Psychiatric Medications in Behavioral Healthcare

An Important Notice

None of the pages in this tutorial are meant to be a replacement for professional help. The science of medicine is constantly changing, and these changes alter treatment and drug therapies as a result of what is learned through research and clinical experience. The author has relied on resources believed to be reliable at the time material was developed. However, there is always the possibility of human error or changes in medical science and neither the authors nor the University of South Florida can guarantee that all the information in this program is in every respect accurate or complete and they are not responsible for any errors or omissions or for the results obtained from the use of such information. Each person that reads this program is encouraged to confirm the information with other sources and understand that it not be interpreted as medical or professional advice. All medical information needs to be carefully reviewed with a health care provider.

Course Objectives

At the completion of this program participants should be able to:
• Identify at 5 categories of medications used to treat the symptoms of psychiatric disorders, the therapeutic effects of medications in each category, and the side effects associated with medications in each category.
• Identify at least 5 medications and the benefits of those medications as compared to the medications.
• Identify at least 5 reasons that a person may stop taking medications or not take medications as prescribed.
• Demonstrate your learned understanding of psychiatric medications by passing the combined post-tests.

Your Instructors For This Program
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Introduction
You may be taking this online training for one or more of the following reasons:

- You are taking or have considered taking one or more psychiatric prescription medications
- You are a family member or friend of someone who is taking or has considered taking one or more psychiatric prescription medications
- You are a community service provider who is or will be working with people who are taking psychiatric prescription medications

This program is an overview of psychiatric medications used in the treatment of psychiatric disorders. These medications are also referred to as psychotropic medications. This program will cover categories of medication, therapeutic effects, side effects, precautions, and some of the issues associated with adherence to medication treatment.

Medication can be an effective part of the treatment for symptoms of many psychiatric disorders, especially with recent advances in available medication. Over the last 20 years, our knowledge about the brain and its role in mental disorders has increased substantially. Research has provided us with a greater understanding of brain chemistry and of how communication among the billions of small nerve cells, called neurons, results from the release of tiny quantities of chemicals called “neurotransmitters.”

Important neurotransmitters are norepinephrine, epinephrine, dopamine, serotonin, gamma-aminobutyric acid (GABA), acetylcholine and more recently glutamate and glycine. Disruptions to this complex communication system can be caused by physical injury, poisons, infections, cancer, neurologic disorders, abuse of substances like drugs and alcohol, or psychological stress.

It is theorized that these disruptions in brain chemistry, which result in the symptoms of certain psychiatric disorders, occur more frequently in the brains of individuals who have a genetic predisposition to these disorders. In many cases, psychiatric medications can help by affecting the number or activity of these neurotransmitters and/or the brain receptors on which they act.

Even with the advances in our understanding of the brain, these medications treat on the symptoms of a mental disorder and they do not cure it. Other treatment strategies (such as counseling) may be as important as taking medication. Additionally, the experiences a person has with his/her medications can interfere with or enhance other treatments they are receiving.

This web-training will never replace the importance of communication and interaction with a physician, psychiatrist or other psychiatric medical professional. However, a person taking a psychiatric medication should have adequate medication knowledge to be an informed and active participant in her/his treatment. The more knowledge and understanding a person has, the more informed she/he will be when making decisions about her/his treatment.
All behavioral health providers should have an understanding of psychotropic medications. Direct service providers are often the best resource their clients have for this information. For some individuals, direct care providers including case managers may be the only resource available to them.

This program includes three modules. The first two modules will cover the following major categories of medications with the third module addressing treatment adherence:

- Antidepressants
- Mood Stabilizers
- Antipsychotics
- Antiextrapyramidals
- Anti-anxieties
- Psychostimulants
- Anti-addictives (i.e., medications used to treat the symptoms of alcohol and drug abuse, as well as dependency)

Please Note: Hypnotics are not covered in this program. Although they may be prescribed to treat various symptoms, such as insomnia, hypnotics are not considered first drugs of choice in treating mental disorders.

We will also cover medication names, listing medications in each category by their brand and generic names and uses. This program will also consider the issues related to diagnosis and treatment. In particular, we will discuss the symptoms that are reduced or eliminated by medications in each category.

Ideally, the ultimate goal of medication prescription is to find the medication that provides the maximum benefit in relationship to reducing or eliminating symptoms, while minimizing any adverse side effects. It can be very discouraging for the person who has unfavorable experiences with the first, second, or third medication she/he is prescribed. Providing useful information to the consumer can assist an individual to realize his/her treatment objectives with the assistance of pharmacological interventions.

We will also present the potential side effects from taking medications and some precautions to follow while taking these medications. All medications carry the potential for side effects. Side effects will vary from medication to medication and from person to person. Each person will respond differently to any particular medication depending on several factors including absorption, metabolism, interactions with other medications or foods, and consistency in following a medication treatment as prescribed. As a result any individual placed on a medication may or may not develop side effects and if they do, those side effects may range from minimal to severe.

Side Effects and Precautions

Side Effects are always possible
Side effects are the undesired effects of taking medications and are different for different medications. There is always the potential for developing side effects from any medication that a person takes. Some side effects can be very uncomfortable, debilitating, and difficult to tolerate. Many other side effects will be minimal and easier to tolerate.

Each person responds to medication differently

It is also important to recognize that each person will respond to any given medication differently from another person taking the same medication. Differences in metabolism, absorption, and other variables, such as interactions with other medications, often determine the side effects that may emerge.

Prescribing medications is not an exact science

A physician cannot predict how a person will respond to any given medication. Ideally, a physician’s goal is to prescribe the medication that provides the most benefit in reducing or eliminating symptoms with minimal side effects. Therefore, it is important for a person to recognize that determining the medication(s) that will work most effectively for her/him may require several trials with different medications. Having information about the medications prescribed will give a person the necessary advantage of recognizing side effects and communicating any problems to the physician.

Medication Adherence

Finally, this program will look at some of the reasons why a person may stop or is not taking his/her medications as prescribed, as well as provide some strategies that may help individuals to make informed decisions regarding their medications.

The use of the term “adherence” in this program refers to the degree that an individual’s behavior is consistent with prescribed treatment and suggests collaboration. The term “compliance” seems to have a more negative interpretation suggesting obedience, disobedience, and implies blame for the failure to be consistent with prescribed treatment.

**Module 1**

*Medications for Mood and Thought Disorders*

Antidepressant
Antidepressants refer to the category of medications that treat depressive symptoms. This section will discuss the use of antidepressant medication as it relates to the following:

I. Diagnosis and treatment
II. Antidepressant Medication Names and Uses
III. Side Effects and Precaution

Diagnosis and Treatment

Psychiatric disorders that have a constellation of symptoms generally treated with antidepressants include the following:

- Major Depression
- Dysthymic Disorder
- Situational Depression
- Bipolar Disorder (Depressive symptoms)

The physiological symptoms of depression can include:

- sleeping more than usual or difficulty getting restful sleep
- eating more than usual or appetite is depressed
- feeling overly tired and fatigued
- decreased sex drive
- feeling a restlessness and/or anxiety
- difficulty with concentration and forgetfulness

Psychological symptoms common to all depressions (but not always present) include:

- feelings of sadness, despair, emptiness
- low self-esteem
- apathy (loss of interest, indifference, low motivation and social withdrawal)
- loss of interest in activities or hobbies once pleasurable, including sex
- high level of emotional sensitivity
- loss of the ability to experience pleasure
- irritability, short tempered
- negative, pessimistic thinking
- suicidal ideas

These symptoms are common to all types of depression including emotional reactions to:

- minor events that last a few hours to a few days
- interpersonal losses such as the death of a loved one, divorce, or loss of a job (The person can relate the sadness to the loss and the sadness lessens over time.)
- a medical condition or medication reaction
Depression stemming from these sorts of conditions is often referred to as “situational” or “reactive” depression.

With a clinical depression, however, symptoms would:

- be persistent and overwhelming
- impair normal involvement in school, work, intimate relationships, etc.
- include physiological symptoms

Antidepressant medications, especially those considered new generation antidepressants, have been approved or are used “off label” also for the treatment of the following disorders:

- Panic disorders
- Agoraphobia
- Bulimia & Anorexia
- Enuresis (bed wetting)
- Obsessive Compulsive Disorder
- Chronic pain, including fibromyalgia
- Attention Deficit Disorder/Attention Deficit Hyperactivity Disorder
- Anafranil, for example, was the first antidepressant specifically approved for use in the treatment of obsessive compulsive disorders. The medication may treat underlying depressive symptoms associated with these disorders or the antidepressant medications may, in themselves, regulate the neurotransmitters or other brain chemistry that contribute to OCD (Obsessive‐Compulsive Disorders).
- Individuals who are experiencing both the common symptoms and prolonged physiological symptoms are good candidates for antidepressant medication as an integrated part of their treatment. However, depressive symptoms can be due to other possible causes, such as physical illness or side effects of medications and as a best practice, have been ruled out.
- Antidepressant medications are not “happy” pills and will not totally erase the feelings of sadness or emptiness. Most improvements will be seen in the physiological symptoms. Ideally, symptom improvement will include sleeping more restfully, feeling less fatigued or having more energy, experiencing better frustration tolerance, having less crying spells, and a reduction in anxiety states to name a few.
- However, recent research funded by the National Institute of Mental Health has implications for Depression treatment. The results of this study by Tony Tang of Northwestern University found that drugs which increase levels of the chemical serotonin in the brain, reduced neuroticism and increased extroversion, two of the five traits thought to define personality and shape a person's day-to-day thoughts and behavior. These drugs seem, in effect, to relieve depression by reducing the supply of negative thoughts that feed the mental disorder.

Individual antidepressant medications are often classified as either
“old generation” or “first generation” antidepressants and
“new generation” or “second generation” antidepressants.

For the purpose of this presentation we will use the terms first and second generation when discussing the following antidepressants.

