Emergency Management of Substance Overdose and Withdrawal

8

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INTRODUCTION

Substance abuse is a common problem in today's world. The emergency department (ED) may be the initial or the only point of contact with the health care system for these patients. ED staff regularly encounters patients seeking treatment for alcohol or substance abuse related problems. The initial evaluation may seem routine, yet these patients have multiple physical and emotional issues that should be addressed. The ED personnel should strive to identify patients who might benefit from appropriate referrals for drug and alcohol problems. Substances of abuse include alcohol, cocaine, opiates, amphetamines, and hallucinogens.

A substance abuser may visit an ED due to several reasons (Table 1). Amongst all these, overdose is the commonest reason for attending ED.

Table 1. Common reasons for emergency department visits by a substance abuser

- Overdose (accidental or suicidal)
- Withdrawal
- Accident or injuries
- Seeking detoxification

SUBSTANCE ABUSE AND DEPENDENCE

Common Clinical Features

Substance abuse is defined as the problematic use of alcohol, tobacco, or illicit drugs. Dependence can be defined as the continued use of mood-altering agents despite negative medical or social consequences. Patients can present with "red flags" suggesting a substance abuse (Table 2).

Table 2. Common features suggestive of substance abuse

Symptoms:

- Frequent absences from work or school
- Frequent accidents
- Depression or anxiety
- Labile hypertension
- Epigastric distress
- Diarrhea
- Sexual dysfunction
- Sleep disorders

Signs:

- Hand tremors
- Alcohol smell on breath
- Tender hepatomegaly
- Conjunctival irritation
- Features of chronic obstructive lung disease

Approach to a Patient with Substance Abuse

After initial ABC (airway, breathing and circulation), attention should be paid to specific problem of overdose or withdrawal. Associated accidents must always be considered in all patients. A comprehensive evaluation is essential to guide the treatment of a patient with a substance use disorder (Table 3).

Table 3. Evaluation of a patient with substance abuse

- Detailed history of patient's past and present substance abuse
- Effects of substance use on the patient's cognitive, psychological, behavioral, and physiological functioning
- History of psychiatric treatments and outcomes
- Family and social history
- General medical and psychiatric history and examination
- Screening of blood, breath, or urine for substance used
- Other laboratory tests to help confirm the presence or absence of conditions that frequently co-occur with substance use disorders

SUBSTANCE OVERDOSE

General Principles of Management

Coma is one of the most common presentations in emergency department settings. It may be caused by a variety of disorders, which broadly can be categorized as metabolic and structural diseases. Drug overdose must be considered in any patient who presents with coma. Common drugs involved include opioids, benzodiazepines and tricyclic antidepressants. Provision of meticulous supportive care, identification of patients requiring treatment with an antidote, and the appropriate use of methods limiting poison absorption or increasing elimination, remain the cornerstones of management.

Resuscitation and Stabilization

Treatment of cardiac arrest in the poisoned patient should generally follow advanced cardiac life support (ACLS) guidelines. However in certain circumstances, a different approach may be required. eg, early use of hypertonic sodium bicarbonate in cardiac arrest associated with tricyclic antidepressant (TCA) poisoning. The initial priority in poisoned patients is the standard resuscitation (airway, breathing, and circulation). Inadequate ventilation may require an oropharyngeal airway and bag-mask ventilation, and if required, intubation and mechanical ventilation. In patients with altered level of consciousness, cervical spine should be immobilized.[3,4]

Hypotension should be treated using intravenous crystalloids with an initial bolus of 10–20 ml/kg. If hypotension is resistant to IV fluids or appropriate antidotes, central venous pressure should be monitored to guide further IV fluids. Inotropic agents like norepinephrine

or dopamine should be considered in patients in whom hypotension is not corrected.

Arrhythmias associated with poisoning should generally be treated initially with correction of acidosis, hypokalemia or hypoxia. In TCA poisoning, sodium bicarbonate is useful for correcting arrhythmias.

Continuous seizures should be treated using a benzodiazepine (lorazepam 4 mg IV or diazepam 5–10 mg IV initially). It is important to estimate blood sugar by a bedside method in all patients to exclude hypoglycaemia. Resistant seizures should be treated with general anaesthetic sedation (barbiturates) and supportive care.

