PTEC 155 - DEVELOPMENTAL DISABILITIES

PHARMACOLOGY
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INTRODUCTION

Simply defined, pharmacology is “the study of medicinal drugs and their effects on the body.” For the psychiatric technician student, a deeper understanding of medications and their effects is essential.

Of particular importance are the following:

- Therapeutic effect
- Indicated uses of the drug
- Contraindications refers to conditions which place the patient at increased risk if the drug under consideration is used
- Side effects refer to those effects the drug causes beyond the intended therapeutic effect
- Drug-drug interactions: the effect of more than one drug
- Patient teaching: Information the patient needs to know about the medication
- Nursing considerations include typical dosages, and other aspects of medication administration
- Possible allergic reactions

Psychiatric technicians typically work in settings with the mentally ill or the developmentally disabled. Consequently, the focus of treatment for the patients or clients for whom they care will be different than that of the general population. However, an understanding of widely-used medications is appropriate since the individuals they serve frequently require medications for physical problems aside from their chronic problems.

Particular attention is devoted to psychotropic medications, as well as to the myriad drugs used to treat conditions commonly found in individuals with developmental disabilities.
OBJECTIVES

Study Guide I: Introduction to Pharmacology

1. Define psychotropic, major tranquilizer, minor tranquilizer
2. Identify significant dates in the development of psychopharmacology
3. Identify the relationship between psychotropic drugs and advances in the treatment of the mentally ill
4. Identify the importance of the health care worker’s (HCW’s) role in the effective use of psychotropic drugs.
5. Identify the reasons for psychotropic drug failures

Study Guide II: Antipsychotics

1. Define hallucination, delusion, and psychotic, blood dyscrasia, and agranulocytosis
2. Identify the three (3) ways that antipsychotics are divided up
3. Identify the action of antipsychotics
4. Identify the effects of antipsychotics and the time frame in which they work
5. Identify the adverse effects of antipsychotics, i.e. EPS, neuroleptic malignant syndrome, anticholinergic effects (ACE), autonomic nervous system effects, life threatening side effects and allergic side effects
6. Distinguish between nonreversible and reversible adverse effects of antipsychotics
7. Identify a definition of tardive dyskinesia
8. Identify the symptoms of tardive dyskinesia
9. Identify the generic name, classification and average daily doses of the commonly used antipsychotic
10. Identify the long acting intramuscular antipsychotics
Study Guide III: Anti-EPS Drugs

1. Define EPS
2. Identify dystonia
3. Identify pseudo parkinsonian symptoms
4. Identify akathisia
5. Identify the generic name and average daily doses of the commonly used Anti-EPS drugs?

Study Guide IV: Extrapyramidal Symptoms

1. Define dystonia, oculogyrocrisis, torticollis, pseudoparkinsonism, akathisia
2. Identify the common symptoms of extrapyramidal syndrome
3. Identify the drugs used most frequently to counteract EPS
4. Identify the common side effects caused by these drugs and the cause of these side effects
5. Identify the one anti-EPS drug that does not cause these side effects
6. Identify the one symptom of long use of EPS drugs which may become irreversible
7. Identify the type of antipsychotic most likely implicated in this syndrome
8. Identify the generic name and average daily dose of the commonly used anti-EPS drugs

Study Guide 5: Antianxiety Drugs

1. Define anxiolitic, ataxia, potentiate
2. Identify the action and uses of the antianxiety drugs
3. Identify the most common side effects of antianxiety drugs
4. Indicate the rationale for limiting the use of most antianxiety agents
5. Identify the antianxiety drugs that do not cause addiction
6. Identify the generic name and average daily doses for the commonly used antianxiety drugs
Study Guide 6: Antidepressant Drugs

1. Define psychic energizer, affective disorder, narcolepsy, occipital, minimal brain dysfunction
2. Indicate the reason stimulants are no longer used as antidepressant drugs and state their only current uses
3. Identify the current classifications of antidepressant drugs and name the drugs in each classification
4. Indicate the signs of therapeutic effectiveness of antidepressant drugs
5. Identify the major side effects of tricyclic antidepressants
6. Identify the side effect specific to monoamine oxidase inhibitors
7. Identify the dietary restrictions which must be observed when taking MAOI’s
8. Identify the drugs which must be avoided when taking MAOI’s
9. Identify how the side effects of SSRI’s differ from the side effects of other groups of antidepressants
10. Identify the generic names and average daily doses of the commonly used antidepressant drugs

Study Guide 7: Anticonvulsants

1. Define gingivitis, gingival hyperplasia, and grand mal. Petit mal, absence seizures, focal seizures, psychomotor seizures, Jacksonian seizures
2. Identify which of the anticonvulsant drugs are sedating
3. Identify the way anticonvulsant drugs work
4. Identify the two serious side effects possible with most anticonvulsant drugs
5. Identify the other possible side effects
6. Identify the generic name and average daily dose of the commonly used anticonvulsants
Study Guide 8: Commonly Prescribed Drugs

1. Define cretinism, Down’s syndrome, dyspnea, tachycardia, and palpitations
2. Identify which clients commonly require cardiac medications
3. Identify which clients commonly require thyroid supplements
4. Identify the symptoms of thyroid overdose
5. Identify the use of Naltrexone in the developmentally disabled client

Study Guide 9: Antimanic Agents

1. Define Bi-polar disorder
2. Identify the disorder and symptoms treated by Lithium
3. Differentiate between, expected side effects, prodromal signs of toxicity, and signs of toxicity
4. Identify how long it takes Lithium to start working
5. Identify the safe therapeutic range for Lithium levels
6. Identify the desired Lithium level in acute mania
7. Identify the desired Lithium level in maintenance of Lithium therapy
8. Identify the dose range of Lithium in acute mania and the maintenance dose range
9. Identify the two anticonvulsant drugs also used to treat manic depression
PRINCIPLES

1. The use of pharmacological agents in the treatment of mental illness has made many mentally ill clients more amenable to psychotherapy.

2. The use of psychotropic drugs has created a more positive attitude toward mental illness.

3. Psychopharmacological agents do not cure mental illness or solve basic emotional problems, but relieve tension and provide varying degrees of symptomatic relief.

4. The attitude and approach used by the nurse or technician in dispensing medications are as significant to the individual’s therapy as the actual drug received.

5. The health care personnel, because of the use of the psychotropic drugs, are better able to utilize psychiatric interventions when relating to individuals.

6. There are actually no drugs to cure mental retardation.

7. Certain drugs are prescribed for developmentally disabled clients. These drugs relieve symptomology of disorders the clients experience, in addition to the client’s retardation.