First Generation Antidepressants

The term “first generation antidepressant” refers to antidepressant medications traditionally used to treat depression prior to 1985. The first generation antidepressants include:

- Tricyclic compounds (TCAs) and
- Monoamine Oxidase Inhibitors (MAOIs).
- Tricyclic Antidepressants

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
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<tbody>
<tr>
<td>Anafranil</td>
<td>clomipramine</td>
</tr>
<tr>
<td>Asendin</td>
<td>amoxapine</td>
</tr>
<tr>
<td>Aventyl, Pamelor</td>
<td>nortriptyline</td>
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<tr>
<td>Elavil, Endep</td>
<td>amitriptyline</td>
</tr>
<tr>
<td>Ludiomil</td>
<td>maprotiline</td>
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<tr>
<td>Norpramin, Pertofrane</td>
<td>desipramine</td>
</tr>
<tr>
<td>Sinequan, Adapin, Silenor</td>
<td>doxepin</td>
</tr>
<tr>
<td>Surmontil</td>
<td>trimipramine</td>
</tr>
<tr>
<td>Tofranil, Tofranil-PM, Janimine</td>
<td>imipramine</td>
</tr>
<tr>
<td>Vivactil</td>
<td>protriptyline</td>
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Monoamine Oxidase Inhibitors (MAOIs)

There are several limitations to first generation antidepressants. For instance, it generally takes 2 to 4 weeks for a person to begin experiencing benefits of these medications. Someone who has not been informed of this...
2-4 week adjustment period may be more likely to stop taking the medication if they believe it is not helping, and especially if they are having to cope with uncomfortable or debilitating side effects.

First generation medications also pose a bigger concern because they can be lethal when taken as an overdose. If a person’s clinical depression includes suicidal thoughts, the possibility of overdose is greater during the initial adjustment period. Access to potentially lethal quantities should be limited and monitored.

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
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<tbody>
<tr>
<td>Marplan</td>
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<tr>
<td>Nardil</td>
<td>phenelzine</td>
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<tr>
<td>Parnate</td>
<td>tranylcypromine</td>
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Antidepressant Names and Uses

Second Generation Antidepressants

Wellbutrin, introduced in the 1980’s, was one of the first of the second generation antidepressants. However, it did not receive widespread public attention during its initial introduction to the market. Prozac was the first of the second generation antidepressants to enter into the American mainstream in a way that no other psychiatric medication had. It illuminated the fact that depression was a treatable disorder.

Second generation antidepressants include Selective Serotonin Reuptake Inhibitors (SSRIs), Selective Norepinephrine Reuptake Inhibitors (SNRIs), and other antidepressants that do not fit any of these groups.

Selective Serotonin Reuptake Inhibitors (SSRIs)

<table>
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<tr>
<th>Brand Name</th>
<th>Generic Name</th>
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<tbody>
<tr>
<td>Celexa</td>
<td>citalopram</td>
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<tr>
<td>Lexapro</td>
<td>escitalopram oxalate</td>
</tr>
<tr>
<td>Luvox</td>
<td>fluvoxamine</td>
</tr>
<tr>
<td>Paxil, Paxil CR, Pexeva</td>
<td>paroxetine</td>
</tr>
<tr>
<td>Prozac, Sarafem</td>
<td>fluoxetine</td>
</tr>
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</table>
There have been recent concerns regarding children taking SSRIs and an increased risk of suicide. The FDA did a comprehensive review of pediatric clinical trials done between 1988 – 2006. In the FDA review, no completed suicides occurred among nearly 2,200 children treated with SSRI medications. However, about 4 percent of those taking SSRI medications experienced suicidal thinking or behavior, including actual suicide attempts—twice the rate of those taking placebo, or sugar pills.

**Selective Norepinephrine Reuptake Inhibitors (SNRIs)**

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
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<tbody>
<tr>
<td>Cymbalta</td>
<td>duloxetineine</td>
</tr>
<tr>
<td>Effexor, Effexor XR</td>
<td>venlafaxine</td>
</tr>
<tr>
<td>Pristiq</td>
<td>desvenlafaxine</td>
</tr>
<tr>
<td>Serzone</td>
<td>nefazodone</td>
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</table>

**Other Anti-depressants**

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
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<tbody>
<tr>
<td>Aplenzin</td>
<td>bupropion hydrobromide</td>
</tr>
<tr>
<td>Desyrel</td>
<td>trazodone</td>
</tr>
<tr>
<td>Oleptro</td>
<td>trazodone extended-release</td>
</tr>
<tr>
<td>Remeron</td>
<td>mirtazapine</td>
</tr>
<tr>
<td>Symbyax</td>
<td>olanzapine / fluoxetine HCl</td>
</tr>
</tbody>
</table>
Side Effects and Precautions

When to take note of side effects

Since some drugs may produce undesirable side effects, it is essential to educate the consumer about those that are potentially dangerous. These include constipation, urine retention, diarrhea, vomiting, elevated blood pressure, and/or heart palpitations.

Warning: When experiencing any reactions or side effects that are unusual, annoying, or that interfere with functioning should be reported to the doctor immediately. Also, patients should let their doctor know if they are taking any other medications, including both prescribed and over-the-counter medications to avoid any undesirable effects from drug interactions.

Some of the more common side effects from Tricyclic (TCAs) and Like-Compounds include:

- dizziness
- blurry vision
- drowsiness
- headache
- dryness of mouth
- increased appetite (may include craving for sweets)
- nausea
- tiredness or weakness (mild)
- unpleasant taste
- weight gain
- dizziness
- blurry vision
- drowsiness
- headache
- dryness of mouth
- increased appetite (may include craving for sweets)
- nausea
- tiredness or weakness (mild)
- unpleasant taste
- weight gain

Some of the less common side effects from Tricyclic (TCAs) and Like-Compounds include:
- diarrhea
- heartburn
- increased sweating
- trouble in sleeping
- vomiting
- constipation
- urinary retention

Potential Life Threatening Side Effects

The following side effects are very uncommon, but when they do occur, they require immediate attention by a medical professional:
- confusion or delirium
- constipation (especially in the elderly)
- decreased sexual ability
- difficulty in speaking or swallowing
- eye pain
- fainting; fast or irregular heart beat (pounding, racing, skipping)
- hallucinations
- loss of balance control
- mask-like face
- nervousness or restlessness
- problems in urinating
- shakiness or trembling
- shuffling walk
- slowed movements
- stiffness of arms and legs

Side effects and potential lethality in overdose are the major drawbacks of the TCAs. An overdose of as little as a 7-day supply of a TCA can result in potentially fatal cardiac arrhythmias (Kapur et al., 1992). Symptoms of acute overdose include:
- confusion
- convulsions (seizures)
- disturbed concentration
- drowsiness (severe)
- enlarge pupils
- fast, slow or irregular heartbeat
- fever
- hallucinations (seeing, hearing, or feeling things that are not there)
• restlessness and agitation
• shortness of breath or troubled breathing
• unusual tiredness or weakness (severe)
• vomiting

Side Effects from Monoamine Oxidase Inhibitors (MAOIs)

Possible side effects from taking an MAOI include:
• dizziness
• fainting
• headache
• tremors
• muscle twitching
• confusion
• memory impairment
• anxiety
• agitation
• insomnia
• sexual dysfunction
• weakness
• drowsiness
• chills
• blurred vision
• heart palpitations
• suppression of angina pain that might otherwise warn of serious heart problems

Discontinuing Use of MAOIs

• Although MAO inhibitors are not addictive, if they are stopped abruptly, it often produces nausea, vomiting, and a general feeling of physical illness. When a person stops taking these medications, he/she should do so under a physician’s supervision.

Foods and MAOIs

Certain foods have high levels of the amino acid “. Such foods should be avoided while taking an MAOI because they can lead to dangerously high increases in blood pressure. The tyramine content of foods varies depending on the type, processing, fermentation, ripening, breakdown, or other factors. There are also medications that should be avoided because of their effect on tyramine metabolism.

Foods to avoid entirely:

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Foods to use with caution (i.e., Taken in amounts less than one-half cup or 120 mL should not pose a risk. Amounts in excess can cause a reaction):

- Alcohol. White wine and port
- Caffeine
- Chocolate
- Dairy products - Cream, sour cream, cottage cheese, cream cheese, yogurt, milk (Do not use if close to expiration date)
- Nuts
- Raspberries
- Soy sauce
- Spinach
- Medications and MAOIs

There are also some medications that interact with MAOIs and can cause a hypertensive crisis (Please take note that some of these medications are other antidepressants):

- Decongestants - phenylpropanolamine, pseudoephedrine, ephedrine.
- Nasal Decongestants – Afrin
- Dextromethorphan
- Amphetamines - Ritalin, Dexedrine, Cylert
- Selective Serotonin Re-uptake Inhibitors - Prozac, Zoloft, Luvox, Paxil
- Wellbutrin
- Effexor
- Epinephrine
- Anti-asthma medications that are Beta agonists
- Antihypertensives - alpha methylldopa, reserpine, guanethidine, pargyline
- Diuretics
Warning: If severe high blood pressure (evidenced by headaches, blurry vision, chest pain, shortness of breath, mental confusion, and sweating) occurs while eating any of the foods or medications on these lists while taking an MAO inhibitor, get emergency treatment.

Potential Side Effects From SSRI Antidepressants

When a person first starts to take an SSRI s/he may experience a number of side-effects while her/his body adjusts to the medication.

