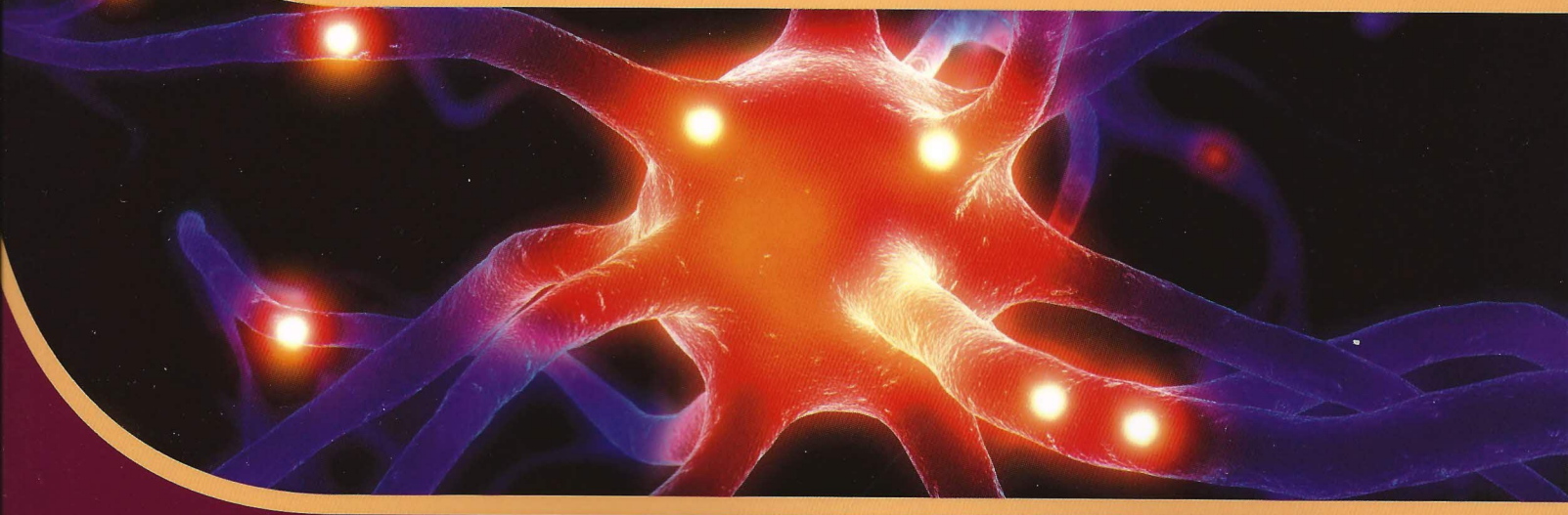
KAPLAN MEDICAL

USMLE™* Step 1

Behavioral Science

Lecture Notes



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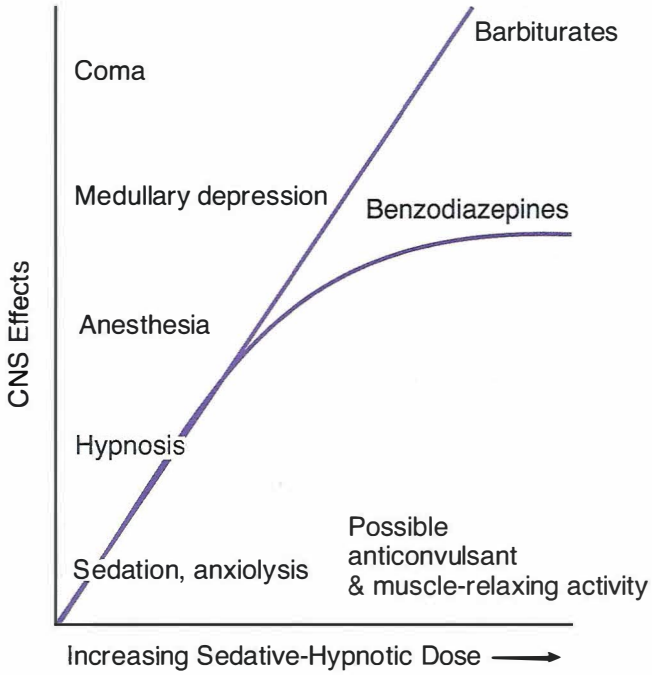
COMMON ABUSED SUBSTANCES