8. Many clients have a dual diagnosis: mental illness and mental retardation.
### VOCABULARY

<table>
<thead>
<tr>
<th>Psychotropic</th>
<th>Affective disorder</th>
</tr>
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<tr>
<td>Major tranquilizer</td>
<td>Narcolepsy</td>
</tr>
<tr>
<td>Minor tranquilizer</td>
<td>Occipital</td>
</tr>
<tr>
<td>Hallucination</td>
<td>Gingivitis</td>
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<tr>
<td>Delusion</td>
<td>Gingival hyperplasia</td>
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<td>Psychotic</td>
<td>Grand mal</td>
</tr>
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<td>Blood dyscrasia</td>
<td>Petit mal</td>
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<td>Agranulocytosis</td>
<td>Absence seizures</td>
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<td>Dystonia</td>
<td>Focal seizures</td>
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<td>Psychomotor seizures</td>
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<td>Pseudoparkinsonism</td>
<td>Cretinism</td>
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<td>Tachycardia</td>
</tr>
<tr>
<td>Potentiate</td>
<td>Palpitations</td>
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</table>
Psychopharmacology had its beginning as early as 1892, when a German psychiatrist, Emil Kraepelin, published an essay entitled “On the Influence of Several Medicaments on Simple Psychiatric Processes”. The modern era of psychopharmacology, however, did not begin until the early 1950’s, when chlorpromazine was synthesized from coal tar. Two years later, in 1952, an alkaloid of Rauwolfia called Reserpine was discovered. Both of these drugs were widely used for the treatment of psychotic symptoms and virtually altered the entire therapeutic regimes for clients with mental/developmental disabilities.

Innovative psychotherapy grew with the advent of discovery and use of major tranquilizers (antipsychotic agents). A group of drugs called minor tranquilizers (antianxiety agents), was developed with the advantageous effects of allaying moderate anxiety states and muscle tension.

In 1957, the monoamine oxidase (MAO) inhibitors and tricyclic antidepressants were developed and recognized for their importance in the treatment of depression.

The importance of drug therapy in the treatment of the mentally ill today cannot be overestimated. Since 1955, when the major tranquilizers were first introduced of widespread use, the course of major mental illnesses has been drastically altered. Without modern psychopharmacology the state mental hospitals could not have been emptied to such a large extent, and the success of community-based treatment would not have been possible.

The use of psychotropic drugs has created a more positive attitude toward mental illness. Now that the drugs control many of the bizarre behaviors of psychoses, the clients are not as frightening to others. The shortened stays in psychiatric hospitals have tended to make people less fearful of “going crazy and being put away for years”. For this reason, a good number of people are more willing to admit to emotional problems and seek help much earlier.

The role of the health care worker is central to these major changes. It is health care personnel who usually first perceive a need for medication or the need to change the drugs ordered. They are usually the first to recognize side effects or adverse reactions and call them to the attention of the physician. The attitude and approach used by the nurse or technician in dispensing medications are as significant as the individual’s therapy from the actual drug received.

The clinical responsibilities of the HCW when administering drugs to clients are many. One must be well acquainted with the actions, dosages, and side effects: observe the client closely, to see that the medication is actually taken; and watch for behavioral and physical reactions. Sensitivities or toxic reactions should be reported immediately. Since each person’s tolerance and reaction to these drugs is specifically his own, the physician must adjust the dosage to the individual’s physical and emotional requirements. The physician relies heavily on the close observations of the health care personnel to determine effectiveness of the drug.
Another important aspect of care is in educating the client regarding drug therapy. This will lessen psychotropic drug failures. There are five main factors contributing to drug failures. One of these is that clients may have terminated medications when they feel better, thinking they no longer need their medications. Second, the client’s may become frightened by side effects of adverse reactions and stop taking the prescribed medications rather than report the incident to their doctor for adjustment. Third, clients may get inadequate education about their illness and the importance of drug maintenance. Fourth, the client’s may receive inadequate emotional support in conjunction with drug therapy. Fifth, there is the possibility that the body chemistry of an individual renders the medication ineffective (idiosyncratic reaction).

Although modern drug therapy has created excellent responses in many psychotic clients, it is not always the total answer to mental health problems. They cannot, by themselves, cure mental illness or solve basic emotional problems or take the place of meeting sociological needs. Their major contribution is symptom removal so the client, in turn, can respond to other therapies, such as psychotherapy and sociotherapy, in a much more effective way. Because of the use of these drugs, the HCW is better able to utilize psychiatric interventions when relating to clients.
STUDY GUIDE II

ANTIPSYCHOTIC DRUGS

Thorazine was released by 1955 for widespread use. It is the oldest drug of this group of medications still in use today. Reserpine, which was discovered in 1952, was the first major tranquilizer but is not used for that today because of its many undesirable side effects. Although the term major tranquilizer has been replaced today by the term antipsychotic, this was the name originally given to this group of drugs.

The antipsychotic agents have multiple effects. They promptly suppress rage, agitation, and sexual impulses and decrease overall reactivity to sensory stimuli. The specific antipsychotic action of the drugs begins more gradually. Between 2 and 21 days after therapy begins, the drug slows down the thinking process to a more normal rate, and suppresses delusions, hallucinations and paranoia. It may take up to 6 to 8 weeks for full therapeutic effect.

Many antipsychotics are now available. They are divided up several ways: First they are classified as phenothiazine and non-phenothiazine drugs which as to do with the chemical family that they come from. This is an important thing to be aware of, since if a person is allergic to one phenothiazine drug he/she may be allergic to others and it would be a responsibility of the HCW to be aware of this. Second they are divided into high dose and low does drugs based on potency. Low dose drugs are more frequently implicated in causing EPS and Tardive Dyskinesia. Since 1990 antipsychotics have also been divided into typical vs atypical based on mechanism of action. Clozapine and resperidone are the two atypical antipsychotic agents. The others are all typical.

Action: All antipsychotic agents antagonize the neurotransmitter dopamine in the Central Nervous System.

Uses: Selection of meds should be based on the need to avoid certain side effects in concurrent medical or psychiatric conditions. The initial goal of antipsychotic therapy is both to calm the agitated patient who may be a physical threat to self or others and to begin treatment of the psychosis and though disorder. (At SDC it is not permissible to use antipsychotic agents on residents unless the therapeutic review committee determines the resident has an underlying psychosis or though disorder).

Adverse Effects: Most of the adverse effects of antipsychotics can be attributed to the pharmacological effect of blocking dopaminergic, cholinergic, histaminic, serotonergic and adrenergic neurotransmitter receptors. The blocking of D2 receptors in the mesolimbic (middle) area of the brain stops psychosis but the blocking in other areas is responsible for the side effects seen. These include:

EPS – The extra pyramidal side effects are the most troublesome side effects to the patient and are the most frequent cause of non-compliance to drug treatment (See Study Guide 3)

Neuroleptic Malignant Syndrome – Occurs in 0.5% - 1.4% of patients receiving antipsychotics. The syndrome is characterized by fever, severe EPS such as a lead-pipe rigidity, trismus, choreiform movements, and opisthotonus; autonomic instability such as tachycardia, labile hypertension, diaphoresis, and incontinence; and alteration in consciousness such as stupor, mutism and coma. It has been most frequently reported with high dose drugs given intramuscularly. Mortality rates have been as high as 20% to 30% but prompt recognition has reduced the mortality rate to 4% in recent
years. Treatment includes bromocriptine or amantadine as dopamine agonists and dantrolene as a muscle relaxant. Fever is treated by cooling blankets, adequate hydration and antipyretics.