Some of the more common side effects from SSRIs include:

- decreased appetite
- diarrhea
- sexual problems
- anxiety
- nausea
- difficulty falling asleep
- headache
- sedation

Some of the less common side effects include:

- restlessness
- vomiting
- mania
- sweating
- constipation
- rash
- tremor

Potential Life Threatening Side Effects From Taking SNRI Antidepressants

Both Effexor and Serzone were developed in late 1990s and both affect norepinephrine and serotonin with fewer side effects than tricyclics. However, there are concerns that these medications may cause liver failure, which can be life threatening.
The physician should be informed if the individual has or has ever had liver disease. If one experiences any of the following symptoms, call the doctor immediately: yellowing of the skin or eyes, unusually dark urine, loss of appetite that lasts several days, stomach pain, nausea, and lack of energy. Many people experience only a few side effects or none at all with most side effects decreasing or even disappearing within a few weeks.

Life Threatening Side Effects from Taking A Combination of Antidepressants

Serotonin Syndrome

The serotonin syndrome is a potentially serious drug-related condition that occurs as a result of elevated levels of serotonin within the system. Serotonin syndrome is most often reported in patients taking two or more medications that increase Central Nervous System serotonin levels by different mechanisms. The most common drug combinations associated with serotonin syndrome involve the Monoamine Oxidase Inhibitors (MAOIs), selective serotonin reuptake inhibitors (SSRIs), and the tricyclic antidepressants (TCAs). The long half-life (as with SSRIs) and duration of effect (as with irreversible MAOIs) seen with some of these medications increase the possibility of serotonin syndrome occurring several weeks after these drugs have been discontinued.

Symptoms of the serotonin syndrome include:
- Mental confusion
- Anxiety
- Hypomania
- The direct service worker should be aware of various symptoms of antidepressants that could indicate a life threatening situation, such as the following:
  - muscle spasms
  - exaggerated reflexes
  - muscle rigidity
  - restlessness
  - tremor
  - lack of muscle coordination
  - shivering
  - seizures
  - involuntary movements of the eyeball
  - accelerated heart rate
  - excess sweating
  - rapid, shallow respirations
  - nausea
  - blood pressure changes
• coma

Although serotonin syndrome can cause death, the condition is mild in most persons, and with supportive care alone they tend to recover completely.

Alcohol and Antidepressants

Drinking alcohol while taking an antidepressant should be avoided especially tricyclic and tricyclic like compounds. Alcohol intensifies the sedative effects of the TCA antidepressants.

Medication Compliance

It will take 4 to 8 weeks to experience the full benefit of an antidepressant. Therefore, it is generally recommended that a person remain on an antidepressant at least 4 to 6 months after they have received symptom relief before s/he considers discontinuing the medication. Relapse rates can be as high as 80% when an antidepressant is discontinued too soon.

Discontinuing Use

Even when an informed decision to discontinue an antidepressant medication has been made, the medication should never be stopped abruptly. Abrupt discontinuation of a SSRI antidepressant may cause several side effects, such as light-headedness, dizziness, nausea, diarrhea, jitteriness, muscle jerks, and tremors. These side effects can be avoided by gradually tapering the medication rather than stopping it abruptly.

Latest Research in Treating Depression

Ketamine

An exciting new area of research is the use of drugs that some small studies have shown to produce rapid relief for depression. Ketamine and scopolamine are two of the drugs involved in these studies. Carlos Zarate Jr, MD, lead NIMH investigator for several Ketamine studies, found in his “STAR-D” studies that only one in three people with major depression achieve remission from depressive symptoms on the first medication prescribed. This leaves two in three people who either have not responded to current antidepressants or take weeks and months to respond.

They believe that ketamine works by blocking the neurotransmitter, glutamate. Small studies of under 33 individuals have shown persuasive results with improvements in depression within 40 minutes or within hours to days following an infusion. The effect lasted 7-10 days in some trials.
There are concerns about its use because of the potential for abuse. It is also known as a club drug (Special K) with a history of being abused. However, it sends the research for rapid response treatments for both major depression and bipolar depression in a new direction for medication development.

Scopolamine

Scopolamine is also being studied for its rapid response results. A double-blind study done by Dr. Wayne Drevets and Dr. Maura Furey confirmed the potential of this class of medications for use in the rapid treatment of depression. Though the study was small, the effects from scopolamine compared to the effects of the placebo were dramatic.

Test scores for depression dropped by 32 percent after three treatments compared to participants taking the placebo, whose scores dropped by 6.5 percent. The improvement in depression scores continued through the end of the trial. Participants starting with placebos were given Scopolamine in the second part of treatment and their depression scores dropped by 53 percent with eleven individuals experiencing complete remission (one of those while on placebo).

Scopolamine works by blocking muscarinic receptors, which is similar to what older tricyclic antidepressants do. Look for more research in the area of rapid response for depression.

Riluzole

Riluzole is also being studied in the treatment of depression. This medication also affects the glutamate system. Glutamate is a common neurotransmitter in the brain and plays a role in memory, cognition, and learning. Riluzole has shown promising results in small studies and the National Institute of Health is funding a large study to attempt to replicate the findings.

Deplin

L-methylfolate, brand name Deplin, is classified by the FDA and approved as a medicinal food to augment medication treatment for Depression. It is indicated for individuals diagnosed with a major depressive disorder who have a low plasma and/or low red blood cell folate and have not responded well to antidepressant therapy alone.

Abilify

Aripiprazole, brand name Abilify and initially approved for use as an Anti-psychotic, was approved by the FDA to use as an augmentation treatment for individuals who have not responded well to antidepressant therapy alone.
Mood Stabilizers

Mood Stabilizers refer to the category of medications that treat symptoms generally associated with bipolar disorder and particularly the symptoms of mania.

I. Diagnosis and Treatment
II. Mood Stabilizer Medication Names and Uses
III. Side Effects and Precautions

Diagnosis and Treatment

Psychiatric disorders that are generally treated with mood stabilizers include bipolar disorder. However, these medications have also been used in the treatment of schizoaffective disorder and conditions characterized by:

- various excited psychotic states
- impulsive aggression
- self-injurious behavior

Mood Stabilizer Medication Names and Uses

Mood Stabilizer Medications include the following:

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
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<tbody>
<tr>
<td>Carbolith, Cibalith, Duralith, Eskalith, Lithane, Lithobid, Lithonate, Lithizine, Litharex, Lithotabs</td>
<td>lithium carbonate</td>
</tr>
<tr>
<td>Depakene</td>
<td>valproic acid</td>
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<td>Depakote</td>
<td>divalproex</td>
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<td>Saphris</td>
<td>asenapine</td>
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<td>Stavzor</td>
<td>valproic acid delayed release</td>
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<td>Lamictal</td>
<td>lamotrigine</td>
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<tr>
<td>Symbyax</td>
<td>Olanzapine/Fluoxetine</td>
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</table>
The FDA-approved mood stabilizers for maintenance treatment of bipolar disorder include lithium, Depakote, and, most recently, Lamictal.

Lithium carbonate (commonly referred to simply as “Lithium”) is considered the medication of first choice for treating the symptoms of a “classic” bipolar disorder and preserving mood stability over time. However, lithium carbonate has not been as effective for persons with “rapid-cycling” or “mixed” bipolar states. Depakote and Depakene have proven to be more effective in treating these conditions. Tegretol has also been effective as a mood stabilizer, but has a less desirable side effect profile.

These medications do help a percentage of individuals, but there is also a substantial number of people who do not receive symptom relief and/or experienced intolerable side effects.

While there have been a number of new medications developed in recent years for the treatment of schizophrenia and depression, there has been a lack of such advances in the treatment of bipolar disorder. As a result, many psychiatrists have begun to prescribe drugs that are primarily indicated for the treatment of other illnesses, but have also shown some effectiveness in the treatment of bipolar disorder in clinical studies.

“Off label” prescriptions are uses of FDA-approved drugs for purposes other than those approved by the agency. For example, aspirin, approved by the FDA as a pain killer, was used to reduce the mortality rate among heart attack victims for years before the FDA sanctioned that use of it.

The FDA has included a warning for possible increased risk of suicidal thoughts and/or behaviors in people who are being treated with Depakote, Lamictal, and other anticonvulsant medications for bipolar disorder. They should be closely monitored for increase suicidal thoughts, suicidal behavior, or any new or unusual changes in mood or behavior.

The following list includes some of the medications prescribed “off-label” as mood stabilizers.

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topamax</td>
<td>topiramate</td>
</tr>
<tr>
<td>Neurontin</td>
<td>gabapentin</td>
</tr>
<tr>
<td>Inderal</td>
<td>proprandol</td>
</tr>
<tr>
<td>Trileptal</td>
<td>oxcarbazepine</td>
</tr>
<tr>
<td>Gabtril</td>
<td>tiagabine</td>
</tr>
<tr>
<td>Keppra</td>
<td>Levetiracetam</td>
</tr>
<tr>
<td>Medication</td>
<td>Medication</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>Zonegran</td>
<td>zonisamide</td>
</tr>
<tr>
<td>Cytomel</td>
<td>liothyronine</td>
</tr>
<tr>
<td>Catapres</td>
<td>clonidine</td>
</tr>
<tr>
<td>Tenex</td>
<td>guanfacine</td>
</tr>
<tr>
<td>Isotpin</td>
<td>verapamil</td>
</tr>
<tr>
<td>Procardia</td>
<td>nifedipine</td>
</tr>
<tr>
<td>Diamox</td>
<td>acetazolamide</td>
</tr>
<tr>
<td>Mexitil</td>
<td>Mexiletine</td>
</tr>
<tr>
<td>Synthroid</td>
<td>Levothyroxine</td>
</tr>
</tbody>
</table>

Note: These medications have a variety of primary uses, including the treatment of seizure, cardiovascular, or thyroid disorders.

