Substance Abuse

Herbert Kleber, M.D.

Key Points

- Addiction is both a chronic relapsing disorder & a treatable condition, comparable to adult onset diabetes & hypertension
- There is no one treatment for addiction – some individuals recover with behavioral interventions & 12-step programs, while others require medications on an acute or chronic basis
- The most effective medications currently are for treatment of alcohol or opioid dependence. There are no approved medications for stimulant or marijuana dependence

Outline
Substance Abuse
Herbert D. Kleber, M.D.

I. Epidemiology
a. Social problems and their cost
b. Magnitude of problem
c. Substance related health effects

II. Substance Related Drug Problems
a. Problems by drug category
b. Diagnosis of substance abuse/dependence
c. Definitions of tolerance and withdrawal

III. Comorbidity - Extent and by Substance

IV. Drugs & Adolescence
V. Making an Addict
a. Addicting drug
b. Susceptible person
c. Mechanism to bring them together

VI. Diagnostic Issues
VII. Pharmacological Treatment – Acute & Chronic
a. Alcohol
b. Opioids
c. Stimulants
d. Nicotine

VIII. Ethical Issues

Pre-Lecture Exam
Question 1

1. **Which of the following statements is false:**

A. Physical dependence is synonymous with addiction.

B. One can be addicted without being physically dependent.

C. Once a patient has met criteria for Substance Dependence, they should not be diagnosed in the future with Substance Abuse.

D. A critical feature of addiction is compulsive use in spite of harm.

Question 2

2. Which of the following statements is false:

A. Psychiatric disorders can cause substance abuse.

B. Substance abuse can cause psychiatric disorders.

C. If both substance abuse and a psychiatric disorder are present, treating the psychiatric disorder is usually not necessary.

D. Treating an underlying psychiatric disorder usually does not adequately treat the substance abuse.

Question 3

3. The most common comorbid psychiatric diagnosis in patients with substance abuse is:

A. Schizophrenia
B. Antisocial Personality Disorder
C. Anxiety Disorder
D. Major Depression

Question 4

4. **Which one of the following is false:**

A. Cocaine decreases negative symptoms in schizophrenics.

B. When cocaine free, schizophrenics have more negative symptoms.

C. Chronic cocaine use increases depression in schizophrenics.

D. Chronic cocaine decreases positive symptoms of schizophrenia.

Question 5

5. Which of the following are considered "Gateway Drugs"?

A. Alcohol

B. Marijuana

C. Nicotine

D. A & C only

E. A, B, & C

Question 6

6. Adolescent substance abuse is associated with:

A. Increased school dropout

B. Increased depression and suicidality

C. Premature involvement in sexuality

D. All of the above

Question 7

7. The proportion of users who ever became dependent is as follows (from high to low):

A. Nicotine, alcohol, heroin, cocaine, marijuana.

B. Alcohol, nicotine, cocaine, heroin, marijuana.

C. Nicotine, heroin, cocaine, alcohol, marijuana.

D. Nicotine, alcohol, marijuana, cocaine, heroin.

Question 8

8. Which of the following is not used as a maintenance agent in heroin addiction:

A. Methadone

B. Clonidine

C. Naltrexone

D. Buprenorphine

Question 9

9. Which category of medications is <u>not</u> yet available for treatment of heroin addiction:

A. Agonists

B. Antagonists

C. Partial agonists

D. Anti-craving agents

E. Anti-withdrawal agents

Question 10

10. Which of the following statements are true:

A. Naltrexone blocks the effects of alcohol.

B. Drinking while on naltrexone can make one very ill.

C. Benzodiazepines are the usual agents used for alcohol withdrawal.

D. All of the above

The Leading Causes of Disability in the World, 1990

		Total (Millions)	Percent of Total (%)
	All Causes	473	100
1	Unipolar Major Depression	51	11
2	Iron-Deficiency Anemia	22	5
3	Falls	22	4
4	Alcohol Use (+ other drugs)	16	3
5	Chr. Obstructive Pulmonary Dis.	15	3

Total Dollars (Billions) Spent or Lost Due to Alcohol and Drug Disorders, 1990

	Total AD	% of Total	Mental Health	Alcohol	Drug
AIDS/Fetal Alcohol	$ 8.4	2.7	$ 0.0	$ 2.1	$ 6.3
Crime	67.8	21.6	6.0	15.8	46.0
Loss of Productivity	157	50	75	370	12
Health Care Costs	80.8	25.8	67.0	10.6	3.2
Dollars Lost	313.6	100.0	147.9	98.7	66.9