**Anticholinergic Side Effects** – Caused by blocking of the cholinergic receptors; include blurred vision, dry mouth, sinus tachycardia, constipation, and urinary retention.

**Autonomic Nervous System Side Effects** – Caused by blocking of the adrenergic and histamine receptors; include drowsiness, weight gain, and postural hypotension.

**Life Threatening Side Effects** – There are two side effects of antipsychotic drugs that do not occur often but are considered dangerous when they do. One is **obstructive jaundice** that will lead to irreversible liver damage unless medication is discontinued. Early symptoms are fever, nausea, abdominal pain, and itching. These warrant immediate discontinuation of the drug. The other dangerous side effect is **blood dyscrasia** usually agranulocytosis. Its symptoms are sore throat, fever, chills, and weakness. The drug should be discontinued if antipsychotic drugs are still needed they must not be of the same family and should be given with extreme caution. Regular blood testing of patients who are receiving antipsychotic to pick up early signs of hepatic damage or blood dyscrasia. Patient’s receiving clozapine need to have weekly blood tests because of the increased risk of agranulocytosis with use of that drug. Obstructive jaundice and blood dyscrasia are both considered dangerous because they are irreversible.

**Allergic Side Effects** – These will go away on stopping the medication; they are dermatitis and photosensitivity. Photosensitivity is an especially important concern during good weather as patients who have these side effects can become seriously sunburned if they are not provided with sunscreen.

**Tardive Dyskinesia** – T.D. is a syndrome of persistent and involuntary hyperkinetic abnormal movements. This is a drug induced, late appearing neurological disorder which all antipsychotics with the possible exception of clozapine cause. The symptoms are stereotyped, involuntary, choreiform (tic like) movements, usually affecting the tongue, facial, and neck muscles e.g., sucking, chewing, and pursing movements of the tongue and mouth. It also affects the posture and breathing muscles and there may be subtle choreiform movements of the fingers and toes. T.D. occurs in about 3%-6% of the patients taking antipsychotics over a long period of time. Patients who had EPS at the onset of drug therapy seem most prone to T.D later. The low dose drugs such, as Stelazine, Haldol and Navane are the most frequently implicated drugs. Early signs may be reversible but over time may become irreversible, even with discontinuation of the drug. The best treatment approach is prevention. Patients on long-term use of the antipsychotic should be assessed for early signs of T.D. at least semi-annually and preferably quarterly. If therapy is to be long term, it may help to give the lowest therapeutic dose and to give the patient a drug holiday (two or more drug free days per week). The most beneficial treatments are anticholinergic withdrawal, and use of betablockers, clonidine, and benzodiazepines. Antipsychotic dosages may be increased but this only masks symptoms and eventually will worsen tardive Dyskinesia.

*High doses of Mellaril (over 800 mg/day) can cause retinopathy, which can lead to blindness*

**Some antipsychotics may lower the seizure threshold in people with seizures**

***Prolixin and Haldol Decanoate are long acting preparation of antipsychotic medications. They are prepared in a sesame oil base so they have very long acting results compared to most injectables. After an injection, Haldol is released from the tissues for up to 30 days and Prolixin is released for 10-14 days. These preparations are good for the treatment of outpatients, especially when the person’s**
reliability for taking oral medication is questionable and for in-patients who resist or refuse to take medications on a daily basis. In the medication room it is important that the PT not confuse med preparations, as Prolixin Hydrochloride is also an intramuscular preparation. It comes 2.5 mg/cc and has a duration of six to eight hours. Administering the incorrect medication can be a life threatening act.

<table>
<thead>
<tr>
<th>GENERIC NAME</th>
<th>BRAND NAME</th>
<th>DOSE RANGE</th>
<th>SEDATION</th>
<th>EPS</th>
<th>BP</th>
<th>ACE</th>
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<tr>
<td><strong>PHENOTHIAZINES</strong></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Chlorpromazine</td>
<td>Thorazine</td>
<td>300 – 1500 mg</td>
<td>+++</td>
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<tr>
<td>Fluphenazine</td>
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<td>6 – 40 mg</td>
<td>+</td>
<td>+++</td>
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<td>+</td>
</tr>
<tr>
<td>Thioridazine</td>
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<td>100 – 800 mg</td>
<td>+++</td>
<td>+</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td><strong>NON-PHENOTHIAZINES</strong></td>
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</tr>
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<td>Haloperidol</td>
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<td>2 – 30 mg</td>
<td>+</td>
<td>+++</td>
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</tr>
<tr>
<td>Thiothixene</td>
<td>Navane</td>
<td>6 – 60 mg</td>
<td>+</td>
<td>+++</td>
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<tr>
<td>Loxapine</td>
<td>Loxitane</td>
<td>20 – 250 mg</td>
<td>++</td>
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<tr>
<td>Molindone</td>
<td>Moban</td>
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<tr>
<td>Resperidone</td>
<td>Risperdal</td>
<td>4 – 16 mg</td>
<td>+</td>
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About a third of the patients placed on antipsychotic medications will develop what is known as extrapyramidal symptoms (EPS). The extrapyramidal system is that portion of the central nervous system responsible for coordination and integration of various aspects of motor behavior or bodily movements. There are four categories of EPS: dystonic reactions, Pseudoparkinsonism, akathisia, and tardive dyskinesia. Severe EPS also shows up as part of the symptom picture of neuroleptic malignant syndrome.

Acute dystonia has the earliest onset of all the EPS’s. Dystonias are spasmodic movements of muscle groups, e.g. rolling back of the eyes (oculogyrocisis), spasm of the jaw, or torsion of the neck (torticollis). These symptoms are often frightening and painful for the patient. These are the symptoms most responsive to treatment. Acute dystonic reactions may be controlled by intramuscular injections of diphenhydramine, benztpine, diazepam or lorazepam.

Psuedoparkinsonian symptoms typically begin after 2 to 3 weeks of antipsychotic treatment. These are tremors, muscular rigidity, mask-like face, shuffling gait, and loss or weakness of motor function (akinesia). These symptoms are well controlled by the anticholinergic antiparkinsonian agents (e.g. diphenhydranine, benztropine, and trihexyphenidyl).

