CONTINUING EDUCATION (CE) COURSE MATERIAL
Course No. CE1304P1 – Medical Treatment: Pharmacotherapy of Addictive Disorders

COURSE OBJECTIVE

An examination of the various drugs used in the treatment of alcoholism and drug addiction, including a study of the antagonist drugs, anti-depressant drugs, and those drugs used in Dual Diagnosis, detoxification and the withdrawal process.

COURSE MATERIAL

The use of drugs to treat various aspects of the physical and psychological manifestations of addictive disorders has changed considerably over the last few years. There are currently many more effective agents available. The pattern of medical application has changed such that most compounds have some usefulness in the treatment of each broad class of abused substances.

CLASSES and NAMES OF MEDICATIONS USED in PHARMACOTHERAPY

Benzodiazepines - Sedative/hypnotic medications which have psychotropic properties similar to alcohol. These drugs bind to specific GABA receptors in the brain and spinal cord. The differences between members of this class are potency and half-life. The most familiar of this class are known by their brand names, specifically: LIBRIUM (Chlordiazepoxide), VALIUM (diazepam), ATIVAN (lorazepam), XANAX (aprazolam), HALCION (triazolam), and KLONOPIN (azepam).

Agonists and Antagonists - A variety of different compounds related by their ability to affect the activity of the autonomic nervous system. The most commonly used agents are CATAPRES (clonidine), a central Alpha-2 receptor agonist, and INDERAL (propranolol), a Beta receptor antagonist.

Opioid Antagonists - A class of medication that blocks the narcotic effect of opioid medications and precipitates acute withdrawal in addicts. NARCAN (naloxone) is used to treat overdose and test for presence of ongoing physical dependence. TREXAN (naltrexone) is a long acting oral agent used to deter opioid use by preventing intoxication.

Opioid Agonists - A class of drugs the same as the drugs of abuse in this class. DOLOPHINE (methadone) is a long-acting oral opioid used primarily to treat heroin addiction by preventing withdrawal symptoms when given as a single daily dose.

Antidepressants - A broad group of medications initially used for treatment of clinical depression. Later found to be useful for treating a wide variety of psychiatric symptoms and syndromes. They generally do not produce physical dependence. Some of these compounds, NORPRAMIN (desipramine), IMPRIL or TOFRANIL (imipramine) and PROZAC (fluoxitene) may be useful in reducing craving for stimulant use. Some of these medications are also used to treat anxiety or sleep disturbances as well as major depression that occur in addicted individuals.

Anticonvulsants - A class of drugs that prevents seizure activity. Two members of this class are likely to become more useful in treating alcohol and sedative withdrawal. TEGRETOL (carbamazepine) and DEPEKENE (volproic acid).

Alcohol Antimetabolites - These drugs, ANTABUSE (disulfiram), the most widely known, block the metabolism of alcohol by the liver, and allow the accumulation of the toxic compound, acetaldehyde. This is useful in deterring alcohol use, particularly in early sobriety.

Benzodiazepine Antagonists - This drug, MAZICON (flumazenil), is used for the treatment of benzodiazepine overdose, and possibly, theoretically, for alcohol overdose.

Neuroleptic Medications - Previously known as “major tranquilizers”, these medications are capable of reducing or eliminating severe psychiatric symptoms such as hallucinations and delusions. They have many potentially serious side effects and should be prescribed cautiously. The commonly used neuroleptics are HALDOL (haloperidol), MELLARIL (thioridazine), and THORAZINE (chlorpromazine).

TREATMENT OF SPECIFIC CLINICAL SYNDROMES

Alcohol and Sedative Withdrawal

The major principle here is to prevent a severe withdrawal from developing. Tapering doses of VALIUM or LIBRIUM are used. KLONOPIN is used to treat withdrawal from benzodiazepine abuse because its long half-life prevents withdrawal symptoms from developing between doses, and it is best to use the smallest effective dose for the shortest possible period of time.

