
- Condom programmes for IDUs and their sexual partners
- Targeted information, education and communication (IEC) for IDUs and their sexual partners
- Vaccination, diagnosis and treatment of viral hepatitis
- Prevention, diagnosis and treatment of tuberculosis (TB).

The key interventions in this package include:

- *Needle and Syringe Programmes (NSPs):* This intervention involves supplying new, clean needles and syringes to IDUs, in exchange of old used, needles and syringes. The rationale behind this exchange is that people who inject drug have access to uninfected injecting equipment, free-of-cost, to protect themselves and their injecting partners from transmission of HIV.The 'exchange' component ensures that all the used injecting equipmentare removed from the environment and destroyed under supervision, minimising the risk of reuse and accidental exposure. NSPs also provide opportunity for delivery of other important services such asoutreach, risk-reduction education, condom distribution and referrals to substance abuse treatment and other health and social services.

- *Opioid Substitution Therapy (OST):* OST is a long-term medical management of dependence on opioid drugs. It has been described in detail in a separate chapter.
- *Outreach Services:* IDUs, like many other marginalized groups, are not accessible through the conventional hospital-based or centre-based services. Community based outreach involves: finding drug users, observing them, establishing contact and rapport with them in their natural environments; providing information about unsafe as well as risk behaviours; promoting and supporting safe behaviours and referring them to the required services etc.
- *Health Education and Behaviour Change Communication*

  Education and communication within a harm reduction framework, focuses on providing non-judgmental information about drug use and its associated harms, about the law and legal rights, about how to reduce risks, and where to get help if needed. Research shows that drug users can and do adopt safer behaviours in response to information about safer modes of drug-use, and that this change is greater if the information and education is coupled with skills-training as well as the means to ensure safety.

  Messages for adopting safer behaviours should not be seen as promoting or encouraging drug use. Thus, often a hierarchical approach is employed whereby the ideal form of behaviour change is stressed but the next best option is offered to those who are unable / unwilling to the former (Figure 6).

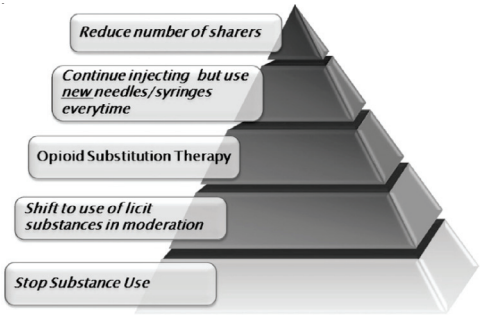


Figure 6: Risk Reduction Messages for IDUs

- Promotion of safer sexual practices

  HIV prevention interventions for IDUs invariably include condom promotion and distribution as a means to protect drug users against various sexually transmitted infections including HIV. Such programmes also educate IDUs regarding the correct usage of condoms and in case of females impart skills to negotiate condom use with their partners.

Preventing HIV among IDUs: India's approach under the National AIDS Control Programme

National AIDS Control Organization (NACO), is the Government agency mandated to deal with HIV related issues in the country. Under the National AIDS Control Programme (NACP),

- Harm reduction interventions are provided to the target population of IDUs through NGO run projects, known as 'Targeted Interventions' (interventions providing services which are targeted towards a particular population group e.g. in this case, IDUs).
- Targeted interventions provide the package of harm reduction services discussed above through either the 'outreach' (i.e. mobile services) or the 'Drop-in-Centres' (i.e. static services).
- The outreach team consists of outreach workers and members of the community (peer educators).
- Drop-in-Centre is a small, secure facility where IDUs can visit, avail recreation facilities, other services and hold meetings.
- As of January 2012, NACO has established 281 such interventions all across the country providing harm reduction services to about 1.45 lakh IDUs (80% of the estimated population).
- NACO also supports provision of Opioid Substitution Treatment (OST) for IDUs through both NGO -run targeted interventions as well as government health care settings. At present, 62 OST centres across 16 states are providing OST services to about 6000 IDUs. NACO plans to achieve an OST coverage of approximately 20% among IDUs through expansion of OST services to all districts with significant IDU population in a phase-wise manner.

12

Nicotine dependence

Sonali Jhanjee

Introduction

Tobacco use is the single most preventable cause of death in the world today. In India, there is a wide availability of smoking (bidis, cigarette, hookah etc) and smokeless tobacco (SMTs like gutkha, khaini, zarda), used by smoking, chewing, sucking and applying to the teeth and gums etc.

Prevalence in India

The magnitude of India's tobacco problem was most recently assessed by Global Adult Tobacco Survey (GATS, 2009-10) is as follows:

- More than one-third (35%) of adults in India use tobacco in some form or other.
- Males : 48%; Females : 20%
- Among them, 21% use smokeless tobacco, 9% smoking and 5% a combination of both.