Categories of Drugs

- Depressants
- Stimulants
- Opiates
- Cannabinoids
- Hallucinogens
- Phencyclidine (PCP)
- Inhalants/solvents
- Others

*Magnitude of Problem (USA)

- Nicotine - over 50 million dependent
- Alcohol - 12 - 18 million alcoholics and problem drinkers
- M.J. - over 3 million dependent
- Cocaine - 2-3.5 million dependent
- Heroin - 800,000 - 1 million dependent
- Prescription opioids – 2-4x heroin number

Health Effects of Drugs

(1) Infections
  - Hepatitis (heroin, cocaine, alcohol)
  - AIDS (heroin, cocaine, inhalants)

(2) Gastrointestinal Pain and Bleeding
  - Ulcers (alcohol)

(3) Brain and Peripheral Neuron Damage
  - Dementia (alcohol, stimulants, inhalants)

(4) Cardiovascular
  - Stroke and heart attack (stimulants)

*Continuum of Drug Use

- Initiation/intoxication
- Harmful use/abuse
- Dependence/withdrawal
- Relapse and craving
- Recovery and persisting deficits

Definitions

- Psychological dependence/addiction
- Physical dependence/addiction
- Tolerance
- Dependence syndrome

*Clinically Significant Drug Problems by Category

	Panic	Flashbacks	Overdose	Psychosis	OBS	Withdrawal
Depressants	-	-	++	++	++	++
Stimulants	+	-	+	++	+	++
Opiates	-	-	++	-	+	++
Cannabinoids	+	+		+	+	+
Hallucinogens	++	++	+	-	+	-
Solvents	+	-	+	-	++	-
PCP	+	?	++	++	a	?
OTC	-	-	+	-	++	-

+ = the syndrome (e.g.., panic) is likely to be seen with the drug
++ = the syndrome can be very intense
a = absence of syndrome

MAJOR SUBSTANCE DIAGNOSES (I)

Substance	Intoxication	Withdrawal	Persisting	Abuse	Depend
Alcohol	x	x	x	x	x
Amphetamine	x	x		x	x
Caffeine	x	x			
Cannabis	x	x		x	x
Cocaine	x	x		x	x
Hallucinogen	x		x	x	x

Substance Intoxication

- Reversible syndrome
- Maladaptive behavior (anger, depression, cognitive impairment)
- Not due to medical condition

Substance Abuse (DSM-IV)

....made only in the absence of dependence or history of dependence

One or more of the below:

- Failure to fulfill major role obligations
- Use in hazardous situations
- Legal problems
- Use despite problems

*Substance Dependence

- Maladaptive pattern of use including 3 or more of the below in the same 12 month period:
  - With tolerance or withdrawal
  - More use than intended
  - Unsuccessful attempts to cut down
  - Reduce other activities
  - Great deal of time spent on drug use
  - Continued use despite adverse consequences

Tolerance

- Occurs after prolonged (usually weeks), regular (daily), heavy use
- Increased amounts for desired effect
- Diminished effects

Withdrawal

- Requires regular (at least daily) use for prolonged period
- Specific physiological syndromes by drug
- Substance taken to avoid syndrome
- Not due to general medical condition

*Possible Relation Between Substance Use and Psychiatric Disorder

- Psychiatric disorder causes substance abuse
- Substance abuse causes psychiatric disorder
- Both caused by common underlying disorder
- Both occur independent of the other

Lifetime Comorbid Substance Use Disorder Prevalence - ECA (I)

	Any Substance		Alcohol Diagnosis		Other Drug Diagnosis	
Schizophrenia	47.0%	4.6	33.7%	3.3	27.5%	6.2
Antisocial PD	83.6%	29.6	73.6%	21.0	42.0%	13.4
Anxiety Disorder	23.7%	17.9	17.9%	1.5	11.9%	2.5
Phobia	22.9%	1.6	17.3%	1.4	11.2%	2.2

Lifetime Comorbid Substance Use Disorder Prevalence - ECA (II)

	Any Substance		Alcohol Diagnosis		Other Drug Diagnosis	
Panic Disorder	35.8%	2.9	28.7%	2.6	16.7%	3.2
OCD	32.8%	2.5	24.0%	2.1	18.4%	3.7
Bipolar I	60.7%	7.9	46.2%	5.6	40.7%	11.1
Maj Dep	27.2%	1.9	16.5%	1.3	18.0%	3.8

Categories of Drugs Most Likely to Produce Psychopathology

- Stimulants
  - all forms of amphetamines and all forms of cocaine
- Depressants
  - alcohol
  - benzodiazepines
  - barbiturates
  - carbonates
    - (i.e. meprobamate)