For those patients inappropriate for benzodiazepine treatment, TEGRETOL has proven very effective. CATAPRES and INDERAL will also decrease symptoms and signs of withdrawal, but may not prevent seizure activity.

Hospitalization is indicated for patients with severe withdrawal, inadequate social resources, or severe psychiatric symptoms.

Opioid Withdrawal

The mainstay of treatment for opioid withdrawal syndrome is CATAPRES. It is available as a topical patch as well as in tablet form, and prevents or lessens many of the physical signs of withdrawal. This drug reduces sympathetic nervous system overactivity in the brain stem because of its Alpha-2 agonist properties.

Some physicians also use benzodiazepines to reduce anxiety and / or sleeplessness. Acute medical hospitalization is usually not indicated, as these patients usually do best in residential treatment, with intense social support systems in place.

Stimulant Withdrawal

Stimulant withdrawal syndrome consists mainly of uncomfortable psychological symptoms such as irritability, anxiety, depression, insomnia, and strong cravings for the drug. Severe symptoms may benefit from small doses of sedative medication such as the Benzodiazepines.

Drug craving may be reduced by the administration of antidepressant medication, although this has not been conclusively proven. Hospitalization is necessary for severe psychiatric symptoms.

Acute Toxicity of Stimulants

High blood pressure, rapid heart rate, sever agitation, seizure, and in the case of cocaine, myocardial infarction (heart attack) may occur in the course of stimulant use. These symptoms are treated individually as necessary. INDERAL may be quite useful in reducing blood pressure and heart rate.

A psychotic process resembling schizophrenia with hallucinations and delusions may occur with long term use of stimulants. If this is mild, it may be treated with a short course of benzodiazepines. If sever, a Neuroleptic medication such as HALDOL and / or psychiatric hospitalization may be necessary.

Acute Toxicity of Hallucinogens

Sever psychiatric symptoms such as panic reactions and frightening hallucinations may occur in the course of use of the hallucinogens, particularly the more potent ones such as LSD.

Although the neuroleptic medications will effectively treat these symptoms, such conditions are probably best managed by psychological support and reassurance, as they tend to disappear when the drug is eliminated from the body.

Methadone Maintenance

Opioid addicts who do not respond to detoxification and induction into mainstream treatment emphasizing abstinence are candidates for methadone maintenance. This federally-supervised program supplies a long acting opioid to addicts, and because of the long half-life, methadone prevents opioid withdrawal from developing with a single daily dose.

There are currently patients who have been on this treatment program for over twenty years without relapse or apparent severe side effects from the medication.

Bi-Valley Medical Clinic in Sacramento provides an excellent resource for those heroin and other narcotic addicts who are unable to control their addiction to an illegal substance, by providing a safe, legal, inexpensive way to wean themselves off heroin and at the same time become productive and responsible citizens in the community. Bi-Valley will be celebrating their 20th anniversary in the year 2000, and in that time have assisted thousands of addicts to turn their lives around.

Treatment of Concurrent Psychopathology

It is quite likely that chemically dependent persons suffer a greater incidence of psychiatric disorders than the general public, especially such illnesses as major depression and anxiety disorders.

But because of a tendency towards cross addiction, it is my opinion that individuals with addictive disorders should not receive dependence-producing psychoactive medication.

On the other hand, patients should not be denied effective treatment with otherwise safe and effective medications, if truly indicated.

The physician who treats a patient with an addictive disease for psychological problems should also bear in mind that rapid resort to medical therapy may reinforce the notion that there is a chemical solution to all of life's problems.

Thus, proper therapy demands a thorough knowledge of addiction and recovery, and ought to place use of medication in a perspective that includes all aspects of a patient's life : the physical, psychological and spiritual.

Additional Notes on Rx Treatment for Addictive Disorders and Related Conditions

Prescriptions

Prescriptions are written by licensed physicians and dentists, are filled by licensed pharmacies, and generally taken by the patient as directed.