Smoking as an addiction

Nicotine is the addictive substance found in all forms of tobacco. Nicotine is a powerful psychoactive drug and its addiction potential is same, or even more, than heroin or cocaine. Structurally, it resembles the naturally occurring neurotransmitter, called acetylcholine which acts on the neuronal nicotinic receptors. It causes widespread neuronal activation in brain including the brain reward circuit, as a result of which nicotine users experience pleasure, reduced fatigue, increased alertness, reduced anxiety, and other reinforcing effects. As the person stops tobacco use, these chemicals decrease in the body and withdrawal symptoms start. The withdrawal symptoms include urge to smoke, depressed mood, insomnia, irritability and anxiety, which typically peak at 1-3 weeks. These can be very distressing and the tobacco user is compelled to continue using tobacco, getting trapped in a vicious cycle.

Tobacco dependence is a chronic, relapsing disease that often requires repeated intervention and multiple attempts to quit. Most tobacco users

want to quit (70 - 80% in surveys) and most of these patients are likely to seek help from general physicians in a primary care setting.

Why should you intervene?

- A substantial proportion of cardio-vascular diseases, more than 80% of chronic lung disorders and nearly 50% of people detected with cancer in India are related to tobacco use.
- Incidence of oral cancer in India is one of the highest in the world due to a high prevalence of smokeless tobacco use.
- Oral submucous fibrosis, a premalignant condition of the oral cavity has shown a dramatic increase among the youth in India attributed to gutkha and paan masala chewing.
- Nicotine addiction is 'the most prevalent, most deadly, most costly, yet most treatable of all substance dependence'

Hence it is imperative that all health professionals intervene for tobacco use in an urgent manner.

The Government of India has set up 19 Tobacco cessation clinics in diverse settings across India in collaboration with WHO. However, this is clearly inadequate given the magnitude of the problem. Under the National Tobacco Control Programme, efforts are being made to expand the existing cessation facilities by building capacity, including training of doctors and other health workers.

Where to intervene?

There may be two broad settings to intervene

Specialized setting: Patients who are willing to quit usually seek a consultation themselves or are referred from other sources. The treatment offered is usually comprehensive and extended interventions in multiple sessions.

Opportunistic setting: Here, the tobacco use is detected opportunistically in a health care setting when patients present with some other complaints like persistent cough, dyspnoea or oral lesions. It is a good the opportunity to motivate a person to change as the health concern provides the clinician with an excellent and 'teachable moment'. This kind of intervention is typically brief and may be provided in primary care or medical settings.

Simple Advice to Quit by the physician during the course of a routine consultation for a health-related complaint can take as little as 30 seconds, but may produce quit rates of 5-10% per year. It can prove to be one of the most cost-effective health interventions.

APPROACH TO PATIENT

I. For tobacco users not willing to quit: The Five Rs approach

Patient not ready to make a quit attempt may respond to a motivational intervention using Five R's :

1. **Relevance:** Encourage the patient to indicate why quitting is personally relevant.
2. **Risks:** Ask to patient to identify potential negative consequences of tobacco use.
3. **Rewards:** Ask the patient to identify potential benefits of stopping tobacco use- (improved health, saves money etc.)
4. **Roadblocks:** Ask the patient to identify barriers or impediments to quitting (withdrawal symptoms, fear of failure, depressed mood etc)
5. **Repetition:** The health care provider should renew the strong message to quit and renew the offer of help every time an unmotivated patient has interaction with clinician.

II. For tobacco users willing to quit: The Five As approach

Step 1: ASK (Screen for tobacco use)

The single most important step in addressing tobacco use and dependence is screening for tobacco use (Do you smoke or use tobacco?) Elicit a brief history of tobacco use and complications related to tobacco use.

1. **Ask** about tobacco status at each visit
2. **Advise** all tobacco users to quit
3. **Assess** the patient's willingness to quit
4. **Assist** the patient in quitting
5. **Arrange** for follow-up contact

Step 2: ADVISE

Strongly urge all tobacco users to quit. The advice should be clear, strong and personalized. Tie smoking to patient's health findings. Use history, physical exam findings and significant life events to further personalize advice.

Step 3:ASSESS (level of dependence and motivation to quit)

Assess the level of dependence using the Fagerstrom test for nicotine dependence (provided at the end of this chapter). Motivation can be assessed qualitatively by means of simple direct questions about their interest and intentions to quit. Using the stage of change model (as described in chapter 8) the users may be assigned to precontemplation, contemplation, preparation, action or maintenance.

Step 4: ASSIST

- Ask patients to:
  - Set a quit date- preferably in the next two weeks.
  - Tell family, friends, and coworkers about quitting and request their support.
  - Anticipate challenges to planned attempt, particularly during the first few weeks. These include nicotine withdrawal symptoms.
  - Remove tobacco products from environment. Prior to quitting, avoid smoking in places where you spend a lot of time (e.g. work, home, car).
- Recommend the use of pharmacotherapies found to be effective (as described below)
- Provide practical counseling (as described below)

Step 5: ARRANGE for follow-up contact

Follow up contact should be encouraged within first week and first month, and regularly thereafter. Congratulate successes on follow up. Review progress and problems. If the patient wasn't successful, discuss reasons for relapse. Encourage the patient to set a new date.