*Substance-Induced Disorders

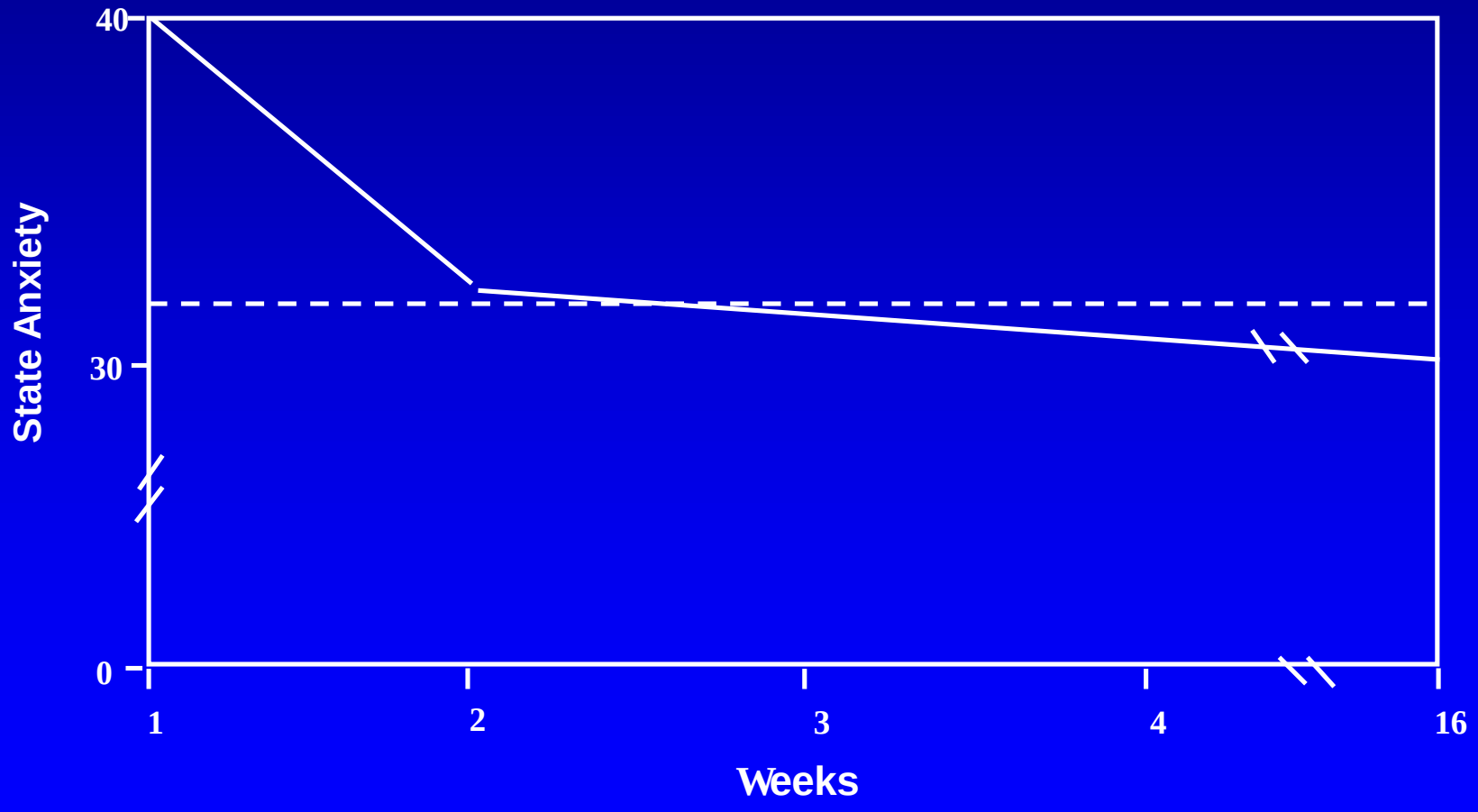
- Development of a substance-specific syndrome which is usually reversible.
- Symptoms are:
  - not due to general medical condition
  - not better accounted for by another mental disorder
- There is evidence obtained from:
  - history
  - physical exam
  - toxicologic analysis of body fluids

*Drugs of Abuse are Known to Exacerbate Prior Psychiatric Disorders

by increasing:

