Substance-Related Disorders

SUBSTANCE ABUSE

- DIAGNOSIS AND DSM-IV CRITERIA
- Abuse is a pattern of substance use leading to impairment or distress for at least 1 year with one or more of the following manifestations:
- **1. Failure to fulfill obligations at work, school, or home**
- **2. Use in dangerous situations (i.e., driving a car)**
- **3. Recurrent substance-related legal problems**
- **4. Continued use despite social or interpersonal problems due to the substance** use

SUBSTANCE DEPENDENCE

- DIAGNOSIS AND DSM-IV CRITERIA
- Dependence is substance use leading to impairment or distress manifested by at least three of the following within a 12-month period:
- **1. Tolerance**
- **2. Withdrawal**
- **3. Using substance more than originally intended**
- **4. Persistent desire or unsuccessful efforts to cut down on use**
- **5. Significant time spent in getting, using, or recovering from substance**
- **6. Decreased social, occupational, or recreational activities because of** substance use
- **7. Continued use despite subsequent physical or psychological problem** (e.g., drinking despite worsening liver problems)

- A diagnosis of substance dependence supercedes a diagnosis of substance abuse.
- EPIDEMIOLOGY
- Lifetime prevalence Approximately 17% .
- More common in men than women .
- Depressive symptoms are common among those patients.

- Caffeine, alcohol, and nicotine are the most commonly used

ALCOHOL

- There is upregulation of *alcohol dehydrogenase and aldehyde dehydrogenase* in heavy drinkers
- SCREENING FOR ABUSE
- The CAGE questionnaire is used to screen for alcohol abuse. Two or more“yes” answers are considered a positive screen; one “yes” answer should arousesuspicion of abuse:
- 1. Have you ever wanted to **C**ut down on your drinking?
- 2. Have you ever felt Annoyed by criticism of your drinking?
- 3. Have you ever felt Guilty about drinking?
- 4. Have you ever taken a drink as an “Eye opener” (to prevent the shakes)?

Alcohol intoxication

- CLINICAL PRESENTATION
- **Effects** **BAL**
- Decreased fine motor control 20–50 mg/dL
- Impaired judgment and coordination 50–100 mg/dL
- Ataxic gait and poor balance 100–150 mg/dL
- Lethargy; difficulty sitting upright 150–250 mg/dL
- Coma in the novice drinker 300 mg/dL
- Respiratory depression 400 mg/dL

- BAL :blood alcohol level

- DIFFERENTIAL DIAGNOSIS
- Hypoglycemia, hypoxia, mixed EtOH–drug overdose, ethylene glycol or methanol poisoning, hepatic encephalopathy, psychosis, and psychomotor seizures.
- Diagnosis :
- Serum EtOH level or an expired air breathalyzer can determine the extent of intoxication. A computed tomographic (CT) scan of the head may be necessary to rule out subdural hematoma or other brain injury.

TREATMENT

Intoxication (Acute)

Ensure ABC ,Monitor electrolytes and acid–base status.

Obtain finger-stick glucose level to exclude hypoglycemia.

Thiamine (to prevent or treat Wernicke's encephalopathy),

Naloxone (to reverse the effects of any opioids that may have been ingested), and folate are also administered.

- Dependence (Long Term)
- 1. Alcoholics Anonymous—self-help group
- 2. Disulfiram (Antabuse)—aversive therapy; inhibits aldehyde dehydrogenase, causing violent retching when the person drinks
- 3. Psychotherapy and selective serotonin reuptake inhibitors (SSRIs)
- 4. Naltrexone—though an opioid antagonist, helps reduce cravings for EtOH

Alcohol Withdrawal

- CLINICAL PRESENTATION

The earliest symptoms begin between 6 and 24 hours .

- The signs and symptoms of the alcohol withdrawal syndrome include insomnia, anxiety, tremor, irritability, anorexia, tachycardia, hyperreflexia, hypertension,fever, seizures, hallucinations, and delirium.
- Delirium tremens (DTs) is the most serious form of EtOH withdrawal and often begins within 72 hours of cessation of drinking, 15 to 20% mortality rate if left untreated.
- symptoms of DTs may include visual or tactile hallucinations, gross tremor, autonomic instability, and fluctuating levels of psychomotor activity.

- DIFFERENTIAL DIAGNOSIS
- Alcohol-induced hypoglycemia, acute schizophrenia, drug-induced psychosis, encephalitis, thyrotoxicosis, anticholinergic poisoning, and withdrawal from other sedative–hypnotic type drugs
- TREATMENT
- Tapering doses of benzodiazepines (chlordiazepoxide, lorazepam)
- Thiamine, folic acid, and a multivitamin to treat nutritional deficiencies
- Magnesium sulfate for postwithdrawal seizures

Long-Term Complications of Alcohol Intake

- Wernicke–Korsakoff syndrome is caused by thiamine (vitamin B1) deficiency resulting from the poor diet of alcoholics. Wernicke's encephalopathy is acute and can be reversed with thiamine therapy:

1. Ataxia
2. Confusion
3. Ocular abnormalities (nystagmus, gaze palsies)

- If left untreated, Wernicke's encephalopathy may progress into Korsakoff's syndrome, which is chronic and often irreversible.