PHARMACOLOGICAL TREATMENT

On account of the addictive nature of nicotine, only 3-5% of tobacco users are able to quit without any help. Pharmacotherapy has been shown to double or triple the chances of quitting. Quit attempts without pharmacotherapy may be preferred for light tobacco users (<10cigarettes/ day or <1 sachet of SMT /day). However, unless medically contraindicated, pharmacotherapy can be given to all tobacco users seeking help. Pharmacologic Interventions are especially recommended for

- tobacco users with higher levels of dependence
- multiple failed self-attempts
- unable to abstain with brief intervention alone.

First-line pharmacotherapies that reliably increase long-term smoking abstinence rates are

(a) Nicotine replacement therapy (NRT)

(b) Bupropion-sustained release

(c) Varenicline

(a) Nicotine replacement therapy (NRT)

NRT substitute for nicotine so that the tobacco user does not have uncomfortable withdrawal symptoms and craving usually experienced after stopping tobacco or smoking. Nicotine gums are the commonest form of

nicotine replacement available in India. Nicotine patches are not widely available and rest of the forms (lozenges, inhalors etc) have not been introduced in India.

Nicotine gum

Preparation

Nicotine gums are available in 2 mg and 4 mg strengths (available in separate flavors for smoking and smokeless tobacco use), cost for 10 gums: Rs 45 for 2mg strength and Rs 55 for 4mg strength

Dosing and duration

- A 2 mg nicotine gum is used every 1–2 hours for the first 6 weeks, reduced to every 2–4 hours for next 3 weeks, and every 4–8 hours for next 3 weeks.
- The 4mg gum may be used for very heavy users (>25 cigarettes/day), up to a maximum of 24/day
- Tobacco chewers need about half or a quarter of the dose as prescribed for smokers
- Patients should be maintained on a optimal dose of NRT for 6-12 weeks followed by a gradual reduction for another 6-12 weeks. For strongly dependent users, a longer period of NRT may be advised to prevent relapse.

Patient Instructions

- Advise the tobacco user to stop all tobacco products once the gum is started(on quit day).
- 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.
- Continue parking and chewing process for about 30minutes.
- 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.

Common side-effects

Soreness of the mouth and jaw, burning in the mouth, throat irritation, nausea, vomiting, hiccups and excess salivation. Tolerance usually develops to these symptoms.

Contraindications

Contraindicated in gastric ulcers, unstable cardiovascular disease i.e in immediate (within 4 weeks) post-myocardial infarction period, serious

arrhythmias, severe or worsening angina pectoris and severely uncontrolled hypertension. Studies on the safety of pharmacotherapy in pregnant women are not adequate. Pregnant smokers should be encouraged to quit using behavioral interventions. However if they are unable to quit, then NRT may be considered after discussion of risks and benefits of treatment with the woman.

Nicotine patches

- Nicotine patches are long-acting, but may deliver nicotine more slowly.
- These are convenient to use, but they are not as cheap or widely-available as nicotine gums.
- Preparation: 21 mg/day, 15 mg/day and 7 mg/day patches are available. Some patches last 16 hours and are worn during waking hours. Others last for 24 hours.
- Dosing: For persons smoking more than 20 sticks/day, the 21-mg patch is recommended, once daily , applied to a clean, dry, hairless area.
- Patients usually use patches at a steady dose daily for 6 to 12 weeks, then taper slowly using low-dose patch over an additional 6 to 12 weeks followed by no patch
- The most common side-effects of the patch are a skin rash where applied and insomnia. If it causes disturb sleep and vivid dreams, then only a day patch is suitable for them

(b) Bupropion

Bupropion is an antidepressant drug that has also demonstrated an efficacy in smoking cessation. It reduces the urge to smoke and reduces symptoms from nicotine withdrawal. Bupropion approximately doubles the odds of success in quitting. It has been shown to be effective for smokers with depression, cardiac disease and respiratory diseases, including COPD.

- Preparation: Available as Bupron SR[†] 150 mg tablets, Cost Rs 6-7/tablet (approx)
- Dosing: It is initiated as a single tablet of 150 mg/day for the first 3 days, followed by 150 mg BD from the 4th day onwards. The dose of 300 mg/day is continued for next 7-12 weeks. Doses above 300 mg/day should not be used for smoking cessation.
- Bupropion is started while the person is still using tobacco. Quit date is decided preferably within 7-14 days of starting treatment with bupropion. This is because the steady state plasma concentration of bupropion and its active metabolites are achieved in approx 8 days of its initiation.
- Bupropion SR can be used in combination with NRT.

- Side-effects: restlessness, insomnia, gastro-intestinal upset, appetite suppression and weight loss, headache allergy and lowering of seizure threshold. (Seizure incidence is 1 in 4000, but even lesser with <400 mg /day).
- The medication is not recommended in people with epilepsy, those taking concurrent psychiatric medications, those with eating disorders, pregnancy.