- Mood swings
- Anxiety
- Paranoia
- Hallucinations
- Confusion

X Spielburger State Anxiety During Alcohol Withdrawal



*Psychostimulants and Negative Symptoms of Schizophrenia

- Negative symptoms reduced in laboratory studies using amphetamines (0.25mg/Kg/day)
- Fewer negative symptoms in ER presentations of cocaine abusing schizophrenics
- At four-week cocaine free follow-up, more negative symptoms in cocaine abusing schizophrenics
- Chronic cocaine increases anxious, agitated depression in schizophrenics

*Psychostimulants and Positive Symptoms of Schizophrenia (I)

- More paranoia (Brady, Satel)
- Hallucinations specifically intensified (Serper)
- Global psychotic symptoms may be lower in stimulant abusing schizophrenics, when abstinent

*Psychostimulants and Positive Symptoms of Schizophrenia (II)

- Stimulant abusing schizophrenics hyposensitive to amphetamine effects (Kornetsky 1976)
- Psychotomimetic cocaine effects last hours to days; may relate to sleep deprivation
- Regular stimulant use for over 6 years associated with psychosis induction (McLellan 1979)

*SUBSTANCE-INDUCED DISORDERS (I)

	Delirium	Dementia	Amnestic	Psychotic
Alcohol	I/W	P	P	I/W
Amphetamine	I			I
Caffeine				
Cannabis	I			I
Cocaine	I			I
Hallucinogens	I			I

I= intoxication, W= withdrawal

*SUBSTANCE-INDUCED DISORDERS (II)

	Mood	Anxiety	Sex	Sleep
Alcohol	I/W	I/W	I	I/W
Amphetamine	I/W	I	I	IW
Caffeine		I		I
Cannabis	I	I		
Cocaine	I/W	I	I	I/W
Hallucinogen	I	I		

*SUBSTANCE-INDUCED DISORDERS (III)

	Delirium	Dementia	Amnestic	Psychotic
Inhalant	I	P		I
Nicotine				
Opioid	I			I
PCP	I			I
Sedative	I/W	P	P	I/W
Other	I/W	P	P	I/W

*SUBSTANCE-INDUCED DISORDERS (IV)

	Mood	Anxiety	Sex	Sleep
Inhalant	I	I		
Nicotine				
Opioid	I		I	I/W
PCP	I	I		
Sedative	I/W	W	I	I/W
Other	I/W	I/W	I	IW

*Gateway Drugs and Later Dependence

- Alcohol, nicotine, marijuana
- Use before age 15
- Earlier use more likely to result in dependent young adults
- Risk of dependence varies by drug used

*Normal Growth and Development and Substance Abuse

- Hormonal control: growth hormone, testosterone
- Drugs disrupt hormone release/effects
- Adolescent struggle for independence
- Pseudoindividuation of drug abuse
- Experimentation vs. dependence on drugs

*Drug Abuse and Adolescent Development

- Drug use as integral to growing up
- Premature involvement in work and sexuality
- Deviant behavior and crime
- Poor social integration and education
- Cognitive processes disrupted

*Adolescent Social Disruption With Drug Abuse

- Early family formation and divorce
- Increased stealing
- Reduced job stability
- Increased high school dropout
- Increased depression and suicidality

Adolescent Social Forces in Hard Drug Use

- Not peer pressure
- Distress and alienation
- Vary by type of drug (alcohol vs. cocaine)

*It takes 3 things to make an addict

- Addicting drug
- Susceptible person
- Mechanism to bring them together

*Addicting drugs

Drug	Proportion of users that ever became dependent
Nicotine	32%
Heroin	23%
Cocaine	17% - 22%
Alcohol	15%
Marijuana	9%
Anxiolytics	9%

*Susceptible Person

- Genetic issues
- Psychological issues
- Psychosocial issues

*Mechanism to Bring Drug/person Together

- Availability - physical, economic, psychological, legal status
- Role of poverty

Effective Identification of Substance Use Disorders

- Recognize prevalence problem
- Drop stereotypes
- Always screen for disorders
- Corroborate results

M.A.S.T.
Michigan Alcoholism Screening Test

- 25 item self-administered questionnaire
- Self-report of alcohol (and perhaps drug) problems
- Paper and pencil test
- Helpful, but not diagnostic

*CAGE - AID

- Have you felt you ought to Cut down on your drinking or drug use?
- Have people Annoyed you by criticizing your drinking or drug use?
- Have you ever felt bad or Guilty about your drinking or drug use?
- Have you ever had a drink or used drugs first thing in the morning to steady your nerves or to get rid of a hangover (Eye-opener)?