Side Effects and Precautions

Side Effects from Mood Stabilizers

The following are some common side effects for some of the mood stabilizer medications:

- Lithium - nausea/vomiting, diarrhea, muscle weakness, fine hand tremors, weight gain, rash, hypothyroidism, decreased renal function
- Tegretol - nausea/vomiting, fatigue, dizziness, drowsiness, skin rashes, hives, leukopenia (reduction in white blood cells)
- Depakote - nausea, drowsiness, and dizziness
- Depakene - indigestion, nausea, vomiting

Potential Life Threatening Side Effects of Lithium
Lithium Toxicity occurs when the body has too much lithium, therefore blood tests to measure the amount of lithium in the bloodstream are done routinely. If a person is lithium toxic, she/he would have some or all of these symptoms:

- mental confusion
- vomiting
- severe muscle tremors
- poor coordination
- slurred speech
- severe diarrhea
- severe drowsiness
- coma

Lithium is eliminated through the kidneys, therefore it is important for a person taking lithium to drink plenty of water and have a normal amount of salt in their system. This is especially important during times when a person is more likely to become dehydrated and/or reduce their sodium intake. Dehydration and reduced sodium can increase lithium concentrations in the blood. The following are examples of conditions that can cause lithium toxicity:

- dosage is too high
- vomiting
- very bad sunburn
- diarrhea
- too much alcohol
- heat exhaustion
- low sodium diet
- anorexia
- poor kidney function

Precautions To Take With Lithium

- Pregnancy - There is evidence that lithium taken during the first three months of pregnancy increases the risk of serious birth defects.
- Alcohol - Excess alcohol can cause dehydration and increase lithium to toxic blood levels.
- Interactions with other medications - Some medications can cause a rise in blood levels of lithium and should be avoided or monitored. These medications include medications with hydrochlorothiazide (used to reduce water retention or high blood pressure), and anti-inflammatory medications such as Indomethacin, phenylbutazone, and Ibuprofen. Aspirin and Tylenol are safe.

Potential Life Threatening Side Effects of Tegretol

The symptoms of agranulocytosis are:
• high fever
• listlessness
• sore throat
• sides of the neck are swollen
• red and painful inside mouth

Precautions To Take With Tegretol

Pregnancy
• Tegretol is associated with birth defects, especially if taken during the first three months of pregnancy.

Interactions with other medications
• Rythromycin, cimetidine, and SSRI antidepressants can increase blood levels of Tegretol. Clozapine and Tegretol combined can increase the risk of agranulocytosis. Tegretol can decrease the levels of some antipsychotic medications such as Haldol.

A serious rash can develop in the first 2 to 8 weeks of treatment with Lamictal that can be dangerous enough to cause permanent disability or death. Symptoms of this rash may include the following symptoms:

• fever
• swelling of the face, throat, tongue, lips, eyes, hands, feet, ankles, or lower legs
• hoarseness
• difficulty breathing or swallowing
• nausea
• extreme tiredness
• unusual bruising or bleeding
• loss of appetite
• pain in upper right part of the stomach
• yellowing of the skin or eyes
• flu-like symptoms
  • fever and chills
  • pale skin
  • headache
  • dizziness
  • rapid heartbeat
  • weakness
  • shortness of breath
  • sore throat
  • other signs of infection
• dark red or cola-colored urine
• muscle weakness or aching
• painful sores in your mouth or around your eyes.

The risk of developing this serious rash may be increased when this medication is given in combination with Tegretol, Depakote, or Depakene

Potential Life Threatening Side Effects of Depakene & Depakote

Liver Damage

Depakene can cause serious liver damage, especially during the first 6 months of treatment. The older a person is when they start Depakene, the less the risk of liver damage.

The following symptoms would be a possible indication of liver changes:
  • loss of seizure control
  • weakness
  • dizziness
  • drowsiness
  • a general feeling of ill health
  • facial swelling
  • loss of appetite
  • vomiting
  • yellowing of the skin and eyes.

If you suspect a liver problem, call a physician immediately.

Precautions To Take With Depakene & Depakote

Pregnancy
  • Depakote and Depakene are associated with birth defects, especially if taken during the first three months of pregnancy.

Antipsychotic

Antipsychotic refers to the category of medications that treat psychotic symptoms. This section will discuss the use of antipsychotic medication as it relates to:
  I. Diagnosis and Treatment
  II. Antipsychotic Medication Names and Uses
  III. Side Effects and Precautions
Diagnosis and Treatment

The psychiatric disorders that include primary symptoms of psychosis and are generally treated with antipsychotics include:

- Schizophrenia
- Schizoaffective Disorder
- Schizophreniform Disorder
- Brief Psychotic Disorder

The following disorders can sometimes include secondary psychotic symptoms and the use of antipsychotic medications would then be indicated:

- Bipolar Disorder with psychotic features
- Major Depression with psychotic features

Antipsychotics can also be used to treat the psychotic reactions that result from cocaine and amphetamine intoxication. The symptoms of amphetamine intoxication often mimic the symptoms of schizophrenia. A significant difference is that the psychotic symptoms related to amphetamine intoxication will clear following a short period of abstinence, which is not the case when the symptoms are due to schizophrenia.

Antipsychotics have also been applied in certain situations where the person is not psychotic, such as in the following cases.

- To treat tics from Tourette’s Syndrome.
- To treat severe cases of Obsessive-Compulsive Disorder when there is a schizotypal personality disorder or tics.
- A person with a borderline personality disorder may also benefit from low doses depending on associated characteristics of the disorder.

Positive Symptoms of Schizophrenia

Antipsychotic medications are often associated with the treatment of Schizophrenia. Classic psychotic symptoms are the positive symptoms of schizophrenia and often considered the hallmark symptoms of this disorder.

- Hallucinations such as hearing voices
- Delusions such as one believing that he/she is receiving special messages from the TV meant only for him/her
- Thoughts that are loose, disorganized, and follow no recognized logic

Negative Symptoms of Schizophrenia
Schizophrenia also includes negative symptoms that are more difficult to evaluate because they tend to be nonspecific and can be occurring for a variety of other reasons such as medication side effects, individual response to positive symptoms, or the symptoms of a mood disorder. These symptoms are important because they play a major role in the quality of life a person will experience. Negative symptoms are significantly related to the disabling effects of schizophrenia and can prevent a person from returning to the activities they were engaged in prior to their first major episode of symptoms.

Often, symptoms first emerge during a person’s entry into adult life when he/she has begun college, is fully employed, and/or started a family, etc. This is an important developmental stage in a person’s life and negative symptoms significantly disrupt it.

The following are some of the more overt negative symptoms:

- a person’s affect or facial expression becomes and remains flat. This is known as “affective flattening”
- a person’s ability to verbally express thoughts is impaired possibly due to impaired thinking processes. This is known as “alogia.”
- a person’s ability to initiate and persist in goal-directed activities is impaired. This is known as “avolition.”

Until recently, antipsychotic medications only affected the positive symptoms of schizophrenia. So while hallucinations and delusions could be managed, full recovery was less likely with medications. In 1974 Clozaril was marketed and was a breakthrough medication. It was the first of the “second generation” antipsychotics that also treats negative symptoms.

Antipsychotic Medication Names and Uses

Typical or First Generation Antipsychotic Medications

The use of medications to treat psychotic symptoms began in the early 1950’s after chlorpromazine (thorazine) was used by a Paris surgeon to calm the anxieties of patients scheduled to have surgery. A colleague passed this information on to his brother-in-law, a psychiatrist, and the rest is history. In 1954 chlorpromazine was approved for treating psychotic disorders by the U.S. Food and Drug Administration, and it took the country by storm. It lead the way for more research into dopamine and other neurotransmitters and their effect on brain chemistry and function.

Following thorazine, the typical or old generation antipsychotics were developed between 1956 and 1964. These medications, however, do have drawbacks. They have side effects, which we will discuss later in this section, which can be very debilitating and become barriers for many people to continue taking medications. These medications are also limited to affect only the positive symptoms of schizophrenia.
Typical or first generation antipsychotic medications (the Phenothiazines) include:

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mellaril</td>
<td>thioridazine</td>
</tr>
<tr>
<td>Permitil, Prolinx</td>
<td>fluphenazine</td>
</tr>
<tr>
<td>Serentil</td>
<td>mesoridazine</td>
</tr>
<tr>
<td>Stelazine</td>
<td>trifluoperazine</td>
</tr>
<tr>
<td>Thorazine</td>
<td>chlorpromazine</td>
</tr>
<tr>
<td>Tindal</td>
<td>acetophenazine</td>
</tr>
<tr>
<td>Trilafon</td>
<td>perphenazine</td>
</tr>
</tbody>
</table>

Other first generation, non-phenothiazine antipsychotic medications include:

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haldol</td>
<td>haloperidol</td>
</tr>
<tr>
<td>Loxitane</td>
<td>loxapine</td>
</tr>
<tr>
<td>Moban, Lidone</td>
<td>molindone</td>
</tr>
<tr>
<td>Navane</td>
<td>thiothixene</td>
</tr>
</tbody>
</table>

Atypical or Second Generation Antipsychotic Medications

The first of the atypical antipsychotic medications to be marketed was Clozaril. Clozaril seemed to be dramatically different when people that had not responded to any of the typical antipsychotics, did respond to Clozaril. Not only did this medication improve the positive symptoms of schizophrenia, but it also showed evidence of reducing negative symptoms as well. Reducing or eliminating negative symptoms could decrease
some of the most disabling effects of schizophrenia, allowing many individuals to recover some quality of life beyond their illness.

However, Clozaril also has its drawbacks. Agranulocytosis, a life threatening side effect that is rare among other antipsychotic medications, occurs more frequently with Clozaril. This condition is reversible when the medication is discontinued.

Therefore, in order to take Clozaril, protocols that include routine blood tests measuring white blood cell production must be followed. This complicated the use of Clozaril, but also stimulated further research for medications with these benefits, but with a less risky side effect profile.

Initially it was believed that second generation antipsychotics were significantly better than first generation antipsychotics. It seemed that the extrapyramidal side effects so common to older agents, such as muscular stiffness, cramps, rigidity and other Parkinson-like symptoms, were not a part of the side effect profile of these newer medications. It was also thought that these newer medications improved negative symptoms and thus allowed many individuals to substantially regain some quality of life.