Rectal temperature should be obtained in all patients. Patients with core temperatures of greater than 39°C should be treated aggressively with cool IV fluids and active cooling measures

History, Examination and Simple Investigations

History

The history should address the **"Five Ws":**

who—the patient's age, weight, relationship to others present and gender;

what—the name and dosage of medication(s) or substances of abuse, co-ingestants and amount ingested;

when—the time and date of ingestion;

where—both the route of poisoning (e.g., ingestion or injection) and the geographic location where the poisoning occurred, and

why—whether intentional or unintentional, and associated details. In addition, a detailed past medical history should be obtained. Particular attention should be devoted to eliciting a history of alcoholism, and renal or hepatic disease.

Examination

Important examination findings should include vitals (pulse, blood pressure, temperature and respiration), neurologic functions, cardiopulmonary and abdominal status, and breath odor. Particular attention should be paid to associated injuries. Based on the examination findings, it may be possible to define a syndrome associated with certain poisons known as a toxidrome. Important toxidromes[4] indicating overdose with various drugs of abuse are listed in Table 4. Pupillary reflex to light is commonly utilized in patients presenting with coma. It must be remembered that non-reactive pupils may occur in patients with drug overdose and are, therefore, not synonymous with brain death.

Investigations

Important investigations include blood sugar, urea, electrolytes, arterial blood gas analysis. An ECG may detect occult cardiac conduction abnormalities of diagnostic and prognostic importance

Use of Antidotes

Naloxone can be safely used as a diagnostic tool in unconscious patients. Flumazenil is an antidote for benzodiazepine overdose, though it is not recommended as an empirical therapy in comatose patient of unknown cause currently. Patients who have a history of seizures may develop uncontrolled seizures after receiving flumazenil. Flumazenil may be administered in a selective group of patients who are not agitated and have a normal ECG

Table 4:

Toxidrome	Clinical Features	Examples
Narcotic	Miosis, CNS depression, coma, bradycardia, hypothermia, respiratory depression	Opioids
Sympathomimetic	Sweating, tremors, tachycardia, hypertension, hyperthermia, mydriasis, tachypnea, agitation, hyperalert, seizures	Amphetamines, cocaine
Sedative-hypnotic	CNS depression, confusion, stupor, coma, bradycardia, hypotension, hypopnea, miosis, hyporeflexia, bradycardia, hypotension, hypopnea, miosis, hyporeflexia	Benzodiazepines
Hallucinogenic	Hallucinations, depersonalization, agitation, Hyperthermia, tachycardia, hypertension, nystagmus, mydriasis	Phencyclidine, LSD

Non-specific Treatment

It involves removal of the unabsorbed poison from the gut (gut decontamination) and increasing the excretion of absorbed poison from the body. Gut decontamination includes induction of emesis, gastric lavage, use of activated charcoal and cathartics, and whole bowel irrigation.

Recommendations on Gut Decontamination

The Position Statements on the use of gut decontamination procedures state that gastric emptying should not be considered unless the patient has ingested a potentially life-threatening amount of a drug within the last 60 minutes. Cathartics are not advised in any patient with drug overdose. Activated charcoal is not available in India.

Gastric lavage

If the patient is unconscious, intubate the patient before passing a lavage tube. Gastric lavage should be continued till the return fluid is clear and free of drug particles. In adults and children above 6 years, tap water is sufficient for lavage. However, in children below the age of 6 years, saline at body temperature should be used for lavage. This will prevent hyponatremia and hypothermia. The lavage fluid should be preserved in a clean bottle. It should be sealed with glue tape with signature of the physician along with label with details of the patient and to be preserved or sent to lab as per the policy of the hospital.

Diuresis

Urinary excretion of most drugs is not enhanced significantly by infusing fluids rapidly. Infusing large amount of intravenous fluids can produce electrolyte and fluid imbalance. At present, forced diuresis is not recommended in the management of acute poisoning cases. Alkaline diuresis is of value in limited number of poisonings. On the other hand, acid diuresis should not be attempted in any patient including those with amphetamine poisoning.

Specific Overdoses

Opioids

Heroin is by far the most commonly abused opiate. Other drugs of abuse in this category include methadone, morphine, codeine, oxycodone, fentanyl (China white), and black tar (a potent form of heroin). Complications of chronic use are primarily infections and include skin abscess at an injection site, cellulitis, mycotic aneurysms, endocarditis, noncardiogenic pulmonary edema, HIV, and hepatitis.