(Brown, R.L., & Rounds, L.A. (1995). Conjoint screening questionnaires for alcohol and other drug abuse: Criterion validity in a primary care practice. Wisconsin Medical Journal, 94, 135-140)

*Sharing the Diagnosis (Confrontation or Intervention)

- Give specific findings
- Remember patient is responsible
- Watch for signs of denial
- Repeat as needed

*Stimulant Intoxication (I)

- Euphoria
- Agitation/retardation
- Weakness, respiratory depression
- Chest pain, cardiac arrhythmia
- Confusion, seizures, coma
- Dystonias, dyskinesia

*Stimulant Intoxication (II)

- Tachycardia
- Pupillary dilation
- Elevated blood pressure
- Perspiration/chills
- Nausea/vomiting
- Weight loss

*Opioid Intoxication

- Pupillary constriction
- Drowsiness
- Slurred speech
- Impaired attention

*Sedative and Alcohol Intoxication

- Maladaptive behavior (aggression/depression)
- Slurred speech/incoordination
- Nystagmus/unsteady gait
- Impaired attention (stupor)

*Hallucinogen Intoxication

- Perceptual changes (intensified, depersonalization)
- Maladaptive behavior (paranoia, anxiety, ideas of reference)
- Pupillary dilation, blurred vision
- Tachycardia, sweating, tremors
- Incoordination

Optimize Levels of Physical Functioning

- Careful physical examination
- Appropriate detoxification procedures when needed
- Efforts to reverse physical pathology

Detoxification
for Depressants, Stimulants, and Opiates

- Physical exam
- Educate, reassure
- Vitamins, etc.
- Meds?

Medications for Detoxification

- Alcohol Withdrawal
  - Benzodiazepines, e.g., chlordiazepoxide or oxazepam
- Cocaine Withdrawal
  - Medications generally not needed
- Opioid Withdrawal
  - Methadone
  - Buprenorphine
  - Clonidine and sleep meds as adjuncts
- Cannabis Withdrawal
  - Experimental use of dronabinol (Marinol^{R}), a Schedule III THC

Rehabilitation
for Substance-Use Disorders

- Use best data
- Establish realistic goals
- Change is the patient's responsibility
- Use all resources
- Agree on goals
- Addiction erodes but does not erase addict's ability to control behavior

Maximize Motivation for Abstinence

- Lectures
- Discussion groups with patients
- Discussion groups with family members
- Using counselors in recovery
- Self-help groups
- Motivational Enhancement Therapy (MET)

Rebuild a Life Without Substances

Substances have been a very important part of life and are very difficult to give up.
Lectures and discussion groups to talk about issues.

- Appropriate use of free time
- Interaction with relatives and friends now that you are sober
- Appropriate interaction with or avoidance of substance-using friends
- Saying no to substances when offered (refusal skills)

*Relapse Prevention

- Avoid high risk situations
- Anticipate minor relapses
- Recovering from relapses
- Identify triggers

Aftercare

- Lessons learned can be reinforced
- Provides opportunity to apply knowledge to everyday situations

*Recovery from Dependence

- Early remission - no symptoms for one to 12 months
- Full remission - no symptoms for one year
- On agonist therapy (e.g., methadone)
- In controlled environment (e.g., T.C.)
- Relapse vs. slip
- Protracted withdrawal symptoms after opioid dependence can last as long as 9 months and are a frequent cause of relapse

Treatment of Intoxication

- Hallucinogens - benzodiazepines
- Stimulants - benzodiazepines, haloperidol

*Stimulant Relapse Prevention Investigational Agents

- Antidepressants
  - tricyclics
  - serotonin reuptake inhibitors
- Anti-epileptics (mood stabilizers)
  - Topiramate
- Dopamine agonists
- Disulfiram
- Modafinil
- Vaccines - antibodies against cocaine

*Possible Medications

For Opiate Rehabilitation

- Methadone
- Buprenorphine
- Naltrexone

*Possible Medications

For Alcohol Rehabilitation

- Disulfiram
- Naltrexone – oral or 1-month depot injection
- Serotonin re-uptake inhibitors
- Acamprosate

Medical Disorders and Symptoms Mimicked by Substance Abuse

- Intoxication: thyroid, brain dysfunction
- Withdrawal:
  a) metabolic delirium
  b) non-specific symptoms; fatigue, weakness, nausea, diarrhea

Basic Pharmacology

- Medications and abused drugs affect multiple organs in body
- Neuron receptors altered by abused drugs
- Neuron receptors bind medications to reverse abnormalities induced by abused drugs
- Metabolism by liver - damaged by abused drugs
  - impair efficacy of medications