Akathisia is a syndrome of consisting of subjective feelings of anxiety and restlessness and objective signs of pacing, rocking, and an inability to sit or stand in one place for extended periods of time. Akathisia can cause aggression and is a frequent cause of noncompliance. It occurs more commonly when high potency (low dose) antipsychotic agents are used. Sometimes it is treated by lowering the dose of the antipsychotic or by switching to a low potency (high dose) drug. It is also treated with anticholinergic agents, benzodiazepines, beta-blockers (propanolol), and clonidine to varying degrees.

Tardive dyskinesia was covered in Study Guide 2.

Drugs used to treat EPS: I.M. Cogentin is usually the drug of choice to relieve immediate symptoms. Other drugs used to treat EPS are Artane, Benadryl, Akineton, Kemadrin and Symmetry. If one medication does not work well enough after a trial, another can be administered. Occasionally more than one drug will be used to treat EPS. At NSH, diphenhydramine is frequently given in addition to benztpine or trihexyphenidyl.

<table>
<thead>
<tr>
<th>GENERIC NAME</th>
<th>BRAND NAME</th>
<th>DOSE</th>
</tr>
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<tr>
<td>Benztropine</td>
<td>Cogentin</td>
<td>0.5 – 6 mg</td>
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<tr>
<td>Diphenhydramine</td>
<td>Benadryl</td>
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<td>Trihexyphenidyl</td>
<td>Artane</td>
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<tr>
<td>Amantadine*</td>
<td>Symmetrel</td>
<td>100 – 200 mg</td>
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</table>
Side Effects: Because most of these drugs are anticholinergic they cause anticholinergic side effects, i.e. blurred vision, dry mouth, constipation, and urinary retention. In addition, excessive doses of anti-EPS medications may produce a toxic psychosis, which may be mistaken for a relapse of the patient's pretreatment psychosis. Discontinuing the ant-EPS will rapidly determine the cause of the symptoms.

* Amantadine is a Dopamine Agonist not an anticholinergic drug; therefore it doesn't cause the ACE. Its side effects are usually mild and consist of light-headedness, anorexia, nausea, and abdominal discomfort.

**ACE = Anticholinergic Effects
This group of drugs was initially called minor tranquilizers, but since their primary usage was to relieve anxiety, this antiquated name has been changed to antianxiety drugs or anxiolytics. These drugs were developed to take the place of barbiturates, which were being used for this purpose but were highly addictive and made the patient too sleepy to perform properly.

Meprobamate (Equanil, Miltown) was the first useful antianxiety agent to be developed. Since then the benzodiazepines (Librium, Valium, Ativan etc.) were introduced; it was believed that these drugs were less addictive, but that is no longer thought to be true.

Indications for the administration of antianxiety agents are:
A. Chiefly to treat neurotic anxiety - THEY HAVE LITTLE OR NO ANTIPSYCHOTIC ACTION
B. To relax muscles and relieve muscle pain
C. To relieve migraines for some people
D. To potentiate action of narcotics and barbiturates (may reduce needed amount of barbiturate or narcotic by 50% - especially Atarax and Vistaril).
E. To treat alcohol withdrawal symptoms
F. To assist the antipsychotic drugs in the treatment of psychosis - some physicians have found that when a psychotic patient has a lot of anxiety and tension, combining a drug like Valium or Ativan with antipsychotic drug like Haldol or Thorazine is more effective than increasing the dosage of the antipsychotic
G. To treat status epilepticus and alcohol withdrawal seizures; Valium often the drug of choice because of its strong anticonvulsant effect when given intravenously

Side Effects: With the exception of the possibility of addiction, the side effects of the antianxiety agents are mostly minor; drowsiness, weakness, G.I. distress, skin rashes, ataxia and slurred speech. Antianxiety drugs will often aggravate or increase depression. They will also potentiate the depressant effects of alcohol so it is important that people on antianxiety drugs be warned that the combination of alcohol and antianxiety drugs can be life threatening.

Meprobamate, Librium, Valium, and Serax are known to become physically addictive if overused. If stopped suddenly this can cause severe withdrawal symptoms; restlessness, insomnia, tremors, hallucinations, and convulsions.

Valium, in particular has been abused because people have found that it makes them “feel good”. Many doctors readily prescribe it to demanding patients because it satisfies the patient and expedites the visit with the physician.

An argument against the use of antianxiety agents is that anxiety normally accompanies growth and change and is an important ingredient in providing the motivation for the most therapeutic work. Unless anxiety is incapacitating, most people can tolerate it without medication, and find anxiety
diminishes rapidly as their energies are directed toward problem solving, growth and possibly psychotherapy.

There is a group of miscellaneous drugs used to treat anxiety that are not benzodiazepines. They are not addictive so are not controlled substances. Hydroxyzine (Atarax and Vistaril) is one of these drugs. Although it is chemically an antihistamine, it is used to treat anxiety, tension, or psychomotor agitation. It does not have the skeletal muscle relaxant effect of the other two groups of antianxiety drugs. Hydroxyzine is also used to reduce narcotic requirements prior to, and following surgery or delivery, and to control nausea and vomiting.

Another new antianxiety agent is buspirone (Buspar). Its mechanism is not understood but it controls anxiety with less sedation than any of the other drugs. It is also non-addictive.

<table>
<thead>
<tr>
<th>GENERIC NAME</th>
<th>BRAND NAME</th>
<th>MAXIMUM DAILY DOSE</th>
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<tr>
<td>BENZODIAZEPINES</td>
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<tr>
<td>Alprazolam</td>
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<td>Atarax, Vistaril</td>
<td>300 mg</td>
</tr>
<tr>
<td>Buspirone</td>
<td>Buspar</td>
<td>60 mg</td>
</tr>
<tr>
<td>Meprobamate</td>
<td>Equinal, Miltown</td>
<td>2400 mg</td>
</tr>
</tbody>
</table>
At least 10% of the persons in the United States suffer from a diagnosable mood disorder in their lifetimes. About 1935, systematic use of stimulants as a treatment began with amphetamines. The CNS stimulation by amphetamines resulted in marked analeptic effect, diminished sense of fatigue, alertness, wakefulness, and elevation of mood, but their effects are transitory. These drugs have a high abuse potential because of their excitatory and euphoric effects, and are now controlled substances. Due to their abuse potential and limited, short-term effectiveness, the use of stimulants to treat depression has now been abandoned. Methylphenidate (Ritalin), a non-amphetamine stimulant is now primarily used in the treatment of minimal brain dysfunction (MBD) in children (i.e. hyperkinetic behavior disorders. Stimulants are also used for narcolepsy. The two amphetamines are Benzedrine and Dexedrine. With little or no therapeutic value they are most often heard of today as "street drugs" used illegally to get "high".