Clinical Features

Signs of intoxication are decreased respiratory rate, pinpoint pupils and decreased level of consciousness. Mixed pharmacological effects arising from preparations containing an opioid and a stimulant drug (heroin and cocaine combination - "speedball") may cloud this typical clinical picture.

Dextropropoxyphene is more likely to lead to death after overdose than other opioids. It can produce QRS prolongation and negative cardiac inotropy. All patients with opioid poisoning, particularly those who have ingested a compound containing opioid and paracetamol, should have plasma paracetamol concentration measured.

Management

Provision of an adequate airway and ventilation, and the appropriate use of naloxone remain the most important aspects in treatment of acute opioid toxicity. In life threatening acute opioid toxicity, naloxone should be administered intravenously or via an endotracheal tube. The initial dose of naloxone is 0.1-0.4 mg unless the patient has respiratory depression when a dose of 2 mg should be given. If no response occurs in 1-2 minutes and there is no precipitation of withdrawal features, a dose of 2 mg should be given every 1-2 minutes up to a total of 10 mg. If there is no response to 10 mg dose, opioid overdose is unlikely. The effects of naloxone diminish within 2-3 hours; so patients must be monitored for at least 24 hours after a heroin overdose and 72 hours after a longer acting drug such as methadone. If re-sedation develops, an infusion of naloxone should be started at a dose 2/3rd the initial dose per hour. Patients who have ingested long acting opioids (such as methadone) may require naloxone infusions for up to 72 hours.

Benzodiazepines

Benzodiazepine toxicity commonly produces drowsiness, dysarthria, ataxia, nystagmus, and confusion. After benzodiazepine ingestion, symptoms and signs are usually mild, well tolerated, and resolve within 24 hours. Large overdoses of benzodiazepines can produce mild hypotension and respiratory depression. Benzodiazepine overdose is less well tolerated in patients who have ingested a significant quantity of another CNS depressant (including alcohol), those with chronic obstructive airway disease, and elderly patients.

The mainstay of treatment is supportive care. Flumazenil is a benzodiazepine antagonist acting on the GABA receptor. It is not recommended in most patients with benzodiazepine overdose. It may be given in rare cases when airway and ventilatory support are not available and the ingestion of any other drugs has been excluded. The dose is 0.1-0.2 mg IV over 30-60 seconds; this may be repeated every 1-2 minutes up to 1 mg.

Cocaine

Cocaine (coke) abuse is increasing in India especially amongst the urban youth. It is commonly snorted using a currency note or plastic/glass straw. The average lethal dose by inhalation is about 750-800 mg. This is subject to significant individual variation because deaths have occurred with as little as 25 mg applied to the mucous membrane or the snorting of a single line in recreational use where the average dose of 1 line is 20 mg.

Clinical Manifestations

Acute cocaine intoxication may present with sweating, tachycardia, tachypnea, seizures and hypertension. Complications of acute and chronic use can include myocardial ischemia or infarction, stroke, pulmonary edema, and rhabdomyolysis.

Cocaine-related chest pain might be musculoskeletal, respiratory, or cardiac in origin. Cocaine-related myocardial infarction (MI) occurs in 6% of patients who present with chest pain after using cocaine. It has been reported to occur in first time as well as habitual users. Troponin concentrations are more sensitive and specific in diagnosing MI in such cases.

Management

Seizures should be controlled with diazepam. Ventricular arrhythmias require 0.5 to 1.0 mg of propranolol intravenously. The management of cocaine-related MI differs from that of classic MI. Beta-blockers are contraindicated as unopposed alpha-receptor stimulation may worsen coronary artery spasm and systemic hypertension. Thrombolytics should not be used routinely as they will not overcome coronary artery spasm and can increase the risk of intracranial hemorrhage associated with hypertension secondary to cocaine use. First line agents used in the treatment of cocaine-related MI are oxygen, benzodiazepines, nitroglycerine (sublingually or intravenously) and aspirin.

Amphetamines

Methamphetamine is one of the commonly abused amphetamines. It is also referred to as 'speed', or 'glass'. MDMA (methylenedioxymethamphetamine) or ecstasy is also becoming increasingly popular amongst urban youth. Since this substance is commonly used at dance parties, raves, and nightclubs, it is often referred to as one of the "club drugs." It is favored over other recreational drugs, such as marijuana, lysergic acid diethylamide (LSD), methamphetamine, and opiates, because it is believed to enhance social interaction.

