SUBSTANCE USE DISORDER

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- Substance abuse is a patterned use of a drug in which the user uses the substance in amounts or with methods which are harmful to themselves or others.

- Drugs which are most associated with this term : alcohol , benzodiazepines , amphetamines, cannabis and opioids.

Reasons for use:

- Recreational

- Performance Enhancement

- Self-medication (pain, anxiety, "stress")

RISK FACTORS

- Family History
- Personality characteristics
- Health/lifestyle
- Stress
- Availability

“WARNING SIGNS”

- Isolation
- Friction with colleagues
- Disorganization
- Inaccessibility
- Frequent absences
- Rounding on patients at odd hours
- Inappropriate or forgotten orders
- Prescriptions for family members
- OD or suicide attempt

WHY THE DELAY IN DETECTION?

- **Independence**
- **“Malignant denial”**
- **“I can take care of myself”**
- **Fear of consequences**

- The use of illegal substances is more common among young adults (**18–25 years of age**) and is twice as **common in males**.
- Most abused substances can be classified categorically as **stimulants, sedatives, opioids, or hallucinogens** and related agents.
- Most abused substances can be administered by a number of routes. Routes that provide quick access to the bloodstream, and hence the brain, are often preferred by abusers (e.g., sniffing into the nose [“snorting] and smoking rather than ingesting).

REPORTING

Ethical obligation

The addiction pathway in the brain is a dopamine pathway. Activation of this pathway accounts for the "positive reinforcement" feeling and makes us want to repeat the action that triggered that feeling.

DSM-V CRITERIA FOR SUBSTANCE USE DISORDER

a maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by 2 or more of the following , occurring within a 12 month period:

1. recurrent substance use resulting in failure to fulfill role obligations or poor work performance. (suspensions , expulsion from school, neglect of children or household)

2. Use on hazardous situations. (driving or operating heavy machinery)

3. Continued use despite persistent or recurrent social or interpersonal problems

4. Tolerance
   -need for more to achieve the same effect
   -decreased effect with same amount

5. Withdrawal
   -Characteristic withdrawal syndrome
   -Using substance to avoid withdrawal Symptoms

DSM-V CRITERIA FOR SUBSTANCE ABUSE

6. Substance taken in larger amount or for longer time than intended

7. Persistent unsuccessful attempts to cut down or control use

8. Great deal of time spent obtaining, using, or recovering from use

9. Important social, occupational, recreational activities given up or reduced

10. Use is continued despite knowledge that it has persistent or recurrent physical or psychological problems that were caused or exacerbated by use

11. Craving or strong desire or urge to use a specific substance.

a. Withdrawal is the development of physical or psychological symptoms after the reduction or cessation of intake of a substance.

b. Tolerance is the need for increased amounts of the substance to achieve the same positive psychological effect.

c. Cross tolerance is the development of tolerance to one substance as the result of using another substance.

TREATMENT OF SUBSTANCE RELATED DISORDERS

1. Address the Behavior (motivational interviewing)

-Explore desire to stop drinking/using vs perceived benefits of ongoing use

-Gentle confrontation with education (risks to health) / therapeutic alliance

-Involve family and friends for support

-Educate patient regarding substance abuse & need for rehabilitation plan

TREATMENT OF SUBSTANCE RELATED DISORDERS

2. Treat the Medical Complications

-Detoxification- outpatient "social detoxification" program, inpatient with close medical care

-Address associated medical complications: dehydration, malnutrition, DT's, seizures, pneumonia, cardiomyopathy, etc

OPTIONS FOR WHERE TO TREAT

- Hospitalization-

  -Due to drug OD, risk of severe withdrawal, medical comorbidities, requires restricted access to drugs, psychiatric illness with suicidal ideation

