



Medical Complications of Substance Use Disorders Part 3





DISCLOSURE STATEMENT

- I have no conflicts of interest to report and attest I have no financial relationship with any commercial interests relevant to this presentation and received no monetary support for providing this continuing education opportunity.



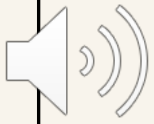
OBJECTIVES

- Discuss the endocrine and reproductive impact of substances of abuse.
- Discuss how substances of abuse can impact sleep.
- Discuss the relationship between substances of abuse and traumatic injuries.
- Discuss how substances of abuse can impact perioperative care.



ENDOCRINE—ALCOHOL

- Hypoglycemia
 - Malnutrition
 - Ketoacidosis
- Hyperglycemia
 - Pancreatitis
 - Pancreatic exocrine and endocrine insufficiency
 - Insulin resistance
- Diabetes insipidus
- Hyperadrenalism
 - Elevated adrenocorticotrophic hormone production
- Hyperlipidemia
 - Hypertriglyceridemia
 - Hepatic steatosis
- Hypertension
 - Increased renin
- Osteoporosis
 - Increased risk of fractures
 - Impaired bone formation
 - Osteonecrosis



REPRODUCTIVE—ALCOHOL

- Hypogonadism/infertility
 - Alcoholic cirrhosis
 - Decrease testosterone
- Gynecomastia
 - Increased prolactin
- Increased risk of breast cancer
- Alterations in menses
 - Delay in menopause
- Amenorrhea
- Dysmenorrhea
- Irregular menses
- Pregnancy complications
 - Miscarriages
 - Placental abruption
 - Preterm delivery
 - Stillbirth



ENDOCRINE—TOBACCO/CIGARETTE SMOKING

Hyperthyroidism

- Graves Disease
- Graves ophthalmopathy

Insulin resistance

Hyperlipidemia

- Decreases HDL cholesterol
- Increases Triglycerides

Hypogonadism/infertility

- Decreased estrogen (women)
- Early menopause
- Decreased sperm count

Osteoporosis

- Decreased bone mineral density
- Increased bone loss

Stimulates ADH release

- Hyponatremia
- Hypertensive crisis in pheochromocytoma
- Hypertension

Increases ACTH and cortisol release

ENDOCRINE AND REPRODUCTIVE



Opioids

- Hyperprolactinemia
- Hypogonadism/infertility
- Osteoporosis
- Adrenal insufficiency

Cocaine

- Hyperglycemia
- Hyperprolactinemia
- Hypertension
- Weight loss



ENDOCRINE AND REPRODUCTIVE

Amphetamines

- Hyperadrenalism
- Hypertension
- Weight loss
- SIADH

Anabolic steroids

- Gynecomastia
- Hyperlipidemia
- Hypogonadism/infertility
- Hypertension
- Virilization