Clinical Manifestations

Acute intoxication with amphetamines presents with signs of sympathetic nervous system stimulation, tachycardia, hypertension, hyperthermia, sweating, tremors, anorexia, insomnia, mydriasis (dilated pupils) and occasionally seizures. Confusion, aggressiveness, changes in libido, anxiety,

delirium, paranoid hallucinations, panic states, and suicidal and homicidal tendencies occur, especially in mentally ill patients. It can also produce grossly elevated core body temperature, rigidity of body, myoclonus, rhabdomyolysis (muscle necrosis) and acute renal failure.

Management

Management is symptomatic and includes correction of fluid and electrolyte imbalance, and control of seizures and hyperthermia. Severe hypertension can be treated with labetalol or nitroprusside. For agitation, benzodiazepines such as diazepam, lorazepam or midazolam may be used.

Hallucinogens

Phencyclidine (PCP) and lysergic acid diethylamide (LSD) are the two commonly abused hallucinogens.

Clinical Manifestations

Abuse of hallucinogens may produce nystagmus, flushing, sweating, distortions of body image, disorganization of thinking, and feelings of estrangement. Overdose may produce hyperthermia, increased secretions, respiratory depression, severe hypertension, seizures, rhabdomyolysis and coma.

Management

Supportive measures for coma, convulsions, and respiratory depression should be instituted. There is no specific antidote.

Alcohol Intoxication

In low concentrations, alcohol acts primarily on inhibitory centers resulting in disinhibition. At higher doses, alcohol inhibits excitatory centers. People may show effects ranging from impairment of rational thinking to absence of motor coordination (Table 5). Another feature of alcohol intoxication is hypoglycemia, particularly in children.

Table 5. Features of alcohol intoxication
Blood alcohol concentration (mg/dl)

Features	
20-30 mg/dl	Slight increase in talkativeness
30-60 mg/dl	Impairment in skillful tasks
60-100 mg/dl	Very talkative, louder speech, less cautious, slow reaction time
200 mg/dl	Sedated, slurred speech, clumsiness,reduced responsiveness, and considerable intellectual impairment
300–400 mg/dl	Semiconscious or unconscious

Assessment of level of intoxication

The gold standard measure is the blood alcohol concentration (BAC). Breath alcohol meters are a quick and reliable method of estimating BACs. The assessment should also include consideration of differential diagnosis of altered mental state in the acutely intoxicated patient.

Management

Any patient presenting with alcohol intoxication should have a prompt assessment of blood glucose levels. Alcoholic patients found to be hypoglycemic should initially receive thiamine before correction of hypoglycemia. Hypoglycemia is treated by 25 g of IV glucose

(50 ml of 50% dextrose) followed by a continuous infusion of 5% or 10% dextrose. Alcohol is associated with trauma and serial BACs can help differentiate what may be attributable to alcohol. Patients with altered level of sensorium should be nursed in lateral position to avoid aspiration. If aggressive behavior continues, low doses of a short acting benzodiazepine (e.g. lorazepam) may be used.

Inhalant Abuse

Inhalant abuse is a prevalent and often overlooked form of substance abuse in adolescents. The method of delivery is inhalation of a solvent from its container (sniffing or sorting), a soaked rag (huffing), or a bag (bagging). Solvents include almost any household cleaning agent or propellant, paint thinner, glue, and lighter fluid. Inhalant abuse typically can cause a euphoric feeling and can become addictive. Acute effects include sudden sniffing death syndrome, asphyxia, and serious injuries. Chronic inhalant abuse can damage cardiac, renal, hepatic, and neurologic systems.

Treatment is generally supportive, because there are no reversal agents for inhalant intoxication. The use of sympathomimetics (e.g., epinephrine, norepinephrine) should be avoided in patients with ventricular fibrillation. Beta-blockers should be administered early to protect the catecholamine-sensitized heart.

SUBSTANCE WITHDRAWAL

Opioid Withdrawal

Emergence of withdrawal symptoms varies with half-life of the particular opioid; within 6-12 hours after the last dose of morphine/hydromorphone/ oxycodone or 72-96 hours following methadone. They subside within 2-6 weeks.