This stimulated research to look at the evidence and the jury is still out. Disappointingly, none of the drugs have conclusively been found to be significantly different in effectiveness to first generation medications. Though, side effect profiles are very different, they each carry concerns. For example, some of the newer antipsychotic medications can cause dramatic weight gain which may put individuals at high risk for diabetes and cardiovascular problems such as heart disease and stroke. Some studies have shown patients to have higher than normal levels of bad cholesterol, increased levels of insulin and fatty deposits in the liver. By contrast, patients taking an older antipsychotic had a series of other side effects including extrapyramidal reactions that they needed additional medication to treat.

Prescribing clinicians do not have to assume newer medications are best, but rather work together with their patients, their needs, and what works best for them.

The FDA is finding new drug development for Schizophrenia is becoming more difficult. Results of clinical trials of second generation antipsychotics are showing smaller treatment effects. Reviewing applications submitted by companies for approval between 1991 and 2008, the FDA looked at 32 clinical trials and found that studies done more recently had smaller effects than older studies. The results showed participants on a placebo responding with higher treatment effects than in earlier studies.

Though unclear why, some speculation includes participants may not be as sick as in the in the past increasing chances of a positive placebo effect, or maybe early studies were biased towards the drugs being studied. The success of clinical trials depends on a statistically clear difference between treated and placebo groups, so FDA
researchers plan on looking for clues by investigating the data on individual participants to understand the placebo responses.

Atypical or second generation antipsychotic medications (the Phenothiazines) include:

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abilify</td>
<td>aripiprazole</td>
</tr>
<tr>
<td>Fanapt</td>
<td>iloperidone</td>
</tr>
<tr>
<td>Geodon</td>
<td>ziprasidone</td>
</tr>
<tr>
<td>Invega</td>
<td>paliperidone</td>
</tr>
<tr>
<td>Latuda</td>
<td>lurasidone</td>
</tr>
<tr>
<td>Risperdal</td>
<td>risperidone</td>
</tr>
<tr>
<td>Saphris</td>
<td>asenapine</td>
</tr>
<tr>
<td>Seroquel</td>
<td>quetiapine</td>
</tr>
<tr>
<td>Zyprexa</td>
<td>olanzapine</td>
</tr>
</tbody>
</table>

Side Effects and Precautions

Antipsychotic medications can cause some of the most debilitating side effects which places a person in great conflict when deciding whether or not to begin or continue taking medications. Each person must weigh the benefits to the disadvantages of taking a medication and, therefore, the more information s/he has, the more prepared s/he is to make informed choices regarding medications.

Extrapyramidal Side Effects (EPS)

Extrapyramidal side effects, commonly referred to as “EPS,” affect the extrapyramidal nervous system. This system is involved in largely non-intentional motor activity, such as maintaining and adjusting posture, and
"gross" motor movements like those of your shoulder or thigh muscles. Damage to the extrapyramidal tract can result in a general slowing of motor activity, as seen in Parkinson’s, or in muscle rigidity or tremor.

The following is a list of EPS that can result from the use of antipsychotics. These side effects include the following:

- muscular rigidity
- muscular tremors
- muscular spasms
- muscular contractions (usually of the head and neck)
- slowed motor responses
- mask-like facial expression
- akathisia (an uncontrolled inner restlessness that can be mistaken for anxiety or agitation)

Tardive Dyskinesia

Tardive Dyskinesia is also an extrapyramidal side effect that is particularly serious because it is rarely reversible. Its debilitating effects can leave a person permanently disabled depending on the severity. Once any symptom of Tardive Dyskinesia appear, the antipsychotic / neuroleptic must be discontinued. About 20 percent of people taking antipsychotic / neuroleptic drugs for more than one year will be affected.

Common symptoms of Tardive Dyskinesia include:

- facial grimacing
- facial tics
- eye blinking
- lip smacking
- tongue trusting
- foot tapping
- shuffled gait
- head nodding
- moving one’s head to the back or to the side

The symptoms of Tardive Dyskinesia can become permanent and lead to:

- breathing problems
- mouth sores
- trouble standing or walking
- difficulty eating because of swallowing problems

Life Threatening Side Effects from Antipsychotics
Neuroleptic Malignant Syndrome

Neuroleptic Malignant Syndrome can occur anytime during treatment with an antipsychotic medication, however, reviews of case reports find that most incidences of NMS develop within the first two weeks after the medication has been started or the dosage increased. (Addonizio G., Susman VL, Roth SD. 1987, Caroff SN, Mann SC 1988, Shalev A, Munitz H 1986) Most sources suggest that once the medication is discontinued, the syndrome will clear up within 1 to 2 weeks with supportive care such as fluid replacement, fever reduction, appropriate care for heart, lung, and kidney functions (Addonizio G., Susman VL, Roth SD. 1987, Rosenberg MR, Green M. 1989).

However, individuals that have been receiving antipsychotics in long-acting injectable forms such as haloperidol decanoate (Haldol) or fluphenazine decanoate (Prolixin), may require up to a month to recover from the syndrome (Addonizio G., Susman VL, Roth SD 1987).

The defining features of NMS may develop dramatically within hours or insidiously over several days. The symptoms of NMS may include:

- muscle rigidity
- elevated temperatures of 100.4 to 105.8 ° F or higher
- changes in mental status
- racing heart rate
- unstable blood pressure
- extrapyramidal symptoms such as tremors, speech difficulty, difficulty swallowing, drooling

Other Side Effects from Antipsychotics

Other side effects that can occur when taking antipsychotic medications includes the following:

- orthostatic hypotension
- dry mouth
- dizziness
- urinary retention
- hypertension
- blurry vision
- tachycardia
- constipation
- liver dysfunction
- decreased seizure threshold
- menstrual irregularities
- skin rash
Life Threatening Side Effects from Antipsychotics

Agranulocytosis

Another potential life threatening side effect of antipsychotic medications is agranulocytosis. Agranulocytosis is a condition that is characterized by the body’s inability to produce neutrophils (white blood cells) in adequate amounts needed by the body in its defense against infection. Generally, this condition occurs very rarely. Estimates are that about 1 in 500 to 1000 people placed on antipsychotics will develop it. However, there is a higher incidence among individuals that take Clozaril. Therefore, it is necessary for someone taking Clozaril to have his/her white blood cell levels monitored on a routine basis. Monitoring is generally performed once per week while on Clozaril and continued up to 4 weeks after discontinuing the medication.

The symptoms of agranulocytosis are:
• high fever
• listlessness
• sore throat
• sides of neck are swollen red and painful inside mouth

Module 2
Other Categories of Medications and the Disorders They Treat

Antiextrapyramidal

This category of medications treats the symptoms of extrapyramidal side effects. This section will discuss the use of Antiextrapyramidal medication as it relates to:

I. Diagnosis and Treatment
II. Antiextrapyramidal Medication Names and Uses
III. Side Effects and Precautions

Diagnosis and Treatment

Antiextrapyramidal medications treat the symptoms of extrapyramidal side effects (except tardive dyskinesia) that can result from the use of neuroleptic medications, especially the old generation of antipsychotic medications.

Some of these medications are also used to treat Parkinson’s Disease.
Antiextrapyramidal Medication Names and Uses

An essential element in the treatment of the psychotic symptoms of schizophrenia has been the use of antipsychotic medications. One major disadvantage of the older generation of antipsychotic medications is the risk of developing extrapyramidal side effects (EPS). These include a variety of movement disorders which can be very distressing and disabling. A person that experiences these side effects may be more likely to stop taking these medications and eventually experience a relapse of symptoms. The new generation of antipsychotic medications are less likely to cause EPS.

Extrapyramidal side effects can take a variety of forms:

- Akathisia
- Dystonia
- Parkinson’s

Akathisia is an agitated restlessness with a compulsive desire to move the legs or walk about that is particularly unpleasant. A person might pace up and down to relieve the sensation and will feel very uncomfortable if required to sit. It has been described by some as “needing to jump out of my skin.” It is often mistaken for anxiety and/or agitation, a fact that emphasizes the importance of assessment scales that can differentiate between side effects and true behavioral disturbances.

Dystonias are slow, sustained muscular contractions or spasms that can result in an involuntary movement of either the whole body or individual parts of the body. Not only can they be extremely uncomfortable, painful and distressing, but they can also be dangerous depending on the muscles that are affected.

Parkinson's presents as muscle stiffness, cogwheel rigidity, shuffling gait, stooped posture, drooling, “pill rolling” tremor and a masked facial expression, all of which can be quite debilitating.

Antiextrapyramidal Medications:

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Artane</td>
<td>trihexyphenidyl</td>
</tr>
<tr>
<td>Cogentin</td>
<td>benztropine</td>
</tr>
<tr>
<td>Akineton</td>
<td>biperiden</td>
</tr>
<tr>
<td>Benadryl</td>
<td>diphenhydramine</td>
</tr>
<tr>
<td>Kemadrin</td>
<td>procyclindine</td>
</tr>
<tr>
<td>Medication</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Symmetrel</td>
<td>amantadine</td>
</tr>
<tr>
<td>Periactin</td>
<td>cyproheptadine (beta blocker)</td>
</tr>
<tr>
<td>Inderal</td>
<td>propranolol</td>
</tr>
<tr>
<td>Tenormin</td>
<td>atenolol</td>
</tr>
<tr>
<td>Mirapex</td>
<td>pramipexole (benzodiazapine)</td>
</tr>
<tr>
<td>Kerlone, Betoptic</td>
<td>Betaxolol (dopamine agonist)</td>
</tr>
</tbody>
</table>

The medications listed are from a variety of classes used as antiextrapyramidal medications. These include Anticholinergics, Antihistamines, Beta-blockers, Dopamine Agonists and Benzodiazepines.