- Residential treatment unit

  -Do not require intensive medical / psychiatric monitoring

  -Require a restricted environment

  -Partial hospitalization

- Outpatient Program -No risk of med/ psych morbidity/ highly motivated pt

TREATMENT OF SUBSTANCE RELATED DISORDERS

3. Address Comorbid Psychiatric Conditions

50% of people with SRD have another mental disorder

4. Address Internal & External Reinforcers Group, individual, family therapy/ educations counseling, AA

TREATMENT OF SUBSTANCE RELATED DISORDERS

- Group therapy

  Gain support from others with similar difficulties

  Improve communication skills

- Family therapy

  Family support/ address "enabling behaviors"

Alcohol

1. Alcohol is the most abused drug for all ages.

    a. Approximately 10% of all adults (12 million people) are problem drinkers.

    b. M > W

2. Alcohol use implicated in 50% of all

    a. Auto accidents not involving a pedestrian

    b. Auto accident deaths

    c. Homicides(killer or victim)

    d. Hospital admissions

Alcohol

1. Increasing evidence for genetic contribution

    a. Concordance rates:MZ>DZ (MZ=60%,DZ=30%)

    b. Marked ethnic-group differences: Asians, Jewish Americans, and Italian Americans much less likely to develop alcoholism than Americans with northern European roots

    c. Capacity to tolerate alcohol is the key (enzyme induction, lack of tyrosine kinase)

    d. If biologic father was an alcoholic, the incidence of alcoholism in males adopted into nonalcoholic families is equal to the incidence of alcoholism in sons raised by biologic alcoholic fathers.

Alcohol

1. Acute associated problems

a. Traffic accidents, homicide, suicide, and rape are correlated with the concurrent use of alcohol.

b. Child physical and sexual abuse, spouse abuse, and elder abuse a real also associated with alcohol use.

Alcohol

2. Chronic associated problems
   a. Thiamine deficiency resulting in Wernicke syndrome and ultimately in Korsakoff syndrome is associated with long-term use of alcohol.

   b. Liver dysfunction, gastrointestinal problems (e.g., ulcers), and reduced life expectancy also are seen in heavy users of alcohol.

   c. Fetal alcohol syndrome(including facial abnormalities, reduced height and weight, and mental retardation) is seen in the offspring of women who drink during pregnancy.

   d. A childhood history of problems such as ADHD and conduct disorder correlates with alcoholism in the adult.

Alcohol

3. Identification of alcoholism.

   Because alcohol abusers commonly use denial as a defense mechanism , positive responses to indirect queries such as those in the CAGE questions can help a physician identify a person who has a problem with alcohol. The CAGE questions are: “Do you ever

   a. try to Cut down on your drinking?”

   b. get Angry when someone comments on your drinking?”

   c. feel Guilty about your drinking?”

   d. take a drink as an Eye-opener in the morning?”

Alcohol

2. Intoxication

   a. Legal intoxication is defined as 0.08%–0.15% blood alcohol concentration, depending on individual state laws.

   b. Coma occurs at a blood alcohol concentration of 0.40%–0.50% in nonalcoholics.

   c. Psychotic symptoms (e.g., hallucinations) may be seen in alcohol intoxication as well as in withdrawal.

3. Delirium tremens (“the DTs”)
   a. Alcohol withdrawal delirium(also called delirium tremens or“the DTs”) may occur during the first week of withdrawal from alcohol (most commonly on the third day of hospitalization). It usually occurs in patients who have been drinking heavily for years.

b. Delirium tremens is life threatening; the mortality rate is about 20%.

SPECIFIC SYNDROMES: ALCOHOL- CNS DEPRESSANT

Intoxication- clinical s/s

- Mood lability, talkative and slurred, disinhibited ,impaired judgment, ataxia.

- At higher doses see nystagmus, decreased concentration, anterograde memory loss "blackouts".

ALCOHOL WITHDRAWAL

- Early on symptoms of anxiety, irritability, tremor, decreased concentration, insomnia, diaphoresis, N/V .