(c) Varenicline

Varenicline is a partial agonist of a nicotine acetylcholine receptor. It maintains moderate levels of dopamine to counter withdrawal symptoms and reduces both the urge to smoke and negative mood. With current evidence, varenicline is the most effective pharmacotherapy and smokers using varenicline are 3 times more likely to succeed in short- and long-term cessation compared with no medication.

- Dosing: It should begin at 0.5 mg OD for the first 3 days, followed by an increase to 0.5 mg BD for the next 4 days. On Day 8 and beyond, the recommended dose is 1.0 mg BD
- Nearly 1 week is required to achieve steady-state blood levels and quit attempt should occur during 2nd week of treatment.
- Treatment should be continued for nearly 12 weeks
- Side-effects: Nausea, insomnia, and headache. More recently, serious neuropsychiatric symptoms have been reported in patients taking varenicline. All patients have to be monitored for changes in behavior, agitation, depressed mood, suicidal thoughts or behavior, as well as worsening of preexisting psychiatric illnesses. Cardiovascular safety has not been established. Allergic reactions can occur on rare occasions.
- Varenicline is not recommended for pregnant women, children or people with a mental illness. Dose adjustments are recommended for the elderly and persons with renal insufficiency. There are a few studies which report using varenciline successfully in smokers with stable cardiovascular disease.
- Varenicline should not be used in combination with NRT due to increases in adverse affects.

PSYCHOLOGICAL TREATMENT

Provide Practical counseling

- Provide basic information about smoking and successful quitting.
- Recognize high risk situations- Identify situations that increase the risk of smoking e.g. negative mood, being around other smokers, passing tobacco shop, seeing a cue like matchbox, stress, craving etc.

- Learning cognitive and behavioral activities to cope with smoking urges (e.g., distracting attention).
- Preparation : Available as champix† 0.5mg/1mg approximate cost Rs. 50-55 for 1 mg tablet.
    * Individual cravings last 30-90 seconds at a time.
    * Craving begins 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.

Five D's to handle urges/cravings

3 Delay until the urge passes—usually within 3-5 minutes

3 Distract yourself: Call a friend or go for a walk

3 Drink water to fight off cravings

3 Deep Breaths—Relax! Close your eyes and take 10 slow, deep breaths

3 Discuss your feelings with someone close to you.

- Develop coping skills: Learning to anticipate and avoid temptation.

- Avoid. Certain people and places can tempt you to smoke.

- Alter.
    o Switch to soft drinks or water instead of alcohol or coffee.
    o Take a different route to school or work.
    o Take a walk when you used to take a smoke break.
    - Alternatives. Use oral substitutes like gum, cloves or saunf.

- Activities. Exercise or do hobbies that keep your hands busy can help distract

Provision of Social support

Provide a supportive clinical environment while encouraging the patient in his or her quit attempt.

"My office staff and 1 are available to assist you"

"Ask your spouse/ partner, friends, and coworkers to support you in your quit attempt."

Please note:

Quit rates are highest when NRT or other approved pharmacotherapy is combined with supportive counseling.

Take-home messages

- Tobacco dependence is a chronic disorder that often requires repeated intervention and multiple attempts to quit.
- It is essential to screen for tobacco use consistently in all health care settings
- Clinicians should offer every patient who uses tobacco at least 'simple advice to quit'
- Clinicians should encourage every patient willing to make a quit attempt to use the counseling treatments and medications recommended
- Encourage the use of pharmacotherapy by all patients attempting to quit smoking, except when medically contraindicated
- If a tobacco user currently is unwilling to make a quit attempt, clinicians should use motivational treatments

†*Indicates the commonly available brand name and does not suggest endorsement or preference of a particular brand/company.*

Fagerstrom Test For Nicotine Dependence

Fagerstrom test for smoking		Modified Fagerstrom test for smokeless tobacco users	
1. How soon after you wake up do you smoke your first cigarette?		1. How soon after you wake up do you use your first dip/chew?	
Within 5 minutes	3	Within 5 minutes	3
6 to 30 minutes	2	6 to 30 minutes	2
31 to 60 minutes	1	31 to 60 minutes	1
More than 60 minutes	0	After 60 minutes	0
2. Do you find it difficult to refrain from smoking in places where it is forbidden?		2. How often do you intentionally swallow tobacco juice?	
Yes	1	Always	2
No	0	Sometimes	1
		Never	0
3. Which cigarette would you hate to give up the most?		3. Which chew would you hate to give up most?	
The first one in the morning	1	The first one in the morning	1
All others	0	Any other	0
4. How many cigarettes do you smoke per day?		4. How many cans/pouches per week do you use?	
10 or less	0	More than 3	2
11–20	1	1–3	1
21–30	2	1	0
31 or more	3		
5. Do you smoke more frequently in the first hours after waking up than during the rest of the day?		5. Do you chew more frequently during the first hours after waking up than during the rest of the day?	
Yes	1	Yes	1
No	0	No	0
6. Do you smoke when you are so ill that you are in bed most of the day?		6. Do you chew when you are so ill that you are in bed most of the day?	
Yes	1	Yes	1
No	0	No	0

Scoring : Very low (0-2), low (3-4), medium (5) high (6-7) and very high (8-10) dependence

13

Management of overdose

Praveen Aggarwal

Introduction

Drug overdose is the commonest reason for presentation of a substance user to a hospital emergency. Common substances responsible for drug overdose include alcohol and strong opioids e.g. heroin, though cocaine and other drugs of abuse are also being increasingly seen over the years. An underlying medical problem or an injury must be considered and excluded in all cases. It is particularly important to look for multiple drug use in patients presenting to casualty with drug overdose.