In order to better understand some of the shorthand used by physicians and pharmacies, we present here a summary of directions that might be found on a Rx and the container that holds the drug.

Rx Abbreviations:

bid	bis in die	twice / day
tid	ter in die	3x / day
qid	quater in die	4x / day
qd	quaque die	every day
qh	quaque hora	every hour
hs	hora somni	hour of sleep
po	per os	orally
prn	pro re nata	as often as needed
qs	quantum satis	sufficient quantity
q.suff.	quantum sufficit	sufficient quantity
IM	intra muscularly	
IV	intra venously	

Lithium
Treatment of manic depressive illness. A salt that seems to effect dopamine and serotonin levels; requires close monitoring and MD exam for possible toxicity....beginning dose of 600mg....up to 1500mg. In-patient treatment recommended to begin, but used extensively on out-patient basis for Bipolar condition.

Side effects: muscular weakness....fine hand tremor....tremor in lower jaw or eyelid....facial spasms.....not to be used with alcohol, sedatives, or anti-depressants.

Antidepressants
Monoamine oxidase inhibitors (MAOI s) & tricyclic antidepressants
Similar in chemistry to antipsychotics, but different effects.

Common Tricyclics : Tofranil Elavil Sinequan Desipramine
(For endogeneous depression and symptoms....not exogenous)

Common MAOI s : Marplan Nardil Parnate
(When Tricyclics don't work.. for agoraphobia and non-endogenous depression)
Xanax sometimes used....but not recommended if addicted to other depressant drugs.

These drugs take time to work....at least 2 weeks....certain foods not to be taken....cheeses, etc....suicidal ideations occur....need to be talked about and assured that recovery can and will occur.

ANTABUSE....(DISULFIRAM).... AYERST LABS. (ALSO MAKE ANACIN)

Blocks the oxidation of alcohol at the acetaldehyde stage....creates the concentration of acetaldehyde 5-10 x higher than normal.... causes unpleasant to severe reaction when taken with alcohol... is eliminated from body very slowly....7 to 14 days after ingestion may react to alcohol.....does not produce tolerance....the longer on therapy the more sensitive to alcohol...

Contraindicated in presence of myocardial disease or coronary occlusion, psychoses, or hypersensitivity to thiuram derivatives (pesticides,etc.)

With alcohol: causes flushing, throbbing in neck and head, respiratory difficulties, nausea, copious vomiting, sweating, thirst, chest pain, hyperventilation, weakness, vertigo, blurred vision, and confusion.

Dosage: 1st phase....max of 500mg daily for 1-2 weeks....adjusted downward to minimize sedative effect. Maintenance dose....
250mg daily....not to exceed 500mg. Comes in tablets of 250mg in bottles of 100, or 500mg in bottles of 50each.

SUGGESTED ADDITIONAL READING

American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders,* Fourth Edition (DSM-IV). Washington DC: American Psychiatric Association, 1994.
J. Kinney and G. Leaton, *Loosening the Grip*, Fifth Edition. St. Louis, Missouri: Mosby-Year Book, Inc, 1995.
A. Radcliffe, P. Rush, C. Forror Sites, and J. Cruse, *The Pharmer's Almanac*. Denver, Colorado: MAC Publishing.

ACKNOWLEDGEMENTS

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CONTINUING EDUCATION (CE) EXAMINATION QUESTIONS
Course No. CE1304P1 – Medical Treatment: Pharmacotherapy of Addictive Disorders

You are encouraged to refer to the Course Material when answering these questions. Choose the best answer based upon the information contained within the Course Material. Answers which are not consistent with the information provided within the Course Material will be marked incorrect. A score of 70% correct answers is required to receive Continuing Education credit. GOOD LUCK!