Congentin and Artane are generally effective for all three types of extrapyramidal symptoms thus, they are often the medications of choice for treating the symptoms of EPS. Sometimes an antianxiety can be used successfully when the spasms and/or contractions first begin to appear.

- Muscle contractions and spasms (dystonia)
- Restlessness (akathesia)
- Tremors, muscle rigidity, shuffling gait, facial masking, etc. (parkinsonism)

Side Effects and Precautions

Common side effects of the Anticholinergics class of antiextrapyramidal medications include:

- dry mouth
- blurred vision
- constipation
- sensitivity to light
- nausea/vomiting
- drowsiness
- decreased sweating

More rare side effects include:

- dizziness/light-headedness
- severe headache
- anxiety
- numbness/tingling in hands/feet
- muscle cramps
- eye pain
- skin rash
• memory loss
• confusion
• problems urinating

Common side effects of the Antihistimine class of antiextrapyramidal medications include:
• dizziness
• dry mouth/nose
• drowsiness/sedation

More rare side effects include:
• nausea / vomiting
• coordination problems
• problems urinating
• tightness of the chest
• abnormal heartbeat
• nervous/restless
• confusion
• blurred vision
• hallucinations
• insomnia
• headache
• wheezing
• flushing
• seizures
• nightmares
• skin rash

Common side effects of the Beta‐blockers class of antiextrapyramidal medications include:
• dizziness/slight drowsiness
• male impotence

More rare side effects include:
• decreased sexual ability
• trouble with sleep
• difficulty breathing
• cold hands/feet
• hallucinations
• irregular heartbeat
• skin rash
• swelling ankles/feet/back
• joint pain
• chest pain
• depression
• confusion
• nausea
• fever
• abdominal cramps

Common side effects of the Benzodiazepines class of antiextrapyramidal medications include:
• clumsiness
• sleepiness

More rare side effects include:
• dry mouth space this bullet down
• blurred vision
• abdominal cramps
• rapid heart beat
• shaking
• slurred speech
• urination problems
• confusion
• convulsions
• hallucinations
• memory loss
• difficulty breathing
• trembling
• staggering
• headache

Most antiextrapyramidal medications do not have any side effects that are life threatening. There are certain physical conditions that can be worsened and therefore it is important that the practitioner be informed if an individual has a history of heart problems, epilepsy, kidney disease, or liver disease.

Precautions To Take With Extrapyramidal Medications
• Alcohol should be avoided when taking Benadryl.
• Antacids containing aluminum or magnesium should not be taken one hour before and up to two hours after taking Cogentin or Artane.
• These medications should not be taken while taking central nervous system depressants like antihistamines, hay fever medicines, sedatives, narcotics, anesthetics, barbiturates, or muscle relaxants.
• These medications are not habit-forming.
• These medications should be avoided if a person is pregnant, planning to become pregnant, or breast-feeding.
• Children should be under the care of a pediatrician or children’s practitioner when taking these medications.
• A person over 65 should avoid taking these medications. If a person has had a negative reaction to any of these medications in the past, that medication should be avoided.

Antianxiety

Antianxiety refers to the category of medications that treat symptoms of anxiety. This section will discuss the use of antianxiety medications as they relate to:

I. Diagnosis and Treatment
II. Antianxiety Medication Names and Uses
III. Side Effects and Precautions

Diagnosis and Treatment

Psychiatric disorders that are generally treated with antianxiety medications include:

• Generalized Anxiety Disorder
• Panic Disorder
• Post-Traumatic Stress Disorder

These medications have also been used:

• to treat high anxiety states due to short periods of crisis or periods of extreme stress in the short term treatment of stress-related insomnia
• in combination with mood stabilizers in the treatment of mania
• in combination with antipsychotics in the treatment of acute psychosis
• in the treatment of alcohol withdrawal
• to treat the beginning stages of severe extrapyramidal side effects

Everyone experiences anxiety at one time or another “butterflies in the stomach” before giving a speech or sweaty palms during a job interview are common symptoms.

Other symptoms of anxiety include:

• irritability
• uneasiness
• jumpiness
• feelings of apprehension
• rapid or irregular heartbeat
• stomach ache
• nausea
• faintness
• breathing problems

Anxiety is often manageable and mild. But sometimes it can present serious problems. A high level or prolonged state of anxiety can be very incapacitating, making the activities of daily life difficult or impossible.

A person is a good candidate for an antianxiety medication when his/her symptoms of anxiety:
• are prolonged
• are so severe that they interfere with his/her ability to function on a daily basis and/or enjoy the ordinary pleasures of life
• do not respond to non-drug treatments

Antianxiety Medication Names and Uses
Antianxiety medications help to calm and relax the symptoms of anxiety a person is experiencing. There are a number of antianxiety medications currently available. The preferred medications for most anxiety disorders are the benzodiazepines. In addition to the benzodiazepines, a non-benzodiazepine, buspirone (BuSpar), is used for generalized anxiety disorders.

Although a person experiencing panic attacks may be treated with an antianxiety medication in the short term, the newer generation of antidepressants (SSRIs*) have proven to be very effective in treating the anxiety symptoms of panic disorders without the concerns of physical addiction. Antidepressants are also effective for some phobias and are often prescribed for these conditions. They are also sometimes used for more generalized forms of anxiety, especially when it is accompanied by depression.

A non-benzodiazepine drug used to treat anxiety is buspirone (BuSpar). This, and similar drugs in this group (called azapirones), cause less sedation than the benzodiazepines, and do not have muscle relaxant or anticonvulsant effects. Side effects are minimal, and dependence seems less likely than with the benzodiazepines.

Hydroxyzine (Atarax, Vistaril), which is an antihistamine, is also occasionally used for anxiety and sedation, especially before dental procedures.

Antianxiety Medication Names and Uses
Antianxiety medications in the benzodiazepine class include:
Antianxiety medications in the azapirones class include:

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buspar</td>
<td>buspirone</td>
</tr>
</tbody>
</table>

Other antianxiety medications include:

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vistaril, Atarax</td>
<td>Hydroxyzine hydrochloride</td>
</tr>
<tr>
<td>Equanil, Miltown</td>
<td>meprobamate</td>
</tr>
</tbody>
</table>
A non-benzodiazepine drug used to treat anxiety is buspirone (BuSpar). This, and similar drugs in this group (called azapirones), cause less sedation than the benzodiazepines, and do not have muscle relaxant or anticonvulsant effects. Side effects are minimal, and dependence seems less likely than with the benzodiazepines.

Hydroxyzine (Atarax, Vistaril), which is an antihistamine, is also occasionally used for anxiety and sedation, especially before dental procedures.

Side Effects and Precautions

Common side effects of the Benzodiazepine class of antianxiety medications include:
- clumsiness
- sleepiness

More rare side effects include:
- dry mouth
- blurred vision
- abdominal cramps
- rapid heart beat
- shaking
- slurred speech
- urination problems
- confusion
- convulsions
- hallucinations
- memory loss
- difficulty breathing
- trembling
- staggering
- headache

Common side effects of the azapirones class of antianxiety medications include:
- dizziness
- headache
- drowsiness and nausea
- dream disturbance
- nervousness
- ringing in the ears
- excitability
More rare side effects include:

- confusion
- depression
- diarrhea
- insomnia
- movement disorders
- numbness
- tingling
- racing heartbeat
- palpitations
- tachycardia
- dysphoria
- restlessness
- rigidity
- tremors

Life Threatening Side Effects from Antianxieties

The antianxiety medications do not have any side effects that are life threatening. However, the following should be kept in mind.

Combining alcohol or other depressants (such as barbituates) with benzodiazepines can be fatal.

These are also a category of medication that taken as an overdose can be fatal.

Precautions to take with Benzodiazepines

Benzodiazepines are classified in the Controlled Substance Act (CSA) as Schedule IV depressants. Repeated use of large doses or, in some cases, daily use of therapeutic doses of benzodiazepines is associated with physical dependence. Dependence and abuse are other adverse effects of benzodiazepines. Long-term use can result in a withdrawal syndrome, so the drugs are often prescribed for a few weeks only.

When these medications are taken as prescribed, they provide important benefits to the person taking them. Real concerns regarding dependence only arise when:

- a person requires new prescriptions or refills sooner than expected
- the frequency of these requests increases consistently (and/or)
- they begin visiting other practitioners to gain additional prescriptions
The withdrawal syndrome from antianxiety medication is similar to that of alcohol withdrawal and is generally more unpleasant and longer lasting than narcotic withdrawal and frequently requires hospitalization. Abrupt cessation of benzodiazepines is not recommended, and tapering down the dose eliminates or reduces many of the unpleasant symptoms.

Someone taking benzodiazepines should avoid drinking alcohol or the use of any medication that is a depressant because of the potential effects on each other. The strength of this combination can have serious effects on the central nervous system.

Adverse side effects of benzodiazepines include drowsiness and confusion. Caution should be exercised when operating an automobile or other machinery. These effects are worsened by drinking alcohol or when taking other "downer" drugs.

Lack of coordination (ataxia) develops in sensitive individuals, or at high doses. Occasionally, a person might become very aggressive when using these drugs.

Psychostimulant

Psychostimulants refer to the category of medications that treat the symptoms of Attention Deficit Disorder (ADD) and Attention Deficit Hyperactivity Disorder (ADHD). Psychostimulants are not the only medications used to treat ADD and ADHD, but at present they remain the primary medications of choice. This section will discuss the use of Psychostimulants and other medications as it relates to:

I. Diagnosis and Treatment
II. Psychostimulant Medication Names and Uses
III. Side Effects and Precautions

Diagnosis and Treatment

Psychostimulant medications treat the symptoms of:

• Attention Deficit Disorder (ADD)
• Attention Deficit Hyperactivity Disorder (ADHD)
• Psychostimulant medications are also used to treat the symptoms of narcolepsy.