Principles of management

Broadly, the management of drug overdose includes five steps:

1. Initial resuscitation and stabilization
2. Diagnosis (by history, examination and simple laboratory tests)
3. Non-specific therapy (to reduce body levels of the substance)
4. Specific therapy (with the use of antidotes)
5. Supportive care (to support various vital organs)

After initial resuscitation and stabilization, the next four steps should be undertaken concurrently and not sequentially.

1. Initial resuscitation and stabilization

The initial approach in any emergency includes standard resuscitation with care of circulation, airway and breathing along with cervical spine immobilization. If required, the patient should be intubated for ventilation. Hypotension should be treated with crystalloids initially as it is often due to loss of fluids or toxin-induced vasodilatation. Before infusing fluids, blood should be collected for investigations including sugar, urea, electrolytes and acid-base status, and toxicological investigations (including those for medico-legal purposes). During the initial resuscitation and stabilization, physician should consider the need for a few antidotes e.g. dextrose, thiamine or naloxone.

Dextrose is one of the commonly used antidotes. It should be administered in patients with altered level of consciousness if the blood glucose as estimated by a bed-side method is below 120 mg/dl. If rapid reagent tests are not available, all patients with altered sensorium should receive hypertonic dextrose. The dose of dextrose is 2 ml/kg or 1 g/kg of 50% dextrose in adults, 4 ml/kg or 1 g/kg of 25% dextrose in children and 5 ml/kg or 0.5 g/kg of 10% dextrose in neonates. Any patient presenting with alcoholic intoxication should have a prompt assessment of blood glucose levels. Alcoholic patients found to be hypoglycemic should initially receive thiamine replenishment. Correction of hypoglycemia should not be attempted before thiamine in order to prevent the wernicke-korsakoff syndrome.

Another antidote which may be given during initial stabilization is naloxone. Naloxone is able to rapidly counteract the sedation, respiratory depression, miosis, analgesia, bradycardia and gastrointestinal stasis induced by exogenous opioids. Since patients with opioid intoxication have CNS and respiratory depression, naloxone should not be administered to patients with agitation. Opioids induce respiratory depression initially by reducing the tidal volume before they reduce respiratory rate. Therefore, a patient may have respiratory rate more than 12/ min, but may still have respiratory depression due to reduced tidal volume. A pulse oximetery may be done to determine oxygen saturation and if it is below 90%, naloxone may be given. Constricted pupils may not be a sensitive indicator for possible opioid toxicity as some opioids such as pethidine may not produce miosis.

The initial dose of naloxone is 0.1-0.4 mg (unless the patient has respiratory depression in which case a dose of 2 mg is recommended). If there is no response to initial dose and no precipitation of withdrawals, a larger dose of 2 mg can be administered after two minutes and can be repeated to a total of 10 mg. The half life of naloxone is only 30-60 minutes. Therefore, recurrent toxicity may occur following initial clinical response. Patients who show initial response to naloxone should be monitored in an intensive care unit and given a continuous infusion of naloxone. The hourly dose of infusion equals two-third of the initial dose required to produce arousal. A repeat dose of 50% of the initial dose after the start of infusion is usually required.

2. Diagnosis

After initial stabilization, it is important to diagnose the type of poison ingested by the patient. This can be done by detailed history, examination and simple laboratory tests which include blood glucose, electrolytes, acid-base analysis, and ECG. Based on history and examination, it may be possible to define a constellation of signs and symptoms or toxidromes (Table 1). The common clinical features along with the likely substances of abuse are listed in the Table 2.

Table 1. Toxidromes

Toxidrome	Clinical Features	Toxins
Cholinergic	*Muscarinic features:* Diarrhea, urination, miosis, bronchorrhoea, bronchoconstriction, bradycardia, emesis, lacrimation, low blood pressure, salivation, sweating *Nicotinic features:* Mydriasis, hypertension, muscle weakness, tachycardia, fasciculations *CNS features: Confusion, coma, convulsions*	Organophosphate and carbamate insecticides, nicotine
Anticholinergic	Constipation, retention of urine, mydriasis, dry and hot skin, dry mouth, hypertension, abnormal movements, tachycardia, hyperthermia, hallucinations, delirium	Atropine, dhatura, antihistamines
Opioid	Coma, pin-point pupils, respiratory depression, bradycardia, hypotension, hypothermia	Opiates, opium
Sympathomimetic	Sweating, tremors, tachycardia, hypertension, hyperthermia, mydriasis, tachypnea, agitation, hyper-alert, seizures	Amphetamines, cocaine, PCP, sedative/hypnotic withdrawal
Hallcinogenic	Hallucinations, depersonalization, agitation, hyperthermia, tachycardia, hypertension, nystagmus, mydriasis	LSD, PCP, gamma hydroxybutyrate (GHB)
Hypnotic-sedative	CNS depression, confusion, stupor, coma, bradycardia, hypotension, hypopnea, miosis, hyporeflexia	Barbiturates, methaqualone, meprobamate