- As withdrawal continues, increased risk of delirium tremens (confusion, alternating level of consciousness, hallucinations, HTN, tachycardia, diaphoresis, vascular collapse) and seizures. DTs usually appear within 72 hours after stopping.

- Seizures within 48-72 hrs

ALCOHOL WITHDRAWAL TREATMENT

- Benzodiazepines agonist of GABA and cross tolerant with alcohol reduce risk of seizures and provide comfort/ sedation

ALCOHOL DEPENDENCE TREATMENT

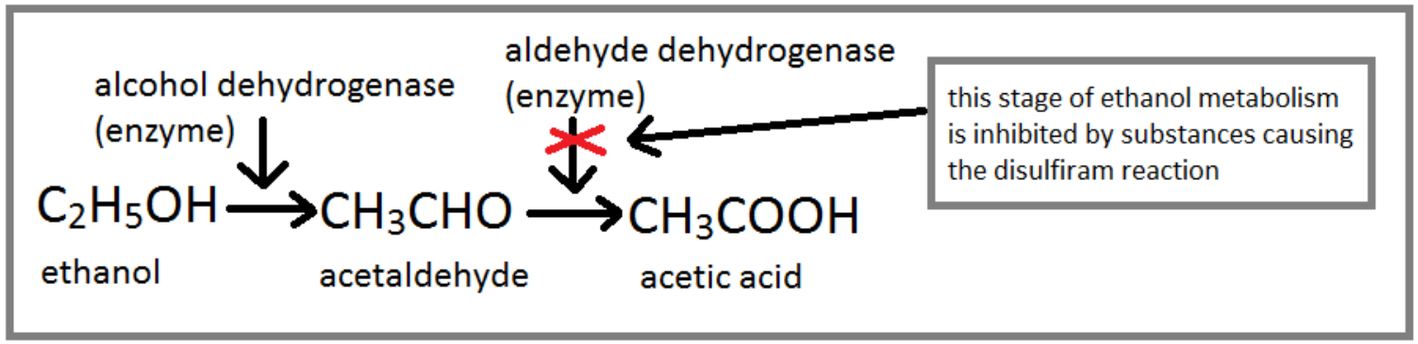
- Treat hypoglycemia (if present) with 50 ml of 50% dextrose solution and saline flush, as ethanol induced hypoglycemia is unresponsive to glucagon.

- Administer the vitamin thiamine to prevent Wernicke-Korsakoff syndrome(more usually a treatment for chronic alcoholism, but in the acute context usually co-administered to ensure maximal benefit).

ALCOHOL DEPENDENCE TREATMENT

- Rehydration with normal saline and antiemetics as needed for nausea and vomiting.

- Observe the patient for withdrawal symptoms and to be managed with benzodiazepines.


alcohol dehydrogenase
(enzyme)
aldehyde dehydrogenase
(enzyme)
this stage of ethanol metabolism is inhibited by substances causing the disulfiram reaction
C2H5OH
CH3CHO
CH3COOH
ethanol
acetaldehyde
acetic acid

MEDICATIONS TO TREAT ETOH DEPENDANCE

Disulfiram (antabuse)

- Inhibits aldehyde dehydrogenase
- Aversive reaction when alcohol ingested- vasodilatation, flushing, N/V, hypotension/ HTN, coma / death
- Hepatotoxicity, check LFT's and history of hepatitis C
- Psychiatric side effects : psychosis, depression, confusion, anxiety

MEDICATIONS TO TREAT ETOH DEPENDANCE

Naltrexone

- Opioid antagonist thought to block mu receptors reducing intoxication euphoria and cravings
- Hepatotoxicity at high doses so check LFT's

Acamprosate

Affects glutamate and GABA neurotransmitter systems, but its alcohol-related action is unclear.

BENZODIAZEPINES

1. Benzodiazepines are used medically as **tranquilizers**, sedatives, muscle relaxants, anticonvulsants, and anesthetics, and **to treat alcohol withdrawal** (particularly long-acting agents such as chlordiazepoxide and diazepam).