Clinical Features

Features of opioid withdrawal include yawning, sweating, nausea, diarrhea, crampy abdominal pain, coughing, lacrimation, mydriasis, rhinorrhea, twitching of muscles, piloerection, restlessness, diffuse body pain, insomnia as well as mild elevations of body temperature, respiratory rate, and blood pressure. Unlike withdrawal from alcohol or benzodiazepines, opioid withdrawal is not life threatening.

Management

Methadone 10-25 mg twice a day is the drug of choice in many western countries. After several days, the drug is decreased by 10 – 20% of the original daily dose each day. Comfort can be enhanced by administering alpha-2-adrenergic agonist clonidine (0.1-0.2 mg orally every 6-8 hours). However this medicine is not currently available in the country. Currently either Buprenorphine (1.2 – 4mg) or Dextropropoxyphene (6 – 12 capsules of 65 mg) are used for control of withdrawal symptoms.
The initial dose is calculated depending on the amount of opioid consumed over the past 24 hours converted into the equivalent dosage of the compound used for detoxification. Subsequent doses are adjusted depending on the severity of withdrawal symptoms which peak during the 3rd to 7th day in case of heroin. Thereafter the medicines are gradually tapered off. Usually medicines are needed for 2-3 weeks. Certain symptoms like insomnia, restlessness and mild body aches may persist and are managed symptomatically with sedatives and non-narcotic analgesics. Non-pharmacological interventions like relaxation therapy and yoga also benefit some patients.

In accelerated detoxification low doses of naltrexone are given to precipitate withdrawals and these are controlled with clonidine in usual or higher doses than that used for controlling hypertension. This method reduces the detoxification period to 4-5 days.

Benzodiazepine Withdrawal

A withdrawal syndrome generally occurs only after three or more weeks of continuous use. Depending on the drug's half-life, symptoms start one to five days after the last dose, peak within 10 days, and subside after one to six weeks.

Clinical Features

The features usually include increased anxiety and autonomic instability (heightened sensitivity to light and sound, increased heart rate and blood pressure level, tremulousness, diaphoresis). The most serious acute withdrawal symptoms are seizures and delirium tremens, which most commonly occur with abrupt discontinuation.

Treatment

Treatment is initiated if the patient develops tremors, elevated body temperature, agitation or delirium. At six-hour intervals, the patient is given a benzodiazepine in a dosage equivalent to that of the benzodiazepine that has been abused. Generally, a longer-acting benzodiazepine such as Chlordiazepoxide or Diazepam is used, and the initial dosage is titrated downward according to blood pressure elevation, pulse rate, temperature and psychotic symptoms.

Benzodiazepines should not be discontinued abruptly because of the risk of seizures. If a person is dependent on a short acting benzodiazepine, he should immediately be switched to a long acting one. A daily reduction of approximately 10% is usually adequate.
In the majority of cases control of withdrawal symptoms is accomplished in approximately 2 weeks.

Alcohol withdrawal

Symptoms of alcohol withdrawal may range in severity from mild tremors to seizures and can be life-threatening. The goals of treatment are to relieve the patient's discomfort and prevent the development of more serious symptoms.

Clinical Features

Features of withdrawal occur due to over activity of the autonomic nervous system (a part of nervous system that helps a person manage response to a stressful condition). The features of withdrawal typically appear between 6 and 48 hours after a patient stops or reduces alcohol consumption (Table 6). Mild features include feeling nervous without a drink or not being able to function effectively until the first drink of the day. The clinical features increase in intensity over several hours to a few days and then diminish over 24 to 48 hours.

Table 6. Alcohol withdrawal syndrome in relation to time of onset after alcohol cessation

Severity of withdrawal	Time of appearance after withdrawal	Features
Mild withdrawal syndrome	6-12 hours	Nausea, vomiting, headache, difficulty in concentration, insomnia, tremors, sweating, palpitations, anxiety and mild agitation
Alcoholic	12-24 hours	Visual and

hallucinosis		auditory hallucinations; normal sensorium
Alcohol withdrawal fits	24–48 hours	Generalized tonic-clonic seizures
Delirium tremens	48-72 hours	Hallucinations (predominately visual), low grade fever, disorientation and clouding of consciousness, increased respiration, tachycardia, hypertension, severe agitation,

Convulsions may occur in nearly 25 percent of patients. Causes other than alcohol withdrawal should be considered if seizures are focal, if there is no definite history of recent abstinence from drinking, if seizures occur more than 48 hours after the patient's last drink, or if the patient has a history of fever or trauma.