Table 2. Commonly encountered clinical features and likely substances of abuse

Features	Toxins
Bradycardia	Ethanol, opiates
Tachycardia	Sympathomimetics (cocaine, amphetamines), anticholinergics (dhatura)
Hypothermia	Opiates, alcohol, sedative hypnotics
Hyperthermia	Nicotine, anticholinergics, sympathomimetics
Hypotension	Sedative hypnotics, opiates
Hypertension	Cocaine, sympathomimetics, anticholinergics
Hypoventilation	Narcotics, sedative hypnotics, alcohol
Hyperventilation	Amphetamines
Mydriasis	Sympathomimetics, anticholinergics, withdrawal (alcohol, opiate, sedative-hypnotic)
Miosis	Opiates, sedative hypnotics
Seizures	Cocaine, amphetamines, PCP, withdrawal (benzodiazepines),
Prolonged QT interval on ECG	Propoxyphene, cocaine

1. Non-specific Therapy

(a) *Reducing gastrointestinal absorption:* This includes the use of gastric lavage, activated charcoal and whole bowel irrigation.It is recommended that gastric emptying procedures like gastric lavage should not be considered unless the patient has ingested a potentially life-threatening amount of a toxic agent within the last 60 minutes. Activated charcoal adsorbs most of the toxins and therefore reduces absorption from the intestine. It may be given if the patient presents within 1 hour of ingestion of a potentially toxic dose of a substance. Whole bowel irrigation involves use of polyethylene glycol which flushes the gut mechanically. It is of theoretical benefit in patients with body packer syndrome (where a person swallows balloon filled with a substance of abuse so as to smuggle out to another country), and ingestion of sustained-release tablets.

(b) *Increasing excretion of toxin:* Administration of large quantities of saline intravenously in order to enhance excretion is not recommended. The recommended method to increase the urinary excretion of some of the toxins is by increasing the pH of urine. For this, sodium bicarbonate should be infused at a rate of 1-2 meq/kg every 3-4 hours so as to maintain the urine pH above 7.5. Infusion of large amount of fluids is not required. This method is useful in patients with salicylate and phenobarbital poisoning. The patient may develop hypokalemia and therefore, frequent monitoring of serum potassium is required. Multiple doses of activated charcoal may be useful in some patients. Hemodialysis is of little use in poisoning with substances of abuse. However, it can be used to correct acid-base, electrolyte and fluid disturbances.

4. Specific Therapy (specific antidotes)

If the toxin can be identified, specific antidotes can be given. Antidotes, which reverse or prevent the toxic effects of specific poisons, form an important therapeutic modality in poisoned patients. At present, specific antidotal therapy is available for a limited number of toxins only. The common antidotes which may be used in drug overdose include naloxone (described above), flumazenil, physostigmine etc.

Flumazenil is a pure benzodiazepine antagonist which is safe and effective for reversing benzodiazepine-induced sedation. However, benzodiazepine overdose is very rarely fatal. Its empirical use is not recommended in patients with altered level of consciousness. In mixed overdose or unknown overdose, use of flumazenil is not risk-free. It can produce seizures and arrhythmias in patients who have ingested tricyclic antidepressants, carbamazepine and other agents. Also, if the patient is on chronic benzodiazepine therapy, use of flumazenil may precipitate withdrawal. Unfortunately, the seizures that occur during flumazenil-induced benzodiazepine withdrawal are both dangerous and potentially resistant to therapy.

Initial dose of flumazenil should be 0.2 mg (10 mcg/kg) over 1 minute, to be followed one minute later by 0.3 mg if the patient does not respond. Subsequent doses of 0.5 mg may also be given if required. The upper limit of total dose is generally considered as 3 mgl. Arousal does not obviate the need of intensive monitoring as re-sedation can occur due to short half life of flumazenil which is 1 hour. In such cases, infusion of 0.3-0.5 mg may be given hourly.

Physostigmine should be used intravenously in a dose of 0.5–2.0 mg for life-threatening effects or profound delirium associated with anticholinergic toxicity, and is administered no more rapidly than 1 mg/min. If the patient fails to respond and there is no evidence of cholinergic toxicity, a second dose may be administered after 20 min. Atropine should always be available to reverse physostigmine-induced cholinergic toxicity, if necessary.

5. Supportive Therapy

The most important step in management is the supportive care which involves support of vital organs till the toxin is removed from the body and the patient resumes normal physiological functions. This includes support of cardiovascular, neurological and respiratory systems, control of body temperature and correction of acid-base and electrolyte disturbances.