Pharmacotherapy

- Alcohol and sedatives
- Opioids – heroin & prescription opioids
- Stimulants - cocaine/amphetamines
- Nicotine
- Hallucinogens

*Pharmacotherapy Targets

A. Overdose reversal (flumazenil or naloxone)

B. Detoxification (chlordiazepoxide)

C. Relapse Prevention

- Substitution (methadone or buprenorphine)
- Blockade (naltrexone for opioids)
- Aversion (disulfiram)
- Anti-craving (naltrexone for alcohol)

*Reversal of Overdoses

- Stimulants - benzodiazepines
  - haloperidol
- Opioids - naloxone “IV drip” or “IV nalmefene”
- Benzodiazepines - flumazenil “IV drip”
- Hallucinogens - benzodiazepines

*Detoxification Principles

- Oral medication
- Long duration of action
- Clear target symptoms/signs
- No metabolic or toxic interactions with other detox medications for polydrug abusers

*Alcohol and Sedative Detoxification

- Benzodiazepines
  - chlordiazepoxide
  - oxazepam
- Barbiturates – Phenobarbital
- Carbamazepine

Investigational

- Valproate
- Adrenergic blocker augmentation

*Benzodiazepines for Alcohol Detoxification

- Titrate dose to symptoms- chlordiazepoxide
- Peak symptoms at day 3, last 7 days
- Oxazepam in older or liver impaired alcoholics
- May supplement with adrenergic blockers

*Carbamazepine for Alcohol Detoxification

- Non-abusable, prevents seizures
- Equal efficacy to benzodiazepines
- Loading dose of 1200 mg orally
- Taper dose days 3 to 7
- Anticonvulsives may be first line agents for patients with history of withdrawal seizures

*Adrenergic Blockers for Alcohol Detoxification

- Beta blocker (atenolol) - 50-100 mg QD improves vital signs and agitation
- Alpha adrenergic agonist (clonidine) -0.1–0.3 mg works with benzodiazepines to control anxiety and vital signs
- Both agents do not prevent seizures and need to be augmenting agents not sole therapy

*Alcohol Relapse Prevention

- Naltrexone
- Depot Naltrexone
- Disulfiram
- Acamprosate

Investigational

- Serotonin reuptake inhibitors
- Buspirone
- Tricyclic antidepressants

*Alcohol Relapse Prevention
Disulfiram

- Aversive with alcohol use: vomit, hypotension
- Inhibit acetaldehyde breakdown
- Need enforced compliance
- Contraindications: liver failure, psychosis, unwilling patient

*Alcohol Relapse Prevention
Naltrexone

- Anti-craving, decreases priming effect
- No aversive effect if alcohol used
- Daily oral dose of 50 mg for 6 to 12 months
- New depot injection can last 1 month
- Contraindications: opioid dependence severe liver disease
- Side effects (5-10%): nausea, headache

*Risks vs. Benefits for Naltrexone in Alcoholism

Risks

- ✓ 6-10% initial dropout due to vomiting, nausea, and anxiety, which does not persist after discontinuation

Benefits

- ✓ Approximately 50% reduction of relapse risk
- ✓ Improved ratings of employment problems
- ✓ Benefits for preventing relapse persist for six months after discontinuation
- ✓ Improved abstinence rates at endpoint and follow-up

Naltrexone for Alcoholism Cases
Mr. A - Clear Cut Effect

Course in Treatment

- Immediate subjective reduction in craving
- Challenged effect on day 1 at liquor store, bar
- Abstinent for 10 weeks on medications
- Randomized to placebo at 10 weeks
- Returned unused medications at 14 weeks stating that it is placebo
- Resumed pre-treatment drinking weeks 18-24
- Returned to treatment/naltrexone week 24
- Abstinent x1 year while on naltrexone

Naltrexone for Alcoholism Cases
Mr. A - Clear Cut Effect

Alcohol History

38 year old married white man

- Drinking 1.5 pints vodka/night 4x weekly for 10 years
- Cocaine dependence in late 20's
- 1 prior inpatient stay with rapid relapse
- Seeking treatment under pressure from 2nd wife
- Family History+++ Alcoholic father, 2 brothers, 2 grandfathers, 1 grandmother

*Opioid Detoxification

- Methadone tapering
- Clonidine or Lofexidine
- Buprenorphine

Investigational

- Clonidine/naltrexone - rapid
- Benzodiazepine/clonidine/naltrexone - ultra-rapid