Delirium tremens (DT) is the most serious syndrome associated with alcohol withdrawal and occurs in about 5% of patients with withdrawal symptoms. Hypokalemia, hypomagnesaemia and hypophosphatemia are common in delirium tremens. Death occurs in 5% of cases and is usually due to arrhythmias or pneumonia. Older age, pre-existing pulmonary disease, core body temperature greater than 104°F, and coexisting liver disease are associated with a greater risk of mortality. Besides alcohol withdrawal, delirium can be produced by several conditions (Table 7). Many drugs have been associated with delirium, but the most common deliriants include high dose narcotics, benzodiazepines, and anticholinergic medications. In any patient presenting with delirium, it is essential to review all the medications and look for a temporal relationship between the use of drugs and onset of delirium.

Table 7. Causes of delirium

Extracranial

- Infections (e.g., pneumonia)
- Metabolic (e.g., liver failure)
- Drug intoxication or withdrawal
- Alcohol intoxication or withdrawal
- Anoxia (e.g., cardiac or respiratory failure)
- Hypoglycemia
- Hypothermia

Intracranial

- Space-occupying lesion (e.g., tumour)
- Concussion of brain
- Meningitis and encephalitis
- Cerebrovascular accidents

Alcohol withdrawal should be differentiated from withdrawal syndromes produced by other drugs. Opioid withdrawal is associated with a normal mental status, no fever and infrequent seizures. Withdrawals associated with benzodiazepines usually progress slowly and the frequency of seizures is higher which tend to appear later, generally around 7th day compared to around 2nd day in alcohol withdrawal.

Evaluation

After initial stabilization, the severity of alcohol withdrawal should be established from history and physical examination. Significant points to be enquired in the history include quantity of alcohol intake, duration of alcohol use, time since last drinking episode, alcohol withdrawal in the past, presence of concurrent medical conditions, and use of other agents. It is important to

remember that several medical conditions commonly coexist with alcoholism and can exacerbate symptoms of alcohol withdrawal or complicate its treatment. These conditions include arrhythmias (irregular heart rate), congestive heart failure, liver disease, infections and brain involvement (including subdural hematoma and meningitis). An assessment should be made for any fluid and electrolyte disturbances. Some patients have dehydration due to vomiting, diarrhea and sweating while others may have excessive fluids in the body.

Management

General Management

Patients dependent on alcohol may have deficiency of thiamin (vitamin B1), which gets precipitated if dextrose is administered. Deficiency of thiamine may produce Wernicke encephalopathy, a condition characterized by severe confusion, abnormal gait, and paralysis of eye muscles. If treatment of this condition is delayed, irreversible dementia can occur (Korsakoff syndrome). Therefore, patients with alcohol withdrawal should receive thiamine as soon as treatment is started. The dose of thiamine is 100 mg per day, initially given by intramuscular or intravenous route (most of the preparations available in India can be administered only by intramuscular route). Thereafter, the oral route is used.

Patients with mild features of withdrawal with no underlying medical condition and no past history of seizures or delirium tremens can be safely discharged after initial observation for a few hours. These patients can be dealt with by rest, relaxation, and reassurance, and providing reduced lighting along with good nutrition and fluids. Supportive care alone does not prevent development of seizures or delirium tremens in patients with moderate to severe symptoms. Further, there is some concern that providing only non-pharmacological care to patients with moderate-to-severe alcohol withdrawal may lead to alcohol-induced neurotoxicity which may produce seizures during future withdrawal (kindling).

Pharmacological Management

Pharmacological treatment of alcohol withdrawal syndrome involves the use of medications that are cross-tolerant with alcohol.

Benzodiazepines: Benzodiazepines are the drug of choice for managing withdrawal symptoms. The selection of a specific benzodiazepine for a specific patient is primarily made on the basis of clinical factors (age of patient, occurrence of prior seizures and status of the liver).

Diazepam is the drug of choice for management of withdrawal symptoms due to its long half life. Lorazepam, a medicine with a shorter half life is the preferred drug in the elderly and those with liver failure. Intramuscular preparation is also available.

Management of severe alcohol withdrawal symptoms is done by administering 10 mg of diazepam hourly until either the symptoms are suppressed or patient is very drowsy. Often only 1 to 2 days of medication are required. Alcohol withdrawal scales like the Clinical Institute of Withdrawal Assessment for Alcohol, revised (CIWA-Ar) helps to guide the usage of benzodiazepines according to the severity.