Alcohol overdose and poisoning

As the management of alcohol overdose and poisoning has not been covered above, it is briefly described in this sub-section

Alcohol poisoning is a serious consequence of drinking large amounts of alcohol in a short period of time as the body can excrete only a fixed amount of alcohol in a given time (zero order kinetics). At high blood alcohol levels, there may be respiratory depression, hypothermia, confusion, seizures, stupor, coma and death. The treatment usually involves supportive care while the body excretes the alcohol. It involves a careful monitoring of vitals, prevention of aspiration, oxygen therapy, maintenance of fluid and electrolytes. Hypoglycemia can be treated with dextrose solution, however thiamine should be administered before glucose load in order to prevent the onset of Wernicke's encephalopathy. Hemodialysis should be considered if blood alcohol concentration is dangerously high and if there is metabolic acidosis.

Methanol poisoning

Methanol is highly toxic in humans. As little as 10 mL can cause permanent blindness by destruction of the optic nerve and 30 ml is potentially fatal.

Denatured alcohol (i.e. ethanol made undrinkable by the addition of methanol) is sometimes mixed in illicit country made liquors and results in methanol-related blindness and deaths.

Initial symptoms: nausea, headache, dizziness, lack of coordination, confusion.

Later symptoms (10 -30 hours after the initial exposure): blurring or complete loss of vision, respiratory failure , unconsciousness, death (by acidosis due to accumulation of toxic levels of formic acid in the blood).

Antidotes : Two effective antidotes (ethanol and fomepizole) are available and if administered timely, can prevent permanent damage. Both act to reduce the action of alcohol dehydrogenase on methanol by means of competitive inhibition, so that it is excreted by the kidneys rather than being transformed into toxic metabolites.

(a) Ethanol (Oral/ intravenous) : While oral ethanol can be simply administered, it requires a conscious patient who is willing to drink the ethanol or tolerate the placement of a nasogastric tube. Commonly, ethanol is administered by intravenous route as follows:

Loading dose - (10 % diluted in 5 % dextrose): 8 to 10 mL per kg, 30-minute infusion Maintenance dose : 1.4 to 2.0 mL per kg per hour

(b) Fomepizole: standard treatment comprises of

Loading dose-15 mg per kg

Maintenance dosing- 10 mg per kg every 12 hours for four doses

Subsequent dosing - 15 mg per kg every 12 hours

Other measures

Gastric lavage is not beneficial because methanol is rapidly and completely absorbed from the gut. Ipecac-induced emesis is contraindicated due to the risk of rapid loss of consciousness. It is doubtful that activated charcoal has the ability to absorb significant amounts of methanol; however, it may be useful if a co-ingestant is suspected.

However, following may be considered.

- Sodium bicarbonate for metabolic acidosis
- Folic acid is also administered to enhance the metabolism of formate.
- Haemodialysis to remove methanol and formate from the blood.

Conclusion

Drug overdose is a common reason for presentation of a substance user to a hospital emergency. All patients must be initially resuscitated and stabilized, followed by proper diagnosis using toxidromic approach. The non-specific therapies, specific antidotes and supportive therapies must be offered. The outcomes are good with timely intervention and appropriate management

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Appendix-1

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.

Saunders JB, Aasland OG, Babor TF, DeLaFuente JR and Grant M. Development of the Alcohol Use Disorder Identification Test (AUDIT) : WHO collaborative project on early detection of persons with harmful alcohol consumption. Addiction, 1993;88:791-804.

Appendix-2

|ASSIST|THE ALCOHOL, SMOKING AND SUBSTANCE INVOLVEMENT SCREENING TEST

ASSIST v3.1 feedback report card

Client ID or Name _____ Date _____

Specific substance involvement scores	Score	Risk Level	
a Tobacco products		0 – 3 4 – 26 27+	Lower Moderate High
b Alcoholic beverages		0 – 10 11 – 26 27+	Lower Moderate High
c Cannabis		0 – 3 4 – 26 27+	Lower Moderate High
d Cocaine		0 – 3 4 – 26 27+	Lower Moderate High
e Amphetamine-type stimulants		0 – 3 4 – 26 27+	Lower Moderate High
f Inhalants		0 – 3 4 – 26 27+	Lower Moderate High
g Sedatives or sleeping pills		0 – 3 4 – 26 27+	Lower Moderate High
h Hallucinogens		0 – 3 4 – 26 27+	Lower Moderate High
i Opioids		0 – 3 4 – 26 27+	Lower Moderate High
j Other – specify: _____		0 – 3 4 – 26 27+	Lower Moderate High

What do your scores mean?

Lower: You are at lower risk of health and other problems from your current pattern of use.

Moderate: You are at moderate risk of health and other problems from your current pattern of substance use.

High: You are at high risk of experiencing severe problems (health, social, financial, legal, relationship) as a result of your current pattern of use and are likely to be dependent.

Are you concerned about your substance use?