*Opioid Detoxification Methadone Tapering

- Standard starting dose of 25-35 mg for “street addict” on heroin
- Methadone patient may be over 100 mg QD
- Do not exceed 40 mg on day 1 unless on verifiable higher dose
- Day 2 dose same or higher, if withdrawal seen
- Day 3 reduce 5 mg/day to 10 mg, then 2-3 mg/day reduction
- Inpatient 5-10 days, outpatient up to 30 days

*Opioids: Clonidine Detoxification

- Adrenergic anti-hypertensive
- Non-abusable, oral use
- Dose titration, start 0.1 mg TID
- Heroin - 7 days, Methadone - 14 days
- Targets autonomic symptoms
- Anxiety, diarrhea not well relieved
- Side effects - sedation, orthostatic hypotension

*Opioid Detoxification: Rapid Clonidine/Naltrexone

- Inpatient or day hospital procedure - 3 days
- Clonidine preload day 1: 0.2-0.3 mg
- Naltrexone 12.5 mg, 1 hour after clonidine
- Continue clonidine TID on first day
- Day 2: clonidine + naltrexone 25 mg
- Day 3: clonidine + naltrexone 50 mg
- Augmenting agents helpful: oxazepam 30 mg

*Opioid Detoxification: Ultra Rapid

- Precipitates withdrawal using naltrexone or naloxone or nalmefene
- Benzodiazepine induced sedation
- Or agents such as propofol for anesthesia
- Takes 6 hours to one day
- Risk of severe complications/death with anesthesia detox
- High costs
- Should be considered experimental

*Opioid Detoxification: Buprenorphine

- Partial opioid agonist: low dose relieves withdrawal, high dose may precipitate withdrawal
- Once or twice daily sublingual dosing
- Transition from street heroin onto 2-8 mg buprenorphine
- Transition from methadone at less than 40 mg methadone
- Mild withdrawal during dosage taper
- Can combine with clonidine/naltrexone rapid detoxification
- Need to be in withdrawal before first buprenorphine dose: 12-16 hours after last short-acting opioid, 24-48 hours after last methadone dose

*Opioid Relapse Prevention
Pharmacotherapy

- Methadone
- Levo alpha acetyl methadol (LAAM) – DISCONTINUED because of risk of Torsade de Pointes
- Naltrexone
- Buprenorphine

*Opioids - Methadone Maintenance

- Agonist - relieves withdrawal
- Cross-tolerance to opioids
- Starting dose 30 mg, then escalate
- Dose - over 70 mg once daily orally
- Duration - one to over 20 years

*Opioids: Methadone Limitations

- Side effects - constipation, sedation
- Diversion to street abuse of “take homes”
- Alcohol and cocaine abuse
- Difficult to discontinue
- Medication interactions
- Split dosing for rapid metabolizers
- Need to attend clinic 2-6 times/week for dispensing

*Opioid Relapse Prevention
Naltrexone

- Pure opioid antagonist, need detox before start
- Heroin use not aversive, just blocked
- Oral dosing - either 50 mg / day or 100 mg Monday and Wednesday, 150 mg Friday
- Duration: 6-12 months
- Maintain abstinent state
- Need enforced compliance, e.g. parolees, significant others; otherwise retention poor
- New 1 month depot injection may improve compliance

*Opioid Relapse Prevention: Naltrexone Limitations

- Lower preference than methadone by addicts
- Poorer treatment retention than methadone
- Requires opioid detoxification before starting
- Lacks negative reinforcement when not taken (e.g. no withdrawal symptoms if stopped)
- Potential liver toxicity at higher doses (300 mg)
- Blocks opioid pain medications for up to 72 hours

*Opioid Relapse Prevention
Buprenorphine

- Partial opioid agonist, cross tolerance, at 12 mg daily has about 75% blockade of heroin high
- Maintenance dose of 8-24 mg sublingual daily
- Two forms – alone or combined with naloxone
- Comparable to methadone in treatment retention and reduced illicit heroin abuse
- Overdose potential and abuse liability less than methadone
- Less severe withdrawal than methadone
- Mono form used in pregnancy, for women of child-bearing age and potential and at times for induction
- Can be prescribed in office-based setting
- Especially attractive to prescription opioid abusers

*Stimulant Relapse Prevention

- Only Investigational Agents
- Antidepressants
  - tricyclics
  - serotonin reuptake inhibitors
- Mood stabilizers, e.g., Topiramate
- Dopamine agonists
- Disulfiram
- Modafinil
- NMDA antagonists
- Glutamate antagonists
- Vaccine