Symptoms of ADD/ADHD

Attention Deficit Disorder (ADD)/Attention Deficit Hyperactivity Disorder (ADHD) are neurobiological disabilities that affect three to five percent of school-age children and approximately two to four percent of adults. Although individuals diagnosed with one of these disorders can be very successful in life, without identification and proper treatment, ADD/ADHD can have serious consequences, including school failure,
depression, conduct disorder, failed relationships, and substance abuse. Early identification and treatment increases the likelihood of positive long-term outcomes.

The most common core features of ADD include:

- Distractibility (i.e., has difficulty with sustained attention to tasks)
- Impulsivity (i.e., has poor impulse control and difficulty with delayed gratification)

While also including the above core features, ADHD includes the following additional feature:

- Hyperactivity (i.e., has excessive activity levels and physical restlessness)

The symptoms associated with inattention

- fails to give close attention to details or makes careless mistakes
- has difficulty sustaining attention
- does not appear to listen
- struggles to follow through on instruction
- has difficulty with organization
- avoids or dislikes tasks requiring sustained mental effort
- easily distracted
- forgetful in daily activities

The symptoms associated with hyperactivity

- fidgets with hands or feet or squirms in chair
- has difficulty remaining seated
- runs about or climbs excessively
- difficulty engaging in activities quietly
- acts as if driven by a motor
- talks excessively
- blurts out answers before questions have been completed
- difficulty waiting or taking turns
- interrupts or intrudes upon others

Psychostimulant Medication Names and Uses

Psychostimulant medications include:

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>CSA</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adderall</td>
<td>II</td>
<td>dextroamphetamine</td>
</tr>
<tr>
<td>Concerta, Metadate, Ritalin, Methylin</td>
<td>II</td>
<td>methylphenidate</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>----</td>
<td>----------------</td>
</tr>
<tr>
<td>Cylert</td>
<td>IV</td>
<td>pemoline</td>
</tr>
<tr>
<td>Daytrana</td>
<td>II</td>
<td>methylphenidate transdermal patch</td>
</tr>
<tr>
<td>Desoxyn</td>
<td>II</td>
<td>methamphetamine</td>
</tr>
<tr>
<td>Dexadrin</td>
<td>II</td>
<td>dextroamphetamine</td>
</tr>
<tr>
<td>Focalin</td>
<td>II</td>
<td>dexamethylphenidate HCl</td>
</tr>
<tr>
<td>Provigil</td>
<td>IV</td>
<td>modafinil</td>
</tr>
<tr>
<td>Vyvanse</td>
<td>II</td>
<td>Lisdexamfetamine Dimesylate</td>
</tr>
</tbody>
</table>

Other Medications used to Treat ADHD/ADD

**Alpha-adrenergic agonists:**

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catapres</td>
<td>clonidine</td>
</tr>
<tr>
<td>Intuniv</td>
<td>guanfacine extended-release</td>
</tr>
</tbody>
</table>

**SSRI antidepressant:**

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Celexa</td>
<td>citalopram</td>
</tr>
</tbody>
</table>

**SNRI antidepressant:**

<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strattera</td>
<td>atomoxetine</td>
</tr>
</tbody>
</table>

**Side Effects and Precautions**

Common side effects of the psychostimulant medications include:
• nausea
• diarrhea
• loss of appetite
• difficulty sleeping
• restlessness
• weight loss

More rare side effects include:
• abdominal pain
• headache
• drowsiness
• dizziness
• paranoia
• mood changes
• lack of coordination
• tics/unusual movement
• blurred vision
• irritability/nervousness
• skin rash
• hives
• sexual problems

Potentials Life Threatening Side Effects from Psychostimulants

When taken as directed, psychostimulants pose very little risk and there are no life threatening side effects.

However, MAO Inhibitors strengthen the effects of amphetamines which can cause headaches and other signs of hypertensive crisis. The interaction between these two types of medications can cause a toxic effect that is sometimes fatal.

Precautions To Take With Psychostimulants

Many psychostimulants listed on slide 131 are classified in the Controlled Substance Act (CSA) as Schedule II medication. Repeated use of large doses or, in some cases, daily use of therapeutic doses of psychostimulants is associated with physical dependence. Dependence and abuse are other adverse effects of controlled substances.

Alcohol should be avoided when taking a psychostimulant.

Psychostimulants can interact with other medications in negative ways. Therefore, a practitioner should be informed if a person is taking any of the following types of medications:
Long term use of amphetamines may be associated with an inhibition in growth. Children who take this drug over a long-term should have their height and weight monitored by a practitioner while being treated with any of these medications.

These medications should be avoided if a person is pregnant, planning to become pregnant, or breast-feeding.

These medications should not be prescribed for children under the age of three.

A person over sixty who takes these medications should be closely monitored.

Antiaddictive

Antiaddictive refers to the category of medications that treat the symptoms of substance abuse and addiction.

Although the term “antiaddictive” is not a formal term, it is becoming more widely used as the menu of medications available to treat these disorders increases. This section will discuss the use of antidepressant medication as it relates to the following:

I. Diagnosis and Treatment
II. Antiaddictive Medication Names and Uses
III. Side Effects and Precautions

This section will discuss the use of antiaddictive medications as they relate both to the withdrawal and addiction of alcohol, cocaine, opiates, and nicotine.

This section will not address all substances used recreationally, as many are not physically addicting or no development in medication treatments have occurred.

Diagnosis and Treatment
Over the last 25 years scientific research and clinical practice have developed and demonstrated a variety of effective approaches to treating substance abuse and addiction.

Many people continue to believe that substance abuse and addiction treatments are ineffective primarily because of unrealistic expectations and beliefs about these disorders.

When people are treated and relapse, treatment is often considered a failure. In reality, addiction is a chronic relapsing illness that comes about because of the effects of long-term substance use on the brain. Therefore, sustained and repeated treatment episodes are often required to attain the ultimate goal of long-term abstinence.

According to government estimates, the cost of substance abuse and addiction to the United States economy in medical bills and lost productivity is estimated at $12.6 billion.

Until recently, research and development of new medications for treating addiction disorders have been few. In fact, much of the forward movement made in the addictions field has grown outside the medical community. However, the recent research discoveries of the brain have helped to uncover an understanding of addiction at a molecular level.

The National Institute for Drug Abuse has included in its goals a commitment to design and develop new medications for opioid and cocaine addiction. The National Institute on Alcohol Abuse and Alcoholism has also issued their commitment to discover new medications that will decrease craving for alcohol and reduce the likelihood of relapse.

We are going to discuss some of the medications that are now being used or investigated to treat the symptoms of substance abuse and addiction disorders.

The development of medications as a part of substance abuse and addiction treatment are undertaken to address specific problems that arise as a person moves through the treatment process. The areas of focus include medically safe detoxification and withdrawal, relief of cravings, and the maintenance of abstinence.

Withdrawal from an addictive substance, such as alcohol or cocaine, has been considered a general condition with similar symptoms and treatments. However, research is finding that each substance has its own set of withdrawal symptoms which require different approaches for detoxification and treatment. An example of this is the fact that a person can die from alcohol withdrawal while a person going through cocaine withdrawal will have very unpleasant experiences, but s/he will live through it.
Post abstinence cravings refers to the experiences people have of desiring a substance long after they have been abstinent from the use of that substance. For example, some people still have cravings years after they’ve given up cigarette smoking. The initiation and maintenance of abstinence is related to addressing the reinforcing effects of substance use, such as the euphoria induced by cocaine. Some medications have been developed that reduce the reinforcing effects of a substance when taken and therefore reducing the desire for the drug.

Ideally, an effective medication would include:
- ease of use - tablets, patches, or long-acting injectables.
- safe with minimal side effects
- minimal to no abuse risk
- effective with more than one class of drug to effectively treat people that abuse more than one substance
- acceptable to people presenting for treatment
- effectively used in conjunction with behavioral treatments focused on the psychosocial problems related to the drug abuse

Medication Names and Uses

Alcohol

Alcohol Withdrawal Symptoms
- nausea and vomiting
- headache
- tremor
- sweating
- anxiety
- auditory disturbance
- tactile disturbance
- visual disturbance
- disorientation

A complicated withdrawal would also include:
- delirium tremens
- hallucinations
- seizures

Medications used to treat alcohol withdrawal & addiction
Heroin and other opiates

Opiate Withdrawal Symptoms

- insomnia
- abdominal cramps
- muscle aches and spasms
- goose flesh
- hot and cold flashes
- chills
- runny eyes and nose
- diarrhea
- nausea and vomiting
- skin hypersensitivity
- fatigue
- irritability, anxiety, depression
- dilated, fixed pupils
- intense cravings

Medications used to treat opiate withdrawal & addiction

<table>
<thead>
<tr>
<th>Medication used for opiate withdrawal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brand Name</strong></td>
</tr>
<tr>
<td>Dolophine</td>
</tr>
<tr>
<td>ReVia</td>
</tr>
<tr>
<td>Revex</td>
</tr>
<tr>
<td>Catapres</td>
</tr>
<tr>
<td>Buprenex, Subutex</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Medications used for abstinence and maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brand Name</strong></td>
</tr>
<tr>
<td>Dolophine</td>
</tr>
<tr>
<td>ReVia, Vivitrol</td>
</tr>
<tr>
<td>ORLAAM</td>
</tr>
<tr>
<td>Buprenex, Subutex</td>
</tr>
</tbody>
</table>
Narcan | naloxone

Nicotine

Nicotine Withdrawal Symptoms

- headache
- nausea
- constipation or diarrhea
- falling heart rate and blood pressure
- fatigue, drowsiness and insomnia
- irritability
- difficulty concentrating
- anxiety
- depression
- increased hunger and caloric intake
- increased pleasance of the taste of sweets
- cravings for tobacco

Medications used to treat nicotine withdrawal & addiction

<p>| Medication used for opiate withdrawal |</p>
<table>
<thead>
<tr>
<th>Brand Name</th>
<th>Generic Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nicorette</td>
<td>nicotine gum</td>
</tr>
<tr>
<td>Habitrol, Nicotrol, Nicoderm-CQ</td>
<td>nicotine patch</td>
</tr>
<tr>
<td>Nicotrol Inhaler</td>
<td>nicotine inhaler</td>
</tr>
<tr>
<td>Nicotrol Nasal Spray</td>
<td>nicotine nasal spray</td>
</tr>
</tbody>
</table>

| Medications used for abstinence and maintenance |
|-------|---------|
| Zyban | bupropion |
| Chantix | varenicline |

Module 3
Treatment Adherence
Medication Adherence

- Person-centered
- Collaboration
- Open communication
- Goal: person learns self-mastery
- Activities negotiated
- Rules matched to lifestyle by mutual agreement
- Discuss, negotiate, motivate
- Viewing resistance as information to make adaptations

Medication Compliance

- Clinician-centered
- Dominance
- Information dictated
- Goal: person is obedience
- Activities dictated
- Rules dictated
- Persuade, coerce
- Resistance is not tolerated

About one third to one half of all people being treated for a physical and/or mental disorder, do not follow their medication treatment as prescribed.