Although the underlying causes of mood disorders, which include depression, are still unknown because they are too complex to be explained by a single social, developmental, or biological reason it is believed there is a biological component in mood disorders.

Therapeutic effectiveness may be evidenced by renewed interest in surroundings and personal appearance, elevation of mood, increased physical activity, improved appetite and sleep patterns, and reduction in morbid preoccupation.

Onset of therapeutic effectiveness may take 2-4 weeks. Attempt at suicide is particularly possible shortly after the initiation of therapy because it is thought that the energy level comes up before the mood does. This gives you a person who still feels depressed but now has the energy to try suicide. Careful observation of the client is important until depression is controlled. Also the HCW must watch to see that the drug is swallowed, not "cheeked", (hidden in the mouth) or hoarded, as unlike the antianxiety drugs, the antidepressant drugs are more lethal. If no improvement occurs after a four to eight week trial the drug is usually discontinued and possibly another one is tried. Due to adverse reactions between the types of antidepressants, they should not be given within two weeks of each other to the same client. Most treated episodes of depression last approximately three months. Maintenance therapy is usually continued three to six months after a two-month period of apparent remission. Drug withdrawal should be gradual. Abrupt termination of drug therapy, especially in person receiving high doses for two months or longer, may result in nausea, headache, malaise, muscle aches, irritability and insomnia.

The slowness in taking effect of the antidepressant drugs, especially the tricyclics one of the big problems in their use. The patient often becomes discouraged and stops taking the medication because he/she does not feel it is working. The therapeutic success of the antidepressant may depend on some knowledgeable patient counseling to explain this slowness and to point out that the little changes, the patient is having DO indicate progress.

Antidepressants are also referred to as psychic-energizers or mood elevators. The antidepressants can be divided into several chemical groups; the MAO inhibitors, the tricyclics, the SSRI's, and a miscellaneous group that are chemically dissimilar to the others and for the most part also to each other.
After much biochemical research, the monamine oxidase (MAO) inhibitors were first introduced in the 1950’s. Monamine oxidase (MAO) is an enzyme that breaks down norepinephrine (NE), so the MAO inhibitors keep the level of NE up and that elevates the mood. The MAO inhibitors are effective antidepressants, but they cause side effects troublesome enough to limit their usefulness. A dangerous side effect of the MAO inhibitors is hypertensive crisis, and it can be caused by patients who are on these drugs eating foods heavy in amines usually destroyed by MAO, or heavy in other ingredients that increase NE availability. Since the MAO is not available to deal with the increased NE, the client is over stimulated. The symptoms of hypertensive crisis are:

A. Intense occipital headache with increased blood pressure, chills, fever, stiff neck, nausea, vomiting, diaphoresis and twitching.

B. Severe hypertension with constricting chest pains, apprehension, diaphoresis and collapse.

C. Cerebral hemorrhage with constricting chest pains, palpitations, pallor, hypertension, bradycardia, or tachycardia, and diaphoresis.

Chlorpromazine 50-100mg., I.M. is often effective in aborting the episode.

Foods to be avoided by patients receiving MAO inhibitors are because they contain significant quantities of tyramine, which breaks down into amines, or because they contain vasopressors:

<table>
<thead>
<tr>
<th>Aged cheese</th>
<th>Chicken livers</th>
<th>Beer</th>
<th>Red wine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yeast products</td>
<td>Figs</td>
<td>Raisins</td>
<td>Chocolate</td>
</tr>
<tr>
<td>Pickled herring</td>
<td>Licorice</td>
<td>Soy Sauce</td>
<td>Tea, Coffee</td>
</tr>
<tr>
<td>Meat tenderizers</td>
<td>Cocoa</td>
<td>Colas</td>
<td>Fava Beans</td>
</tr>
</tbody>
</table>

MAO inhibitors also potentiate the effects of many drugs. They can also create hypertensive crisis when given with certain other drugs including the tricyclics and SSRI’s. The person on MAO inhibitors must be warned not to eat or drink anything on the “foods to be avoided list” and not take any drugs without the doctor’s consent. Many cold preparations, antihistamines, etc., react adversely with the MAO inhibitors. The drugs in this family are Isocarboxazid (MARPLAN), Phenelzine (NARDIL), and Tranylcypromine (PARNATE).

Common side effects of MAO inhibitors are hypotension, ACE, and sedation or insomnia depending on the drug used.

TRICYCLICS

The tricyclics were introduced in the 1960’s. The choice of the specific drug is usually based on the need to minimize certain side effects; e.g. sedation, urinary retention, or hypotension. The drugs included in this group are: Amitriptyline (ELAVIL), Amoxapine (ASENDIN), Clomipramine (ANAFRANIL), Desipramine (NORPRAMIN OR PERTOFRANE), Doxepin (ADAPIN OR SINEQUAN), Imipramine (TOFRANIL), Nortriptyline (AVENTYL OR PAMELOR) and Protriptyline (VIVACTIL).

Sinequan has a greater antianxiety effect than the other tricyclics.

Side Effects: All tricyclics cause ACE with Elavil displaying the most and Norpramin causing the least. Norpramin and Aventyl are less sedating than Elavil, Sinequan or Tofranil. Vivactyl is the least sedating. Other side effects are orthostatic hypotension and EPS, especially pseudo parkinsonism. The overall rule of thumb is that tricyclics cause more ACE and less EPS than antipsychotics.
Tricyclics can also cause two psychototropic side effects: increased mania in a manic-depressive patient and activation of latent schizophrenia.

**SSRI'S**

The SSRI's are a newer class of antidepressants, chemically unrelated to other antidepressants. They have become the most widely used class of antidepressants. They are equally effective in treating depression as the tricyclics. An added advantage is that they do not have the ACE and cardiovascular side effects. Drugs in this group are Fluoxetine (PROZAC), Fluvoxamine (LUVOX), Paroxetine (PAXIL), and Sertraline (ZOLOFT).

**Side Effects:** Restlessness, agitation, anxiety, insomnia, sedative effects, and anorexia. and G.I. distress.

**MISCELLANEOUS AGENTS**

There also are another group of antidepressant drugs that don't belong to any of the previous classes. These include Bupropion (WELLBUTRIN) and Maprotiline (LUDIOMIL); both of which have limited use currently because they can cause seizures. Also in this group of miscellaneous drugs are Trazadone (DESYREL) and Venlafaxine (EFFEXOR). Desyrel has a low incidence of ACE, which makes it useful in patients whose antidepressant doses are limited by their anticholinergic side effects.