A | Tobacco

Your risk of experiencing these harms is (tick one):

Lower ☐	Moderate ☐	High ☐

Regular tobacco smoking is associated with:

- Premature ageing and wrinkling of the skin
- Low fitness and longer recovery times after having a cold or flu
- Respiratory infections and asthma
- High blood pressure and diabetes mellitus
- Miscarriage, premature labour and low birth weight babies for pregnant women
- Kidney disease
- Chronic obstructive pulmonary diseases including emphysema
- Heart disease, stroke and vascular diseases
- Cancers of lung, bladder, breast, mouth, throat and oesophagus

B | Alcohol

Your risk of experiencing these harms is (tick one)

Lower ☐	Moderate ☐	High ☐

Regular exessive alcohol use is associated with:

- Hangovers, aggressive and violent behaviour, accidents and injury, nausea and vomiting
- Reduced sexual performance and premature ageing
- Digestive problems, ulcers, inflammation of the pancreas and high blood pressure
- Anxiety and depression, relationship difficulties, and financial and work problems
- Difficulty remembering things and solving problems
- Birth defects and brain damage in babies of pregnant women
- Permanent brain damage leading to memory loss, cognitive deficits and disorientation
- Stroke, muscle and nerve damage
- Liver and pancreas diseases
- Cancers of the mouth, throat and breast
- Suicide

C | Cannabis

Your risk of experiencing these harms is (tick one):

Lower ☐ Moderate ☐ High ☐

Regular use of cannabis is associated with:

- Problems with attention and motivation
- Anxiety, paranoia, panic and depression
- Decreased memory and problem solving ability
- High blood pressure
- Asthma and bronchitis
- Psychotic symptoms and psychoses particularly in those with a personal or family history of schizophrenia
- Heart disease and chronic obstructive pulmonary disease
- Cancers of the upper airway and throat

D | Cocaine

Your risk of experiencing these harms is (tick one):

Lower ☐ Moderate ☐ High ☐

Regular use of cocaine is associated with:

- Difficulty sleeping, heart racing, headaches and weight loss
- Numbness, tingling, clammy skin and skin scratching or picking
- Intense craving and stress from the lifestyle
- Accidents and injury and financial problems
- Mood swings – anxiety, depression and mania
- Paranoia, irrational thoughts and difficulty remembering things
- Aggressive and violent behaviour
- Psychosis after repeated use of high doses
- Sudden death from cardiovascular acute conditions

E | Amphetamine-type stimulants

Your risk of experiencing these harms is (tick one):

Lower ☐ Moderate ☐ High ☐

Regular use of amphetamine-type stimulants is associated with:

- Difficulty sleeping, loss of appetite and weight loss, dehydration and reduced resistance to infection
- Jaw clenching, headaches and muscle pain
- Mood swings –anxiety, depression, agitation, mania and panic
- Tremors, irregular heartbeat and shortness of breath
- Difficulty concentrating and remembering things
- Paranoia, aggressive and violent behaviour
- Psychosis after repeated use of high doses
- Permanent damage to brain cells
- Liver damage, brain haemorrhage and sudden death from cardiovascular acute conditions

F | Inhalants

Your risk of experiencing these harms is (tick one):

Lower ☐ Moderate ☐ High ☐

Regular use of inhalant is associated with:

- Flu like symptoms, sinusitis and nosebleeds
- Nausea and vomiting, indigestion, stomach ulcers and diarrhoea
- Dizziness and hallucinations, nausea, drowsiness, disorientation and blurred vision
- Headaches, accidents and injury, unpredictable and dangerous behaviour
- Coordination difficulties, slowed reactions and poor oxygen supply to the body
- Memory loss, confusion, depression, aggression and extreme tiredness
- Delirium, seizures, coma and organ damage (heart, lungs, liver, kidneys)
- Death from heart failure

G | Sedatives or sleeping pills

Your risk of experiencing these harms is (tick one):

Lower ☐	Moderate ☐	High ☐

Regular use of sedatives is associated with:

- Drowsiness, dizziness and confusion
- Difficulty concentrating and remembering things
- Nausea, headaches and unsteady gait
- Sleeping problems
- Anxiety and depression
- Tolerance and dependence after a short period of use
- Severe withdrawal symptoms
- Overdose and death if used with alcohol, opioids or other depressant drugs

H | Hallucinogens

Your risk of experiencing these harms is (tick one):

Lower ☐	Moderate ☐	High ☐

Regular use of hallucinogens is associated with:

- Visual, auditory, tactile and olfactory changes and unpredictable behaviour
- Difficulty sleeping
- Nausea and vomiting
- Increased heart rate and blood pressure
- Mood swings
- Anxiety, panic and paranoia
- Flash-backs
- Worsen the symptoms of mental illnesses such as schizophrenia

I | Opioids

Your risk of experiencing these harms is (tick one):

Lower ☐	Moderate ☐	High ☐

Regular use of opioids is associated with:

- Itching, nausea and vomiting
- Drowsiness, constipation, tooth decay and irregular menstrual periods
- Difficulty concentrating and remembering things
- Depression, reduced libido and impotence
- Financial difficulties and criminal offences
- Relationship stress
- Problems maintaining work and family life
- Tolerance, dependence and withdrawal symptoms
- Overdose and death from respiratory failure