QUESTIONS

1. Benzodiazepines are sedative/hypnotic medications that have psychotropic properties similar to alcohol, and bind to specific GABA receptors in the brain and spinal cord. These include all of the following except:
   a. Librium.
   b. Xanax.
   c. Brominex.
   d. Klonopin.

2. Antidepressants are a broad group of medications initially used for treatment of clinical depression, which were later found to be useful for treating a wide variety of psychiatric symptoms and syndromes. They generally do not produce physical dependence, and are used for all of the following except:
   a. To treat anxiety.
   b. To treat sleep disturbances.
   c. To treat myocardial disease.
   d. To treat major depression that occurs in some addicted individuals.

3. Klonopin is used to treat withdrawal from benzodiazepine abuse because:
   a. Its long half-life prevents withdrawal symptoms from developing between doses.
   b. It is easy to administer, with minimal side effects even with extensive doses.
   c. Both A and B above.
   d. Neither A nor B above.

4. Stimulant withdrawal syndrome consists mainly of uncomfortable psychological symptoms such as:
   a. Irritability.
   b. Anxiety.
   c. Depression.
   d. All of the above.

5. The acute toxicity of stimulants may cause which of the following symptoms in the course of the stimulant use?
   a. High blood pressure, rapid heart rate, sever agitation and seizure.
   b. Myocardial infarction (heart attack) in the case of cocaine use.
   c. Both A and B above.
   d. Neither A nor B above.

6. According to the Course Material, who of the following are candidates for "methadone maintenance," which is a long acting opioid treatment program:
   a. Opioid addicts who do not respond to detoxification and induction into mainstream treatment that emphasizes abstinence.
   b. Opioid addicts who refuse treatment or hospitalization.
   c. Both A and B above.
   d. Neither A nor B above.

7. Prescription abbreviations include all of the following except:
   a. bid (bis in die) (which means twice per day).
   b. oa (op adie) (which means upon arising).
   c. qd (quaque die) (which means every day).
   d. prn (pro re nata) (which means as often as needed).

8. Lithium, which is used for the treatment of manic depressive illness, and is not to be used with alcohol, sedatives or anti-depressants, may cause the following side effects:
   a. Muscular weakness.
   b. Fine hand tremor.
   c. Facial spasms.
   d. All of the above.

9. Antabuse does all of the following except:
   a. Blocks the oxidation of alcohol at the acetaldehyde stage.
   b. Creates the concentration of acetaldehyde 5-10 x higher than normal.
   c. Is eliminated from the body very slowly.
   d. Eventually produces a tolerance to alcohol.

10. Antabuse, when alcohol is consumed, may cause which of the following:
   a. Flushing and throbbing in the neck and head.
   b. Respiratory difficulties, nausea and copious vomiting.
   c. Sweating, thirst, chest pain, hyperventilation, weakness, vertigo, blurred vision, and confusion.
   d. All of the above.

This is a ten-question examination. Answer Questions 1 through 10 for full CE credit in this course. Questions 11 through 21 have been omitted.

Breining Institute
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CONTINUING EDUCATION (CE) ANSWER SHEET

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SECTION 3.
Course Title: **CE-1304P1 / Medical Treatment: Pharmacotherapy of Addictive Disorders**
Answers (circle correct answer):

1.	A	B	C	D	8.	A	B	C	D	15.	A	B	C	D
2.	A	B	C	D	9.	A	B	C	D	16.	A	B	C	D
3.	A	B	C	D	10.	A	B	C	D	17.	A	B	C	D
4.	A	B	C	D	11.	A	B	C	D	18.	A	B	C	D
5.	A	B	C	D	12.	A	B	C	D	19.	A	B	C	D
6.	A	B	C	D	13.	A	B	C	D	20.	A	B	C	D
7.	A	B	C	D	14.	A	B	C	D	21.	A	B	C	D

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Return Answer Sheet, with $29 Continuing Education examination fee, by mail or facsimile to:
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