<table>
<thead>
<tr>
<th>GENERIC NAME</th>
<th>BRAND NAME</th>
<th>DAILY MAINTENANCE DOSE</th>
<th>MAXIMUM DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAO INHIBITORS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phenelzine</td>
<td>Nardil</td>
<td>15 – 60 mg</td>
<td>90 mg</td>
</tr>
<tr>
<td>Tranylcypromine</td>
<td>Parnate</td>
<td>30 mg</td>
<td>60 mg</td>
</tr>
<tr>
<td><strong>TRICYCLIC ANTIDEPRESSANTS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amitriptyline</td>
<td>Elavil</td>
<td>150 – 250 mg</td>
<td>300 mg</td>
</tr>
<tr>
<td>Amoxapine</td>
<td>Asendin</td>
<td>200 – 300 mg</td>
<td>600 mg</td>
</tr>
<tr>
<td>Clomipramine</td>
<td>Anafranil</td>
<td>100 – 150 mg</td>
<td>250 mg</td>
</tr>
<tr>
<td>Desipramine</td>
<td>Norpramin</td>
<td>75 – 200 mg</td>
<td>300 mg</td>
</tr>
<tr>
<td>Doxepin</td>
<td>Adapin, Sinequan</td>
<td>At least 150 mg</td>
<td>300 mg</td>
</tr>
<tr>
<td>Imipramine</td>
<td>Tofranil</td>
<td>150 – 250 mg</td>
<td>300 mg</td>
</tr>
<tr>
<td>Nortriptyline</td>
<td>Aventyl, Pamelor</td>
<td>50 – 75 mg</td>
<td>100 mg</td>
</tr>
<tr>
<td>Generic Name</td>
<td>Brand Name</td>
<td>Daily Maintenance Dose</td>
<td>Maximum Dose</td>
</tr>
<tr>
<td>--------------</td>
<td>------------</td>
<td>------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Protriptyline</td>
<td>Vivactyl</td>
<td>20 – 40 mg</td>
<td>60 mg</td>
</tr>
</tbody>
</table>

### SSRI'S

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Daily Maintenance Dose</th>
<th>Maximum Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluoxetine</td>
<td>Prozac</td>
<td>20 – 60 mg</td>
<td>80 mg</td>
</tr>
<tr>
<td>Fluvoxamine</td>
<td>Luvox</td>
<td>100 – 300 mg</td>
<td>300 mg</td>
</tr>
<tr>
<td>Paroxetine</td>
<td>Paxil</td>
<td>20 – 50 mg</td>
<td>50 mg</td>
</tr>
<tr>
<td>Sertraline</td>
<td>Zoloft</td>
<td>50 – 200 mg</td>
<td>200 mg</td>
</tr>
</tbody>
</table>

### MISCELLANEOUS AGENTS

<table>
<thead>
<tr>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Daily Maintenance Dose</th>
<th>Maximum Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trazadone</td>
<td>Desyrel</td>
<td>150 – 400 mg</td>
<td>600 mg</td>
</tr>
</tbody>
</table>
A disproportionate number of the developmentally disabled (mentally retarded) are also afflicted with seizure disorders. It is important for the HCW recognize different types of seizures and know how to give proper care during and after a seizure. It is also important to accurately report and record seizure activity. Most seizures can be eliminated by proper medications, but the only way a doctor can determine the effectiveness of the medication he/she is prescribing is by accurate observing and reporting by the HCW.

In general, anticonvulsant therapy should start with the use of a single, preferably non-sedating drug. However, an anticonvulsant that works well on one person may not necessarily work with another, so doctors often need to try different drugs or different combinations before coming up with the best method of controlling a particular person’s seizures. Occasionally, some patients will require multiple drug therapy with a combination of sedating and non-sedating drugs and will still not be completely seizure free.

The first true anticonvulsant drug was Phenytoin sodium (Dilantin). It is thought that an anticonvulsant drug works by raising the seizure threshold. There are now several groups and kinds of anticonvulsant drugs. These include Barbiturates, e.g. phenobarbital, mephobarbital & primidone, and Benzodiazepines, e.g. clonazepam & diazepam, which are sedating. Non-sedating groups are considered to be the Hydantoins. e.g. phenytoin, mephenytoin & ethotoin and the Succinimides, e.g. ethosuximide and the miscellaneous drugs, e.g. carbamazepine, valproic & divalproic acid, felbamate, gabapentin and lamotrigine.

Different drugs are use to treat different kinds of seizures. Children will need a smaller dose of medication figured by careful computation, using body weight and sometimes age as part of the calculation.

Due to the multiple adverse reactions to anticonvulsant drug, patients should be maintained at the lowest effective dose level. Blood work should be done regularly to pick up hematological and hepatic malfunctions as some drugs cause liver damage & blood dyscrasias.

**SIDE EFFECTS COMMONLY SEEN ARE:**

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>Epigastric Pain</td>
<td>10. Irritability</td>
<td>15. Urinary Frequency</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>16. Gingival Hyperplasia</td>
</tr>
</tbody>
</table>
## Pharmacology

<table>
<thead>
<tr>
<th>GENERIC NAME</th>
<th>BRAND NAME</th>
<th>DOSE RANGE</th>
<th>USE IN SEIZURES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BARBITUATES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mephobarbital</td>
<td>Mebaral</td>
<td>400 – 600 mg/day</td>
<td>Grand mal, petit mal</td>
</tr>
<tr>
<td>Phenobarbital</td>
<td>Luminal</td>
<td>100 – 300 mg/day</td>
<td>All forms of epilepsy</td>
</tr>
<tr>
<td><strong>BENZODIAZEPINES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clonazepam</td>
<td>Klonopin</td>
<td>Up to 20 mg/day</td>
<td>Petit mal, myoclonic seizures</td>
</tr>
<tr>
<td>Clorazepate</td>
<td>Tranxene</td>
<td>Up to 90 mg/day</td>
<td>Focal seizures</td>
</tr>
<tr>
<td>Diazepam</td>
<td>Valium</td>
<td>Up to 30 mg/day</td>
<td>All forms of epilepsy. Used in conjunction with other agents</td>
</tr>
<tr>
<td><strong>HYDANTOINS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mephenytoin</td>
<td>Mesantoin</td>
<td>200 – 600 mg/day</td>
<td>Grand mal, psychomotor, focal seizures, Jacksonian seizures</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>Dilantin</td>
<td>300 – 600 mg/day</td>
<td>Grand mal, psychomotor seizures</td>
</tr>
<tr>
<td><strong>SUCCINIMIDES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethosuximide</td>
<td>Zarontin</td>
<td>1000 – 1250 mg/day</td>
<td>Petit mal</td>
</tr>
<tr>
<td><strong>MISCELLANEOUS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>Tegretol</td>
<td>Up to 1200 mg/day</td>
<td>Grand mal, partial. Can be used to treat Bipolar disorders when Lithium is not optimal</td>
</tr>
<tr>
<td>Lamotrigine</td>
<td>Lactimal</td>
<td>300 – 500 mg/day</td>
<td>Used in combination to treat partial seizures</td>
</tr>
<tr>
<td>Primidone</td>
<td>Mysoline</td>
<td>750 – 1000 mg/day</td>
<td>Used in combination to treat partial and tonic-clonic seizures</td>
</tr>
<tr>
<td>Valproic Acid</td>
<td>Depekene</td>
<td>Up to 30 mg/kg</td>
<td>Generalized clonic-tonic seizures. Can be used to treat Bi-polar disorders when lithium is not optimal</td>
</tr>
<tr>
<td>Divalproex Sodium</td>
<td>Depakote</td>
<td></td>
<td>Easier on G.I. System than valproic acid</td>
</tr>
<tr>
<td>Felbamate</td>
<td>Felbatrol</td>
<td>1200 mg/day</td>
<td>Partial seizures that are unresponsive to other drugs</td>
</tr>
</tbody>
</table>
STUDY GUIDE VIII
DRUGS COMMONLY PRESCRIBED FOR DEVELOPMENTALLY DISABLED CLIENT