Barbiturates

- Osteoporosis

Inhalants

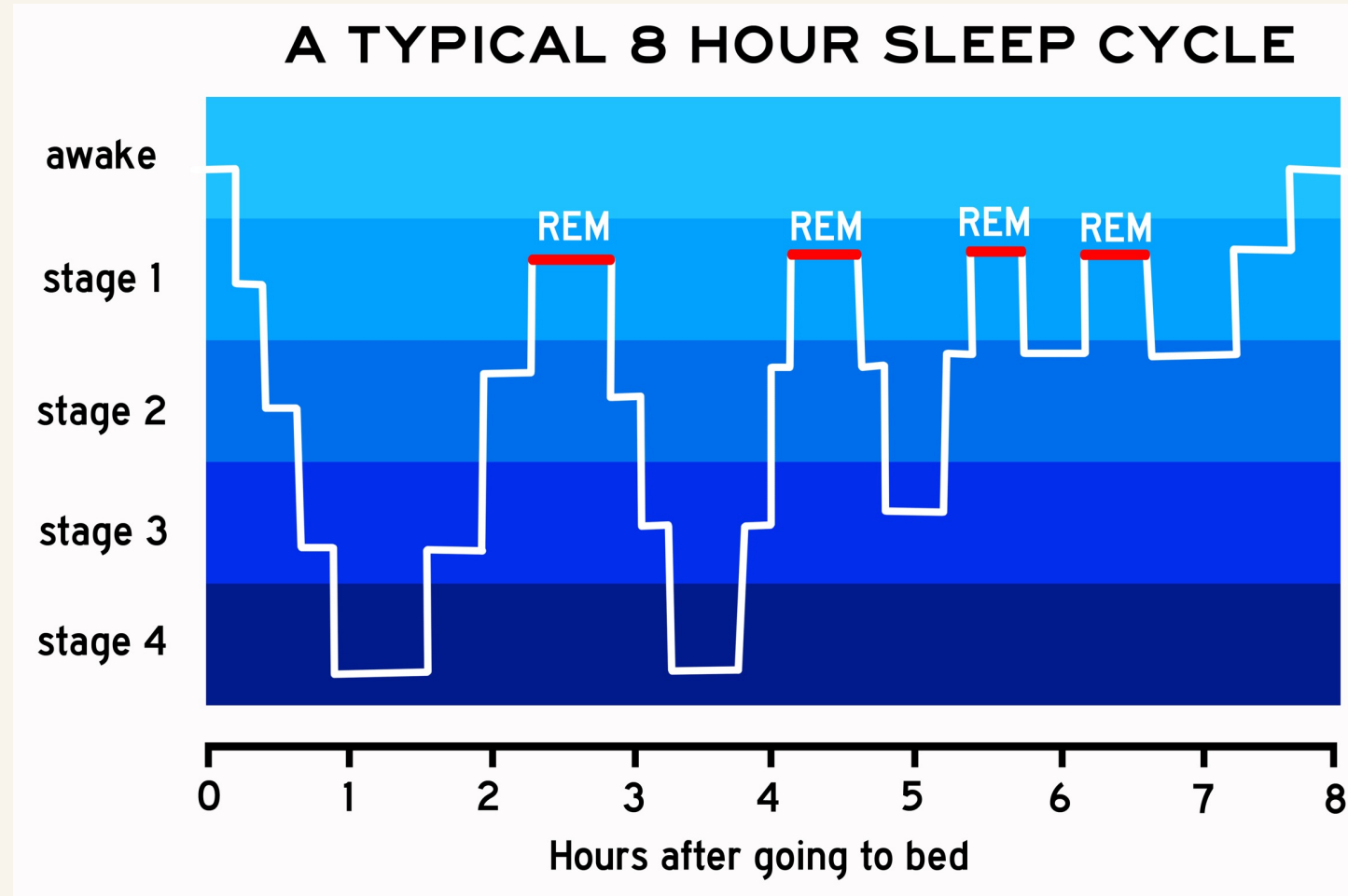
- Hypogonadism/
infertility

Lysergic acid

- Hypertension



SLEEP ARCHITECTURE





SLEEP ARCHITECTURE AND ALCOHOL

Without AUD

- Initial half of sleep period
 - Shortened sleep latency
 - ↓REM sleep
 - ↓SWS
- Second half of sleep period
 - Shallow disrupted sleep
 - ↑REM with increased dream (nightmare recall)
 - Sympathetic arousal

With AUD

- ↑ sleep latency
- ↓sleep efficiency
- ↓total sleep time
- ↓REM sleep
- ↓SWS

Alcohol withdrawal

- Severe insomnia
- Severe sleep fragmentation
- Rebound of REM sleep
- Persistent ↓SWS



SLEEP ARCHITECTURE AND ALCOHOL RECOVERY

- Early (initial weeks)
 - ↑ sleep latency
 - ↑ fragmentation
 - ↓ total sleep time
 - ↑REM density (exaggerated in depression)
 - Persistence of SWS
- Chronic
 - Persistence of sleep fragmentation
 - Persistence of ↓SWS

- Recovery relapse
 - ↑total sleep time
 - ↓sleep fragmentation
 - ↑ SWS





OTHER DRUGS AND SLEEP

- Stimulants
- Cocaine
- MDMA (Ecstasy)
- Opioids
- Nicotine
- Marijuana
- Benzodiazepines
- Gabapentin
- Clonidine

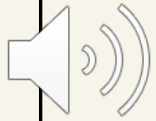




SLEEP PHARMACOTHERAPY AND SUD

- Insomnia
- Restless Leg Syndrome





ALCOHOL AND TRAUMATIC INJURY

- 50% of major trauma and 22% of minor trauma alcohol related
- Motor vehicle
 - 30% of all traffic fatalities involve drunk drivers
 - 33% adolescents injured in MVCs (including 38% of drivers)
- Nonmotor vehicle
 - 48% of pedestrian fatalities
 - 37% fatal pedal-cyclist crashes
 - 60% of fatal burns
 - 30-70% of drownings
 - 37% of attempted suicide
 - 44% assault victims



OTHER DRUGS AND TRAUMATIC INJURY

- Marijuana
 - 12.6% weekend drivers tested positive for marijuana
- Cocaine
 - 27% of fatal injuries
- Motor vehicle crashes
 - Benzodiazepines
 - Cocaine
 - Opiates
 - Amphetamines





ALCOHOL USE DISORDER AND SURGERY

- Alcohol in Perioperative Setting
 - One in 5 patients with alcohol use disorder
 - 8% of hospitalized patients alcohol withdrawal
 - 2-5 times higher in hospitalized trauma and surgical patients
- Increased risk of postoperative mortality and morbidity
 - Infection and delayed wound healing
 - Reduced cardiac function
 - Anemia and bleeding
 - Delirium
 - Hepatorenal syndrome
- Longer hospital stays



OPIOID USE DISORDER AND SURGERY

- Surgical interventions for:
 - Infections of the skin, soft tissue, bones, and joints (I&D)
 - Infectious endocarditis
 - Functional bowel obstruction
 - Liver transplant
- Chronic diseases that increase surgical risk
 - Pulmonary hypertension
 - Renal insufficiency
 - Congestive heart failure
 - HIV syndrome
 - Chronic hepatitis B and C
- Often require higher and more frequent doses of opioid analgesics to control pain





BENZODIAZEPINES AND SURGERY

- Usually addicted to multiple drugs
- Higher rates of postoperative mechanical ventilation
- Increased length of stay
- Acute withdrawal syndrome
 - Severe anxiety
 - Insomnia
 - Autonomic hyperactivity (including tachycardia and hypertension)
 - Seizures
 - Delirium





NICOTINE OR CANNABIS AND SURGERY

- One in 3 patients with nicotine use disorder
- Higher postoperative mortality
 - Cardiovascular events (cardiac arrest, MI, stroke)
 - Infections (pneumonia, incision infections, sepsis, septic shock)
 - Unplanned intubation
- Impaired healing
- Patients with COPD
 - Pneumonia
 - Bronchospasm
 - Respiratory failure with prolonged mechanical ventilation
 - COPD exacerbations





STIMULANT USE AND SURGERY

Complications requiring surgical intervention

- Bowel ischemia and gangrene
- Traumatic injuries
- Chemical burns
- Skin abscesses
- Periodontal disease

Increased surgical risk

- Cardiac dysfunction
- Concurrent alcohol use
- Withdrawal



THANK YOU
FOR LISTENING!

Feel free to contact me at
karenzak@flanp.org

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