1. Impaired recent memory
2. Anterograde amnesia
3. +/– Confabulation

- *Confabulation: Making up answers when memory has failed*

COCAINE

- Has a stimulant effect.
- **Cocaine Intoxication**
- CLINICAL PRESENTATION
- Cocaine intoxication often produces euphoria, increased or decreased blood pressure, tachycardia or bradycardia, nausea, dilated pupils, weight loss, psychomotor agitation or depression, chills, and sweating. It may also cause respiratory depression, seizures, arrhythmias, and hallucinations (especially tactile). Since cocaine is an indirect sympathomimetic, intoxication mimics the fight-or-flight response.
- Cocaine's vasoconstrictive effect may result in myocardial infarction (MI) or cerebrovascular accident (CVA).

- DIFFERENTIAL DIAGNOSIS

Amphetamine or phencyclidine (PCP) intoxication, sedative withdrawal

- DIAGNOSTIC EVALUATION

Urine drug screen (positive for 3 days, longer in heavy users)

- TREATMENT
- **Intoxication**

1. For mild-to-moderate agitation: Benzodiazepines

2. For severe agitation or psychosis: Haloperidol

3. Symptomatic support (i.e., control hypertension, arrhythmias)

- Dependence

1. Psychotherapy, group therapy
2. Tricyclic antidepressants (TCAs)
3. Dopamine agonists (amantadine, bromocriptine)

- Cocaine Withdrawal

Abrupt abstinence is not life threatening but produces a dysphoric "crash":malaise, fatigue, depression,hunger, constricted pupils, vivid dreams, psychomotor agitation or retardation

- TREATMENT

Usually supportive—let patient sleep off crash.

AMPHETAMINES

- *Classic amphetamines: Dextroamphetamine (Dexedrine), methylphenidate*(Ritalin), methamphetamine (Desoxyn, ice, speed, "crystal meth," "crack")
- *Substituted ("designer") amphetamines: MDMA (ecstasy), MDEA (eve)*

Amphetamine Intoxication

- CLINICAL PRESENTATION

similar to those of cocaine .

- DIFFERENTIAL DIAGNOSIS

Cocaine or PCP intoxication. Chronic use in high doses may cause a psychotic state that is similar to schizophrenia.

- DIAGNOSTIC EVALUATION

Urine drug screen (positive for 1 to 2 days). A negative routine drug screen does not rule out amphetamine use.

Treatment and amphetamine withdrawal are Similar to cocaine .

PHENCYCLIDINE (PCP)

- “angel dust,”
- Intoxicztion

recklessness, impulsiveness, impaired judgment, assaultiveness, rotatory nystagmus, ataxia, hypertension, tachycardia, muscle rigidity, and high tolerance to pain. Overdose can cause seizures or coma.

- DIFFERENTIAL DIAGNOSIS

Acute psychotic states, schizophrenia

- DIAGNOSTIC EVALUATION

Urine drug screen (positive for > 1 week). (CPK) and (AST) are often elevated.

- TREATMENT
- Monitor blood pressure, temperature, and electrolytes.
- Acidify urine with ammonium chloride and ascorbic acid.
- Benzodiazepines or dopamine antagonists to control agitation and anxiety
- Diazepam for muscle spasms and seizures
- Haloperidol to control severe agitation or psychotic symptoms
- **PCP Withdrawal**
- No withdrawal syndrome, but “flashbacks” may occur

SEDATIVES-HYPNOTICS

- BDZs and *Barbiturates*
- **Intoxication**

drowsiness, slurred speech, incoordination, ataxia, mood lability, impaired judgment, nystagmus, respiratory depression, and coma or death in overdose (especially barbiturates). Symptoms are augmented when combined with EtOH. Long-term sedative use causes dependence.

- DIFFERENTIAL DIAGNOSIS

Alcohol intoxication, generalized cerebral dysfunction (i.e., delirium)

- DIAGNOSTIC EVALUATION

Urine or serum drug screen (positive for 1 week), electrolytes, electrocardiogram

- TREATMENT
- Maintain airway, breathing, and circulation.
- Activated charcoal to prevent further gastrointestinal absorption
- For *barbiturates only: Alkalinize urine with sodium bicarbonate to promote* renal excretion.
- For *benzodiazepines only: Flumazenil in overdose*
- Supportive care—improve respiratory status, control hypotension

- **Sedative-Hypnotic Withdrawal**

Abrupt abstinence after chronic use can be lif e threatening.

- Symptoms of autonomic hyperactivity (tachycardia, sweating, etc.), insomnia, anxiety, tremor, nausea/vomiting, delirium, and hallucinations. Seizures may occur and can be life threatening.
- TREATMENT
- Administration of a long-acting benzodiazepine such as chlorodiazepoxide or diazepam, with tapering of the dose
- Tegretol or valproic acid may be used for seizure control.