There are actually no drugs to treat developmental disability/mental retardation. The drugs commonly prescribed for developmentally disabled clients are to treat symptoms of disorders which the client has in addition to being retarded such as medications for asthma or G.I. problems.

Some of the commonly prescribed drugs for the developmentally disabled are: vitamins for those suffering from vitamin deficiencies; cardiac medications (Down's Syndrome clients usually have heart defects of one kind or another); antibiotics for those who are very prone to developing infections; muscle relaxants for relief of skeletal muscle spasms accompanying neurological disorders, such as cerebral palsy and paraplegia; antianxiety drugs for clients with high anxiety levels and tension; antipsychotics for those with psychotic symptoms; and thyroid for clients with cretinism.

Thyroid is given as a replacement or substitution therapy in primary hypothyroidism conditions such as cretinism. Initially, thyroid is administered in low doses and increased every two weeks until final maintenance level is determined. Pulse rate is a clue to effectiveness. During dose adjustment period, count pulse before each dose. Consult physician if rate is 100 or more.

The child suffering from cretinism is born without a thyroid gland or with one so small it is practically nonfunctioning. At birth the infant does not show signs of severe thyroid deprivation because during the prenatal period the mother's blood has been supplying adequate hormone to the fetus. Between the 6th and 12th week after birth, the signs of severe deprivation of thyroxin becomes apparent. If untreated, by the time the child is six months old, some irreversible damage has occurred in the brain. The earlier the condition is diagnosed and treated the better the prognosis. The person with cretinism must take thyroid medication daily throughout his/her life. The symptoms of over dosage are, in general, those of hyperthyroidism: Palpitations, tachycardia, pain over the heart, dyspnea, nervousness, insomnia, tremor, hypoglycemia, sweating and weight loss.

The antipsychotics were commonly used to treat agitation and acting out behaviors in the past. but can not be used now unless there is an underlying psychosis as determined by the therapeutic review committee. Other interventions, including behavior modification are now used to control behavior.

One medication that is being used currently to treat SIB (self injurious behavior) clients is Naltrexone. It is a pure opioid antagonist. It is thought to block the chemicals released by the brain during self abuse which are in some ways similar to the ones released by the use of opiates (e.g. morphine). It is used to decrease the amount of SIB behavior in some clients for whom it is a serious problem. It can be given 50 mg/day or alternatively 100 mg every other day or 150 mg every three days. Side effects are: nausea, vomiting, headache, anorexia, abdominal cramps and hepatotoxicity.
HISTORY

The first modern psychotropic medication, lithium carbonate, was developed in 1949, by an Australian named Cade. Since that time, it has been widely used in England and Europe (especially Scandinavia) to treat clients suffering from manic depression. Doctors in those countries report improvement with 60–100% of their cases, but was not widely used in this country until 1968–1969, because of an unfortunate occurrence in the 1940s.

Now the Food and Drug Administration (FDA) approved use for lithium is phrased as follows “Lithium Carbonate is indicated in the treatment of manic episodes of manic-depressive illness. Maintenance therapy prevents or diminishes the intensity of subsequent episodes in those patients with a history of mania”.

CHEMICAL REACTION

Biochemically, research shows that lithium decreases the amount of Norepinephrine (NE) available to the brain for discharge onto receptors. This effect is opposite to that of many euphoriant and antidepressant drugs (see Study Guide 6).

SYMPTOMS

Common symptoms of mania are: aggressiveness grandiose or flight of ideas, distractibility, poor judgment, talkativeness, extreme hyperexcitability, ceaseless activity, to the point of exhaustion, sleeplessness, highs of grandiose bizarre thoughts, inappropriate mood elevation, and irritability.

USE, DOSE AND CAUTIONS

Lithium carbonate is now the drug of choice in treating the manic phase of manic-depressive psychosis and for preventing the recurrence of both mania and depression. A client’s tolerance for lithium is greatest during acute manic phase and decreases as manic symptoms subside. When therapeutic effect is achieved, physicians will reduce the dosage rapidly, to prevent toxicity. Peak therapeutic effects usually occur 7 to 10 days after initiation of therapy: some evidence of control may be apparent within a few days. If there is no therapeutic effect within two weeks, the drug is usually discontinued.

Because lithium is a toxic substance and the therapeutic level and the toxic level may not be far apart, it is imperative that serum lithium levels be drawn and reported. Some mental health facilities will do this daily, and others, every other day until the client is stabilized. Monthly blood tests can be done when client is on maintenance doses. Blood samples should be drawn before morning lithium dose is administered. Doses are determined by the results of these blood tests of lithium levels. Doses are usually started at 600 mg. t.i.d., until a therapeutic blood level of between 0.8 and 1.5 mEq. per liter is reached. To maintain proper blood levels, the drug must be given in divided daily doses.
Once the manic crisis has broken, most clients can be maintained on 300 mg. t.i.d. Maintenance serum lithium levels should be between 0.6 and 1.2 mEq./liter. If it goes over 1.5, the client will begin to show toxic symptoms.

**CONTRAINDICATIONS AND SIDE EFFECTS**

Lithium is contraindicated in clients with cardiac or renal failure (Lithium must be excreted by the kidneys) or in salt poor conditions (a lack of sodium can cause increased retention of lithium) or with diuretics.

At first, some side effects are expected with Lithium – slight gastrointestinal disturbances, muscle weakness, fine tremor of hands, dazed feeling, polyuria, and thirst. These symptoms usually coincide with peaks of serum lithium. They should disappear in a few weeks, except the fine tremor, polyuria, and thirst may continue. Some clients develop toxic-confusional reactions resembling organic brain syndromes. These will go away with decreased dosage or discontinuation of the drug.

Adequate fluid and salt intake must be maintained, and the use of diuretics avoided when lithium is being given. Client teaching is necessary when this drug is being administered. Some physicians feel they help avoid increased lithium levels by giving low doses of salt (NACL) with the lithium. This also helps avoid kidney problems.