Beta-blockers: Beta-adrenergic receptors play an important role in the regulation of the autonomic nervous system and may therefore influence the occurrence and severity of some withdrawal symptoms. These agents help in

reducing elevated pulse and blood pressure. They may be useful as adjuncts to benzodiazepines. Adjunctive treatment with a beta blocker should be considered in patients with coronary artery disease, who may not tolerate the strain that alcohol withdrawal can place on the cardiovascular system.

Anti-convulsants: In most cases, benzodiazepines are the drugs of choice for alcohol withdrawal. Carbamezapine may be an effective alternative to benzodiazepines in the treatment of alcohol withdrawal syndrome in patients with mild to moderate symptoms, especially in patients with seizure disorder.

Treatment of Delirium Tremens

To begin with, attention should be paid to detection and management of co-existing medical conditions. This includes maintaining water and electrolyte balance, correcting metabolic disturbances, and control of infections.

The environment should be made safe by removing objects with which patient could harm self or others.

The optimum pharmacological therapy for the treatment of delirium tremens is somewhat controversial. Some clinicians use benzodiazepines to reduce autonomic hyperactivity, the risk of seizures and agitation. However, benzodiazepines may contribute to the aggressive behavior and confusion that are elements of delirium tremens. Antipsychotic medications may be used in low doses to treat delirium tremens. The onset of action is usually rapid, with improvement seen in hours to days. Haloperidol is often used because it lacks the excessive sedation and hypotensive effects of benzodiazepines. Low dose haloperidol (1-10 mg/day) is adequate for most patients. In severe behavioral disturbance haloperidol may be given intramuscularly or intravenously. However, antipsychotic medications can cause increased susceptibility to seizures and increased restlessness.

Treatment of Alcohol Withdrawal Seizures

Alcohol withdrawal seizures not related to delirium tremens usually subside with only supportive treatment. However, up to one-third of patients with untreated seizures subsequently develop delirium tremens. Hence, all patients with seizures should be treated. Patients with no past history of alcohol withdrawal seizures require administration of benzodiazepines. Prophylactic use of phenytoin does not appear to prevent the occurrence of alcohol withdrawal seizures. However; phenytoin may be useful in combination with a benzodiazepine for preventing an initial seizure in patients who have a past history of seizures.

Indications for Admission

The indications for admitting a patient are given in Table 8.

Table 8. Indications for hospital admission

- Severe withdrawal symptoms
- Withdrawal seizures
- Delirium tremens
- Multiple previous withdrawals
- Concomitant psychiatric illness
- Concomitant medical illness
- Recent high levels of alcohol consumption
- Pregnancy

Role or Nurse

The first priority in managing emergency is to maintain ABC-airway, breathing and circulation.

To maintain a patent airway

- Straighten or tilt the neck back
- Suction if necessary
- Prepare for endotracheal intubations if indicated
- Continuously assess the airway patency, respiration, capillary refill, vital signs and mental status of the patient
- Administer oxygen if indicated
- Keep patient quiet and ensure a comfortable environment
- Maintain fluid and electrolyte balance as indicated and administer IV fluids and emergency medication as prescribed.

To prevent further complications

- Perform gastric lavage where ever indicated till the return fluid becomes clear
- Assess for any physical injuries on admission
- Continuously assess level of consciousness
- Maintain NPO status to prevent aspiration
- Promote safety- elevate the side rails.
- Maintain calm atmosphere and decrease environmental stimuli
- Reassure the patient when he/she gains consciousness.

- **Legal responsibility**
- Finish the MLC requirements
- Collect and the sample of the gastric lavage, left over drugs and store appropriately
- Send the collected specimen to laboratory for investigation.
- Careful documentation should be done in all the records.
- Make sure appropriate referral is done.
- Facilitate transfer to ward if hospitalization is required or discharge the patient when the condition stabilizes.