Table 4-2. Summary of Substance Abuse

Substance	Intoxication	Withdrawal	Treatment	Psychopharmacology
Amphetamines (release DA) Cocaine (prevent re-uptake of DA)	Euphoria, hypervigilance, anxiety, stereotyped behavior, grandiosity, paranoia, tachycardia, pupillary dilation	Depression, fatigue, increased appetite unpleasant dreams, suicide	Antipsychotics or benzodiazepines for intoxication; bromocriptine, amantadine, bupropion for withdrawal	Noradrenaline system, NAC pathway (dopaminergic)
Caffeine	Restlessness, agitation, insomnia, diuresis, GI disturbances, excitement	Headache, fatigue, drowsiness, nausea or vomiting (1–4 days)	Analgesics for withdrawal	Antagonist of adenosine receptors, increased cAMP in neurons that have adenosine receptors
Cannabis (e.g., marijuana, hashish)	Impaired motor coordination, anxiety, slowed reaction time, impaired judgment, conjunctival injection, dry mouth, increased appetite, psychosis	None	Abstinence and support	Inhibitory G protein, GABA, increased serotonin, lower level of NAC activation
Hallucinogens (e.g., LSD, mescaline, ketamine)	Hallucinations, illusions, anxiety, ideas of reference, depersonalization, pupillary dilation, tremors, uncoordination	None	Supportive counseling, talking down, antipsychotics or benzodiazepines for intoxication	Partial agonist at postsynaptic 5-HT receptors
Inhalants (glue, paint thinner)	Belligerence, impaired judgment, nystagmus, uncoordination, lethargy, unsteady gait, crusting around nose/mouth	None	Education and counseling	GABA, cross tolerance, cerebellum (versus basal ganglia for Parkinson's)
Nicotine	None in usual doses but more depression (2×), impotency, traffic accidents, and more days lost from work	Irritability, depressed mood and heart rate, increased appetite, insomnia, anxiety	Nicotine patch, education, bupropion, varenicline, bromocriptine	Agonist at Ach receptors, activates dopaminergic pathway (positive reinforcer), speeds and intensifies flow of glutamate
Opiates (heroin, codeine, oxycodone)	Pupillary constriction, constipation, drowsiness, slurred speech, respiratory depression, bradycardia, coma, death	"Flu-like" muscle aches, nausea or vomiting, yawning, piloerection, lacrimation, rhinorrhea, fever, insomnia, pupillary dilation (7–10 days)	For intoxication naloxone (short half-life); clonidine, methadone, buprenorphine for withdrawal	Opiate receptors, locus cereleus pathway (noradrenergic), NAC pathway
Phencyclidine (PCP, angel dust)	Assaultive, combative, impulsive, agitated, nystagmus, ataxia, hypersalivation, muscle rigidity, decreased response to pain, hyperacusis, paranoia, unpredictible violence, psychosis	None	Nonstimulating environment, restraints, vitamin C, benzodiazepines, or antipsychotics for intoxication	Antagonist of *N*-methyl D-aspartate glutamate receptors, prevents influx of calcium ions, activates dopaminergic neurons
Sedative hypnotics (barbituates, benzodiazepines)	Impaired judgment, slurred speech, uncoordination, unsteady gait, stupor, coma, death–barb confusion, falls, memory problems for benzos	Autonomic hyperactivity tremors, hyperactivity; hallucinations, anxiety, grand mal seizures, death	Mechanical ventilation in overdose; sodium bicarbonate to alkanize urine in barbituate overdose	GABA, cross-tolerance, delirium



OTHER ABUSED SUBSTANCES

Ecstasy (MDMA)

a. Also called "E", X or XTC
b. Acts as a hallucinogen combined with an amphetamine
c. Effects begin in 45 minutes and last 2 to 4 hours.
d. Symptoms include derealization, hallucinations, mania-like mood, hyperthermia, hypertension, convulsions, and death.
e. Fatigue the day after use

Anabolic Steroids

a. Taken by male and female athletes to increase performance and physique
b. With chronic use, can cause cardiomyopathy, bone mineral loss with later osteoporosis, hypertension, diabetes, atrophy of testes, mood lability, depression, atypical psychosis
c. Presenting signs include skin atrophy, spontaneous bruising, acne, low serum potassium levels
    i. Men: breast development, scrotal pain, premature baldness
    ii. Women: disrupted menstrual cycle, deepening of voice, excessive body hair

Table 4-3. Helpful Hints of Substance Abuse

Paranoia	Cocaine/amphetamine intoxication
Depression	Cocaine/amphetamine withdrawal
Arrhythmias	Cocaine intoxication
Violence	PCP
Vertical nystagmus	PCP
Pinpoint pupils	Opiate overdose (treatment = naloxone)
Flu-like	Opiate withdrawal (treatment = clonidine)
Flashbacks	LSD
Seizures	Benzodiazepine/alcohol withdrawal
Death	Barbiturate withdrawal

Epidemiology

a. Most illicit drug users are employed full-time.

b. About 33% of psychiatric disorders are substance abuse disorders.

   i. Men outnumber women roughly 2.5 times.

   ii. Prevalence of substance abuse in newly admitted psychiatric inpatients or outpatients is roughly 50%.

   iii. These "dual diagnosis" patients are very difficult to treat and tend to continue use when on inpatient wards.

c. Substance abuse adds to the suicide risk of any underlying psychiatric diagnosis.

d. 50% of emergency department visits are substance related.

e. Physicians tend to underdiagnose substance abuse problems of all types, especially those in women, high-SES patients (and other physicians).

SUBSTANCE-ABUSING PHYSICIANS

1. Psychiatrists and anesthesiologists have highest rates.
2. Physician impairment issues are dealt with by the State Licensing Boards.
3. If you suspect that a colleague has a substance abuse problem do the following and in this order:

   a. Get the colleague to suspend patient contact.

   b. You must report it to hospital administration and the State Board.

   c. Ideally, get the colleague into treatment.