**TOXICITY**

Toxicity occurs when the serum level of lithium goes over 2 mEq./L. It is usually fatal if the level goes to 4 – 6 mEq./L. The prodromal picture for lithium toxicity is one of more or the following: Languor, twitching, anorexia, sluggishness, course tremor, vomiting, drowsiness, dysarthria and diarrhea.

With the appearance of any of these symptoms, a serum lithium level should be determined immediately. It is important that the family and client understand the importance of reporting these symptoms – thus, the importance of client teaching.

The prodromal symptoms usually last for several days to a week before the client goes into severe toxicity. There are several reasons why a client on lithium maintenance may become toxic:

1. The client has failed to take the medication in quantities and at time prescribed.
2. The client has for some reason had a sharp decrease in salt.
3. The client has developed an intercurrent illness which has decreased renal capacity to excrete lithium or in some way has affected salt and water balance: vomiting, diarrhea, diuresis, infection, fever, excessive perspiration.

The client, who is exhibiting toxic symptoms and has a sudden onset of increased blood serum level, should have the drug discontinued. The cause of the difficulty must be determined before it is safe to restart the client on lithium. If prodromal signs and symptoms are ignored and the client’s lithium level continues to climb, severe toxicity will occur. Severe toxicity usually consists of tremors, seizures, arrhythmias, hypotension, circulatory collapse, coma and death.

The best treatment for toxicity is prevention because severe toxicity is very difficult to treat. There are no specific antidotes for lithium. Treatment consists usually of symptomatic relief-maintenance of...
Pharmacology

an airway: administration of respiratory stimulants, and IV fluids to correct fluid and electrolyte imbalance, drugs that increase renal excretion of lithium and dialysis. Supportive therapy should continue for several days, since brain tissue releases sodium slowly.

Lithium can usually be safely given with most major tranquilizers. Some physicians prescribe a sedating antipsychotic drug to help control agitation until the lithium becomes effective.

If the depression is severe, antidepressants are sometimes prescribed with lithium. However, in some clients, the antidepressant may bring about a hypomanic phase. The client on lithium can feel happy and excited with a manic elation.

**SUMMARY OF LITHIUM SIDE EFFECTS**

<table>
<thead>
<tr>
<th></th>
<th>EXPECTED</th>
<th>PRODROMAL TOXICITY</th>
<th>TOXICITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNS</td>
<td>Fine tremors</td>
<td>Course tremors</td>
<td>Seizures</td>
</tr>
<tr>
<td>SENSORIUM</td>
<td>Lethargy, dazed feeling</td>
<td>Languor</td>
<td>Coma</td>
</tr>
<tr>
<td>GU</td>
<td>Polyuria, Polydipsia</td>
<td>Retention</td>
<td>Kidney failure</td>
</tr>
<tr>
<td>GI</td>
<td>Mild distress</td>
<td>Nausea, vomiting, diarrhea</td>
<td>Liver failure</td>
</tr>
<tr>
<td>CV</td>
<td>None</td>
<td>Arrhythmias, Hypotension</td>
<td>Cardiac collapse</td>
</tr>
</tbody>
</table>
INTRO
- Before antipsychotics, people chained to walls
- Hydro-therapy
- Massive deinstitutionalization by Reagan
- Drugs: psychotropic and anti-convulsants
don't cure mental illness, epilepsy, or mental retardation
- Provide symptomatic relief
- Increase quality of life
Antipsychotics (major tranquilizers)

- Goal: calm client with minimum side effects
- Phenothiazine
  - Thorazine: first widely used med for agitation
- Non-phenothiazine
  - Risperdal: less EPS

Side Effects

- EPS: tight throat, drooling, shuffling gait, restlessness
- Neuroleptic Malignant Syndrome: fever and severe EPS (rare)
- Anticholinergic Side Effects (ACE): blurred vision, dry mouth, tachycardia, (fight or flight)
- Autonomic Nervous System: drowsiness, postural hypotension

Torticollis
Slide 7

**Side effects continued**
- Life threatening (mostly phenothiazines)
  - obstructive jaundice: fever, abdominal pain, itching
  - blood dyscrasia: fever, sore throat, chills
  - both may resemble flu-like symptoms
  - need regular blood tests to pick up early signs of liver or blood disease
- Allergic
  - dermatitis
  - photosensitivity

Slide 8

**Extrapyramidal Symptoms (EPS)**
- Occurs in 1/3 of clients placed on antipsychotic meds
  1. Dystonia - muscle tone dysfunction
    - oculogyric crisis
    - torticollis
  2. Pseudoparkinsonian symptoms
    - shuffling gait, mask-like face
  3. Akathisia
    - not sitting, restlessness

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**EPS continued**
- Tardive Dyskinesia
  - late developing persistent eps resulting from long consistent use of antipsychotic meds
  - prevention is best approach; consider drug holidays for long term med use
  - choreiform: tic-like movements usually effecting tongue, face, and neck muscles
  - also effects posture and breathing muscles
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CNS medication effects motor control

- Central nervous system
- Brain
- Spinal cord
- Peripheral nervous system
- Peripheral nerve

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Other substances which may effect motor control

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Anti-EPS meds and Side effects

- Anticholinergics:
  - Cogentin (.5mg), Artane, Akineton, Benadryl (25mg)
  - Side Effects (ACE)
    - Blurred vision, dry mouth, tachycardia, (fight or flight) constipation
Antianxiety (minor tranquilizers)

- Used to treat neurosis, not psychosis
- Cause dependence
- Will aggravate or increase depression
- Side Effects:
  - Drowsiness, skin rash, slurred speech, ataxia
  - Valium - Addictive keep daily dose <60mg
  - Buspar - Non-addictive less side effects

Antidepressant meds

- MAO inhibitors: Nardil, Parmate
  - Can cause hypertensive crisis when consuming chocolate, cheese, beer, wine
  - Crisis: occipital headache, stiff neck, chest pains, nausea, vomiting
- Tricyclics: Elavil, Vivactil
  - Elavil - Check for blood levels, therapeutic range
  - Cause more ACE and less EPS than anti-psychotics

Antidepressant meds

- Ritalin - Stimulant given to hyperkinetic behavior disorder children (autistic)
- SSRIs
  - Don’t give hs why?
  - Most widely used
  - No ACE but may cause insomnia, especially Prozac
Anticonvulsant drugs

- Dilantin - 1st anticonvulsant
- Carbamazepine widely used at SDC
- Watch for gingival hyperplasia

Other drugs for specific DD conditions

- Thyroid given for hypothyroidism
- Naltrexone used to treat SIB
- Use of antipsychotics to treat behaviors requires approval of therapeutic review committee
Pharmacology

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Questions?

Out Of My Mind:
Back in
5 Minutes