2. Benzodiazepines have a **high safety margin** unless taken with another sedative, such as alcohol.

3. Flumazenil, a benzodiazepine receptor antagonist, can reverse the effects of benzodiazepines in cases of overdose.

BENZODIAZEPINES

- Alprazolam (Xanax) t1/2 6-20 hrs
- *Oxazepam (Serax) t ½ 8-12 hrs
- *Temazepam(Restoril) t ½ 8-20 hrs
- Clonazepam (klonopin) t ½ 18-50 hrs
- *Lorazepam(Ativan) t ½ 10-20 hrs
- Chlordiazepoxide (Librium) t1/2 30-100 hrs (less lipophilic)
- Diazepam(Valium) t ½ 30-100 hrs (more lipophilic)

*Oxazepam, Temazepam & Lorazepam- metabolized through only glucuronidation in liver and not affected by age/ hepatic insufficiency.

BENZODIAZEPINE(BZD)/ BARBITURATES

Intoxication similar to alcohol but less cognitive / motor impairment

- variable rate of absorption into the CNS onset of action and duration
- the more lipophilic and shorter the duration of action , the more " addiction " they can be
- all can by addictive

BENZODIAZEPINE WITHDRAWAL

- Similar to alcohol with anxiety, irritability, insomnia, fatigue, tremor, sweating, poor concentration- time frame depends on half life
- Common detoxification mistake is tapering too fast; symptoms worse at end of taper
- Convert short elimination BZD to longer elimination half life drug and then slowly taper

OPIOIDS

OPIOIDS

OPIOIDS


Tramal®


Tramadol
100 mg Tabletas
Dimedics
10 x 10 Tabletas
100 mg

OPIOIDS
HEROIN

Opioids - Classification

1. Natural Opium Alkaloids: Morphine and Codeine
2. Semi-synthetic: Diacetylmorphine (Heroin) and Pholcodeine
3. Synthetic Opioids:
   - Phenylpiperidines:
     - Pethidine (Mepiridine) and its congeners - Diphenoxylate and Loperamide
     - Fentanyl and its congeners - sufentanil, remifentanil and alfentanil
   - Phenyl-heptylmines: Methadone and congeners like Propoxyphene and Dextropropoxyphene
   - Benzomorphans: Pentazocine
   - Morphinan compounds and congeners: Levorphanol and Butorphanol

OPIOIDS

Drugs that bind to the mu receptors in the CNS to modulate pain

Compared to medically used opioids such as morphine and methadone, abused opioids such as heroin are more potent, cross the blood–brain barrier more quickly, have a faster onset of action, and have more euphoric action.

- **Intoxication-** pinpoint pupils, sedation, constipation, bradycardia, hypotension and decreased respiratory rate
- **Withdrawal-** not life threatening unless severe medical illness, but extremely uncomfortable. s/s dilated pupils lacrimation, goosebumps, n/v, diarrhea, myalgias, arthralgias, dysphoria or agitation
- **Rx**- symptomatically with antiemetic, antacid, antidiarrheal, muscle relaxant .

TREATMENT FOR OPIATE DEPENDENCE

- Hospitalization and naloxone for overdose
- Clonidine to stabilize the autonomic nervous system during withdrawal
- Substitution of long-acting opioid (e.g., methadone) in decreasing doses to decrease withdrawal symptoms
- Methadone or buprenorphine (Both agents can be taken orally , cause less euphoria and drowsiness) maintenance program
- Narcotics Anonymous (NA) or other peer support program

AMPHETAMINES (STIMULANTS)


COCAINE

STIMULANTS

- **Intoxication(acute)-** psychological and physical signs-

  Euphoria, hyperactivity, restlessness, anxiety, tension, anger, impaired judgment, paranoia

  Tachycardia, pupillary dilation, HTN, diaphoresis, N/V, wt loss, chest pain, cardiac arrhythmias, confusion, seizures, coma