*Nicotine Detoxification/Relapse Prevention

- Nicotine gum
- Nicotine patch
- Nicotine aerosol
- Bupropion
- Varenicline

Investigational

- Tricyclic antidepressants
- Clonidine
- Naltrexone

Ethical Issues in Treatment

- Personal relationships
- Confidentiality
- Dangerousness to self and others
- Informed consent
- Financial conflict of interest

Ethical Issues: Confidentiality I

- Interdisciplinary treatment teams
- Supervision in and outside of program
- Outside agencies/practitioners
- Family members
- Teaching/sharing experiences

Ethical Issues: Confidentiality II

- Legal protection of records
- Illegal activities by patients and reporting to police
- Drug use itself as illegal activity
- Group and family meeting risks

Ethical Issues: Personal Relationships

- No sexual relationships with patients
- Meetings outside treatment program
- Group versus individual meetings
- Ongoing contacts after patient leaves treatment

Ethical Issues: Dangerous

- Duty to inform threatened persons
- Conflict with confidentiality
- Who and when to notify
- Medical emergencies - limited disclosure
- High risk behaviors - AIDS

Ethical Issues: Informed Consent I

- Written informed consent
- Release of written records
- Oral communication - dangerousness
- Need to document released information
- Program policies, HIV testing

Ethical Issues: Informed Consent II

- Capacity to provide consent
- Surrogate consent (e.g., family members)
- Full disclosure of risks and benefits
- Parole, probation and criminal justice reports

Ethics: Conflict of Interest

- Financial most common with treatment extension or discharge due to insurance
- Favoring one easily available treatment mode
- Pre-treatment relationship to patient
- Dual reporting to criminal justice, employer, etc.

Ethics: HIV Testing

- Negative consequences: medical services, housing, employment, school admission
- Contact tracing and partner notification
- Associated sexual diseases, tuberculosis

Ethics: Methadone Programs

- Retention vs. discharge: non-compliance
- Blind withdrawal only on request
- Pregnancy and continued drug use
- Child protective services

Post Lecture Exam
Question 1

1. **Which of the following statements is false:**

A. Physical dependence is synonymous with addiction.

B. One can be addicted without being physically dependent.

C. Once a patient has met criteria for Substance Dependence, they should not be diagnosed in the future with Substance Abuse.

D. A critical feature of addiction is compulsive use in spite of harm.

Question 2

2. Which of the following statements is false:

A. Psychiatric disorders can cause substance abuse.

B. Substance abuse can cause psychiatric disorders.

C. If both substance abuse and a psychiatric disorder are present, treating the psychiatric disorder is usually not necessary.

D. Treating an underlying psychiatric disorder usually does not adequately treat the substance abuse.

Question 3

3. The most common comorbid psychiatric diagnosis in patients with substance abuse is:

A. Schizophrenia
B. Antisocial Personality Disorder
C. Anxiety Disorder
D. Major Depression

Question 4

4. **Which one of the following is false:**

A. Cocaine decreases negative symptoms in schizophrenics.

B. When cocaine free, schizophrenics have more negative symptoms.

C. Chronic cocaine use increases depression in schizophrenics.

D. Chronic cocaine decreases positive symptoms of schizophrenia.

Question 5

5. Which of the following are considered "Gateway Drugs"?

A. Alcohol

B. Marijuana

C. Nicotine

D. A & C only

E. A, B, & C

Question 6

6. Adolescent substance abuse is associated with:

A. Increased school dropout

B. Increased depression and suicidality

C. Premature involvement in sexuality

D. All of the above

Question 7

7. The proportion of users who ever became dependent is as follows (from high to low):

A. Nicotine, alcohol, heroin, cocaine, marijuana.

B. Alcohol, nicotine, cocaine, heroin, marijuana.

C. Nicotine, heroin, cocaine, alcohol, marijuana.

D. Nicotine, alcohol, marijuana, cocaine, heroin.

Question 8

8. Which of the following is not used as a maintenance agent in heroin addiction:

A. Methadone

B. Clonidine

C. Naltrexone

D. Buprenorphine

Question 9

9. Which category of medications is <u>not</u> yet available for treatment of heroin addiction:

A. Agonists

B. Antagonists

C. Partial agonists

D. Anti-craving agents

E. Anti-withdrawal agents

Question 10

10. Which of the following statements are true:

A. Naltrexone blocks the effects of alcohol.

B. Drinking while on naltrexone can make one very ill.

C. Benzodiazepines are the usual agents used for alcohol withdrawal.

D. All of the above

Answers to Pre & Post Competency Exams

1. A
2. C
3. B
4. D
5. E
6. D
7. C
8. B
9. D
10. C