- **Psychosocial care**
- Develop rapport and trustful relationship
- Reasssure the patient and relatives
- Help the patient to calm down
- Give needed information as and when required
- Counsel as and when required
- Do Referral
- Do motivational counseling
- Advise use of identification card

CONCLUSION

Abuse of several drugs and substances is an important problem in clinical practice. The patients may present in an emergency room or in an outpatient department. An underlying medical problem or injury must be considered and excluded in all such cases. Supportive treatment in the form of ensuring adequate ventilation and circulation is essential before proceeding further in managing such cases. The use of antidotes should be considered in patients with opioids and benzodiazepine overdose. In withdrawal syndromes, physical, and if required chemical restraints using a benzodiazepine should be considered. The outcome is excellent if these steps are followed in managing patients with overdose or withdrawal.

Suggested slide material

Slide 1

Common reasons for emergency department visits by a substance abuser

- Overdose (accidental or suicidal)
- Withdrawal
- Seeking detoxification
- Accident or injuries

Slide 2

Evaluation of a patient with substance abuse

- Detailed history of patient's past and present substance abuse
- Effects of substance use on the patient's cognitive, psychological, behavioral, and physiological functioning
- History of psychiatric treatments and outcomes
- Family and social history
- General medical and psychiatric history and examination
- Screening of blood, breath, or urine for substance used
- laboratory tests to help confirm the presence or absence of conditions that frequently co-occur with substance use disorders

Slide 3

Suggestive symptoms to suspect substance abuse on assessment

Symptoms:

- Frequent absences from work or school
- Frequent accidents
- Depression or anxiety
- Labile hypertension
- Epigastric distress
- Diarrhea
- Sexual dysfunction
- Sleep disorders

Signs:

- Hand tremors
- Alcohol smell on breath
- Tender hepatomegaly
- Conjunctival irritation
- Features of chronic obstructive lung disease

Slide 4

General principles of management of substance overdose

- Drug overdose must be considered in any patient who presents with coma.
- Provision of meticulous supportive care
- Identification of patients requiring treatment with an antidote
- Appropriate use of methods limiting poison absorption or increasing elimination

Slide 5

Management of drug overdose

- Administration of antidote
- Gastric lavage
- o Intubate the patient before lavage if unconscious
- Fluid electrolyte balance

Slide 6

Sign and symptoms of delirium tremens

- Occurs within 48-72 hrs
- Hallucinations (predominately visual)

- Low grade fever
- Disorientation and clouding of consciousness
- Increased respiration
- Tachycardia
- Hypertension
- Severe agitation,

Slide 7

Management of delirium tremens

- Maintaining fluid and electrolyte balance
- Correcting metabolic disturbances
- Control of infections
- Provide safe environment by removing objects with which patient could harm self or others.
- Low dose Haloperidol (1-10 mg/day)
- In severe behavioral disturbance haloperidol may be given intramuscularly or intravenously.

Slide 8

Indications for hospital admission

- Severe withdrawal symptoms
- Withdrawal seizures
- Delirium tremens
- Multiple previous withdrawals
- Concomitant psychiatric illness
- Concomitant medical illness
- Recent high levels of alcohol consumption
- Pregnancy

Slide 9

Role of nurse in emergency management

- Maintain a patent airway
  - Straighten or tilt the neck back
  - Suction if necessary
  - Prepare for endotracheal intubations if indicated
  - Continuously assess the airway patency, respiration, capillary refill,
  - Monitor vital signs and mental status of the patient
  - Administer oxygen if indicated
  - Maintain I/O record

Slide 10

Role of nurse in emergency management

- Keep patient quiet and ensure a comfortable environment
- Administer IV fluids and emergency medication as prescribed.
- To prevent further complications
  - Perform gastric lavage till the return fluid becomes clear
  - Assess for any physical injuries on admission
  - Continuously assess level of consciousness
  - Maintain NPO status to prevent aspiration
  - Promote safety- elevate the side rails. Constant observation
  - Reassure the patient as he gains consciousness.

Slide 11

Role of nurse in emergency management

- Psychosocial care
  - Develop rapport and trustful

relationship

- o Reassure the patient and the relatives
- o Help the patient to calm down
- o Give needed information as and when required
- o Counsel as and when required
- o Do Referral
- o Do motivational counseling
- o Advise use of identification card

Slide 12
Legal responsibility of nurse

- o Finish the MLC requirements
- o Collect and the sample of the gastric lavage, left over drugs and store appropriately
- o Send the collected specimen to laboratory for investigation appropriately labeled.
- o Careful documentation should be done in all the records.
- o Make sure appropriate referral is done, transfer to ward if required admission or discharge the patient as the condition stabilizes.

Suggested readings material

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