STIMULANTS

- **Chronic intoxication**- affective blunting, fatigue, sadness, social withdrawal, hypotension, bradycardia, muscle weakness

- **Withdrawal** is not severe but have exhaustion with sleep (crash). Treat with rest and support

COCAINE

- Route nasal, IV or smoked
- Has vasoconstrictive effects that may outlast use and increase risk for CVA and MI (obtain ECG)
- Can see psychosis associated with intoxication that resolves
- cocaine mainly prevents reuptake of DA

TREATMENT OF COCAINE DEPENDENCE

- treatment including support, education, skills

AMPHETAMINES (DEXADRINE, AMPHETAMINE, METHAMPHETAMINE, CRYSTAL, ICE)

- Similar intoxication syndrome to cocaine but usually longer
- Route- oral, IV, nasally, smoked
- No vasoconstrictive effect
- Can see permanent amphetamine psychosis with continued use
- Treatment similar as for cocaine but no known substances to reduce cravings

TREATMENT OF AMPHETAMINE DEPENDENCE

- treatment including support, education, skills

- No specific medications have been found helpful in treatment although some early promising research using atypical antipsychotics .

CANNABIS

WHAT IS MARIJUANA?

- Marijuana/ Cannabis is dried leaves, flowers, stems, and seeds from the plant *Cannabis sativa*

- *Delta-9-tetrahydrocannabinol (THC) is the component that is illegal.*

- *Although it is considered an illegal substance by the federal government, some states have recently legalized it for medical treatment.*

HOW IS IT USED?

- Smoked (cigarettes, joints, pipes, bongs)
- Eaten (mixed in foods)
- Drank (brewed as tea)

COMMON MYTHS... NOT FACTS

- Marijuana is harmless
- Marijuana is not addictive
- Marijuana is not as harmful to your health as tobacco
- Marijuana makes you mellow
- Marijuana is used to treat cancer and other disease
- Marijuana is not as popular as ecstasy and other drugs among teens today

MEDICINAL MARIJUANA

- Used in treating pain, nausea, cancers, epilepsy, and in other medical conditions

- While its therapeutic effects are not known to out weigh the risks, marijuana is FDA approved for treating conditions

CANNABIS

- Most commonly used illicit substance in the world.
- Cannabis is the fourth most commonly used active substance among adults in the U.S.
- *The Monitoring the Future Survey* of adolescents in school indicates that 1% of 8th graders, 4% of tenth graders, and 7% of 12th graders reported using daily marijuana.
- THC levels reach peak 10-30 min, lipid soluble; long half life of 50 hours.
- Detectable in urine drug screen for up to 2-5 days in infrequent users, and up to 30 days for chronic users

EFFECTS OF CANNABIS

- **Intoxication**- subtle/ appetite and thirst increase

  Colors/ sounds/ tastes are clearer

  Increased confidence and euphoria

  Relaxation

  Increased libido

  Transient depression, anxiety, paranoia

  Tachycardia, dry mouth, conjunctival injection

  Slowed reaction time/ motor speed

  Impaired cognition

  Psychosis

EFFECTS OF CANNABIS

- Impairs coordination and judgment. More than double's a driver's risk of being in an accident

- Decreases a teens cognitive abilities for as long as several weeks after usage

- If used during youth, it often results in chronic weakened verbal communication and learning difficulties with shortened attention span

- Respiratory problems Ex: daily cough, phlegm production, acute chest illness, increased lung infections

- Possibly increases risk for lung cancer

CANNABIS

- **Cannabis withdrawa**l can occur with insomnia, irritability, anxiety, poor appetite, etc

Chronic users experience lung problems associated with smoking and a decrease in motivation (“the amotivational syndrome”) characterized by lack of desire to work, unwillingness to persist in a task and increased apathy.

CANNABIS

- **Treatment**

-Detoxification and rehabilitation

-Behavioral model

-No pharmacological treatment but may treat other psychiatric symptoms

Good luck