OPIATES

- Heroin, codeine, dextromethorphan, morphine, methadone, meperidine (Demerol).
- **Opiate Intoxication**

drowsiness, nausea/vomiting, constipation, slurred speech, constricted pupils, seizures, and respiratory depression, which may progress to coma or death in overdose.

- **DIFFERENTIAL DIAGNOSIS**

Sedative-hypnotic intoxication, severe EtOH intoxication

- **Diagnosis**

Urine and blood tests remain positive for 12 to 36 hours.

- Rapid recovery of consciousness following the administration of intravenous (IV) naloxone (opiate antagonist) is consistent with opiate overdose.
- **TREATMENT**
- Intoxication

Ensure adequate airway, breathing, and circulation.

- Overdose

Administration of naloxone or naltrexone (opiate antagonists) will improve respiratory depression but may cause severe withdrawal in an opiate-dependent patient. Ventilatory support may be required.

- **Dependence**
- Oral methadone once daily, tapered over months to years
- Psychotherapy, support groups (Narcotics Anonymous, etc.)
- **Opiate Withdrawal**
- CLINICAL PRESENTATION

unpleasant withdrawal syndrome characterized by dysphoria, insomnia, lacrimation, **rhinorrhea, yawning, weakness, sweating, piloerection,** nausea/vomiting, fever, dilated pupils, and muscle ache.

- TREATMENT
- Moderate symptoms: Clonidine and/or buprenorphine
- Severe symptoms: Detox with methadone tapered over 7 days.

HALLUCINOGENS

- Eg : Psilocybin (mushrooms), mescaline, lysergic acid diethylamide (LSD).
- Hallucinogens do not cause physical dependence or withdrawal but patients may experience “flashbacks” later in life (recurrence of symptoms due to reabsorption from lipid stores).
- **Intoxication**

perceptual changes, papillary dilation, tachycardia, tremors, incoordination, sweating, and palpitations.

- TREATMENT
- Guidance and reassurance , In severe cases, antipsychotics or benzodiazepines may be used.

MARI JUANA

- **Intoxication**

euphoria, impaired coordination, mild tachycardia, conjunctival injection, dry mouth, and increased appetite.

- DIAGNOSTIC EVALUATION

Urine drug screen is positive for up to 4 weeks in heavy users (released fromadipose stores).

- TREATMENT

Supportive and symptomatic

- No withdrawal syndrome.

INHALANTS

- Solvents, glue, paint thinners, fuels, isobutyl nitrates (“rush,” “locker room,” “bolt”).
- **Inhalant Intoxication**
- Inhalants may cause impaired judgment, belligerence, impulsivity, perceptual disturbances, lethargy, dizziness, nystagmus, tremor, muscle weakness, hyporeflexia, ataxia, slurred speech, euphoria, stupor, or coma. Overdose may be fatal secondary to respiratory depression or arrhythmias. Long-term use may cause permanent damage to CNS, (PNS), liver, kidney, and muscle.

- DIAGNOSTIC EVALUATION

Serum drug screen (positive for 4 to 10 hours)

- TREATMENT
- Monitor airway, breathing, and circulation.
- Symptomatic treatment as needed
- Psychotherapy and counseling for dependent patients
- **Inhalant Withdrawal**

A withdrawal syndrome does not usually occur, but symptoms may include irritability, nausea, vomiting, tachycardia, and occasionally hallucinations.

CAFFEINE

- **Caffeine Intoxication**
- may occur with consumption of over 250 mg of caffeine. Signs and symptoms include anxiety, insomnia, twitching, rambling speech, flushed face, diuresis, gastrointestinal disturbance, and restlessness. Consumption of more than 1 gram of caffeine may cause tinnitus, severe agitation, and cardiac arrhythmias. In excess of 10 g, death may occur secondary to seizures and respiratory failure.
- TREATMENT
- Supportive and symptomatic

- **Caffeine Withdrawal**
- Withdrawal symptoms resolve within 1 week and include headache, nausea/ vomiting, drowsiness, anxiety, or depression.
- TREATMENT
- Taper consumption of caffeine-containing products. Use analgesics to treat headaches. Rarely, a short course of benzodiazepines may be indicated to control anxiety.

NICOTINE

- **Nicotine Intoxication**
- Nicotine acts as a CNS stimulant and may cause restlessness, insomnia, anxiety, and increased gastrointestinal motility. Tobacco users report improved attention, improved mood, and decreased tension.
- TREATMENT

Cessation

- **Nicotine Withdrawal**

Withdrawal causes intense craving, dysphoria, anxiety, increased appetite, irritability,and insomnia.

- TREATMENT
- Smoking cessation with the aid of:

1. **Behavioral counseling**
2. **Nicotine replacement therapy (gum, transdermal patch)**
3. **Zyban—antidepressant that helps reduce cravings**
4. **Clonidine**

- Relapse after abstinence is common.