This means that there is a significant number of people who do one or more of the following:

- take less medication than prescribed
- take more medications than prescribed
- alter the pattern of use prescribed for a medication
- stop taking a medication altogether.

This can have serious consequences for many individuals who have a major mental disorder, such as schizophrenia, by resulting in relapse and rehospitalization.

Taking medications as prescribed on a consistent basis is considered essential to help control symptoms, shorten or prevent relapses of an illness, and to improve long-term prognosis. When we take medication, whether it is prescribed or over-the-counter, we expect that the symptoms getting in the way of feeling well will clear and we will feel better. So why do so many people have difficulty adhering to medication regimens?
Medication is one treatment option in managing the symptoms of any disorder. However, medications are not a cure and come with many drawbacks. The intensity, duration, and frequency of these drawbacks can come in conflict with a person’s experience of recovery and quality of life.

Factors That Affect Adherence to Medication Treatment

Some of the factors that become barriers for following medication regimens include:

- necessity of long term maintenance
- early onset of side effects
- persistence of side effects
- complex medication regimens
- interruptions in medication taking routines
- diminished cognitive organization (confusion)
- lack of information
- lack of trust/confidence
- financial hardships

The Necessity of Long Term Maintenance

For many people who are diagnosed with a major mental disorder, the process of learning to manage their illness and live their lives with autonomy, quality, and dignity is a lifelong challenge. Many people will be prescribed medications throughout their lifetime to help manage symptoms because medications do not cure a mental disorder.

The issues that surround establishing effective medication-taking habits affect all people. For example, we know that many people do not finish time-limited antibiotic regimens (5 to 10 days) as prescribed which has resulted in drug resistant bacterial strains.

Taking medications daily over a lifetime requires that a person has access to reliable, skillfully communicated information on diagnosis and treatments (including medications and their side effects), financial resources, personal resources, and support from professionals, family, and friends. Disruptions to any of these variables jeopardize the necessary continuity of taking medication over long periods of time.

Early Onset of Side Effects

We take medication in order to feel better. When side effects occur within the first two weeks of beginning a medication, and these side effects are intolerable, frightening, uncomfortable, or embarrassing, a person is more likely to stop taking the medication. This is especially true when these side effects have not been explained and are, therefore, unexpected.
Persistence of side effects

When the discomfort and persistence of side effects seem greater than the benefits a person is experiencing with a medication they may be more likely to stop following a medication regimen. Some side effects, such as tardive dyskensia, become permanent if not addressed immediately. Those risks highlight the apprehension faced by anyone who wants the benefits of medication, but also worries about the potential harm.

Effective, well tolerated, and acceptable psychotropic medications may help to overcome one of the major causes of non-adherence with treatment, and thus improve outcomes. However, the therapeutic alliance between a person and a mental health professional will continue to be vital in ensuring that the need for, and benefits of treatment are understood, and that those aspects of the illness itself, which can lead someone to stop taking medication, are recognized and addressed.

Complex medication regimen

When a medication regimen is too complex, the chance of someone following it as prescribed is reduced. Some examples of such complexity would include:

- rigid dosing schedules
- special instructions such as with food, without food, 1hr before meals or 2 hrs. after meals, etc.
- poorly communicated and/or understood instructions

This can be improved by talking with the doctor and finding out if it is possible to simplify the regimen. When this is not possible, work with the person to a set schedule for taking medication that is associated with their regular and predictable daily activities. Also, the use of aids such as containers to prepackage medications for each day or each week can be helpful. Someone with schizophrenia may prefer monthly injections such as Prolixin Decanoate.

Interruptions in medication-taking routines

A person may actually reduce the amount of medication they are taking or stop all together when there is an interruption in their medication routine. There are many ways that a medication regimen might be interrupted. Some examples are listed below.

- One or two doses are consecutively missed, which begins a pattern of missing doses each day or several days a week.
- The prescription bottle is empty and there is no money or transportation to get a refill.
- A new prescription is needed to get a refill and the appointment for a medication evaluation and prescription renewal has been missed and is rescheduled after medication will run out.
These are only some examples of how medication routines can be broken and begin a spiraling down effect of not taking medications.

**Diminished cognitive organization (confusion)**

Taking medications consistently as prescribed requires a person to organize, comprehend and follow instructions, and plan ahead how medications and correct dosages will be taken. Following special instructions may also be required in the planning.

A person’s ability to think clearly may be compromised by the symptoms of his/her illness, as well as being affected by a medication itself. If a person cannot follow through with routine activities because her/his thinking is disorganized or life is chaotic, the chances of taking medications as prescribed is jeopardized. Also, some side effects of medications can impair memory resulting in missed doses or double dosing when a dose was already taken but forgotten.

**Lack of information**

The literature on medication and/or treatment adherence suggests that a person whose diagnosis and treatment (including potential side effects) have been explained to her/him, is more likely to follow a medication regimen than someone who does not understand why s/he has been placed on medication. A lack of information leaves a person unprepared to deal with problems that may arise especially when s/he is expecting to feel better and instead encounters side effects that are more intolerable to him/her than any benefits from the medication.

A physician or other professional who does not take the time to clearly explain why a medication has been prescribed, what a person might expect in benefits, side effects, and long term use, as well as attending to problems a person is experiencing with a medication, may leave a person with the impression that s/he is not very important to that physician or professional and, therefore, why bother.

An open, honest communication of information about diagnosis and treatment is essential to increase the chances of a person following through with treatment.

**Lack of trust/confidence**

Being informed that you have a major physical or mental disorder is traumatic for most people. From that moment, a person’s life is changed forever and the adjustment to such news can be complex and lengthy. The experiences people have with professionals as they navigate a system for help has a direct impact on:

- the trust they feel when seeking help
- the confidence they have in receiving help
• motivation or interest in following treatment recommendations

Financial hardships

Even when a person wants or is willing to follow a medication regimen as prescribed, if s/he does not have the financial resources to purchase medications, pay for transportation or must choose between food, rent, utilities, and medications, it is likely that taking medications will lose. Helping someone to meet these needs may be the best solution to their medication treatment adherence.

Adverse Results of Not Taking Medications

When a person is not taking medication as it was prescribed, there are many possible outcomes. Some of the adverse results that can occur include:

• unwanted symptoms return
• a loss or interruption to the gains a person may have made in terms of housing, employment, education, and social support from family and friends.
• hospitalization or re-hospitalization
• greater difficulty re-stabilizing on medication
• homelessness
• encounters with law enforcement
• accidental overmedication or overdose

Even though there are many adverse effects of not taking one's medication, there are some seductively favorable results that can also occur. These include:

• initially feeling better and more normal (e.g., thinking more clearly, regaining affect and spontaneity)
• regaining control over choices/decisions regarding illness and other life issues
• gaining an experience of “off medication vs. on medication”
• eliminating the financial stress of maintaining a medication regimen

Such results can reinforce an individual's decision for stopping their medications. However, these “benefits” usually last only a short time and are soon overshadowed by the adverse effects.

Mediating Workable Solutions

Listen to the individual’s reasons for not taking their medication.

One multinational survey showed that psychiatric medical professionals may underestimate the frequency of extrapyramidal side effects and hormonal side effects, such as impotence, often associated with the older generation of antipsychotic agents.
Patient concerns about movement disorders and sexual dysfunction were common, but many felt that these problems were overlooked by their doctors. Ignoring or minimizing these communications or assuming that a person is unreliable in his/her perceptions will only further the chances that a person will not remain on medication. Their experience is real in their life and addressing these issues can only help.

Discuss medications in the context of the person’s life

It is important to discuss the use of medications in the context of a person’s life. Taking medication must be meaningful in light of what a person wants for the quality of her/his life.

For example, telling someone that taking medication will help them think more clearly and eliminate unwanted voices may be less important to him/her than understanding the medication will allow him/her to participate in an activity that s/he loves, such as reading, because the medications will improve the concentration needed for reading.

Explore solutions that are acceptable to and workable for him/her

When there are problems with a medication or medication regimen, explore solutions that will not only alleviate the problems, but make sense to the person and will be workable within his/her day-to-day life. Solutions that do not satisfy the personal needs of an individual may only lead to further problems.

If the person wants to take medications, find the resources necessary for him/her to have success doing so

People that clearly want to take medication because of the benefits they experience, should get all the support possible to have that opportunity. Being persistent in helping them obtain the resources they need may be the only barrier necessary to overcome, however, it can be a significant barrier.

Provide available information about diagnosis, medications, and any other treatments

According to the literature, providing people with the information they need to make choices and decisions that work within the context of their life will only increase the chances they will take medication as prescribed. The concerns of professionals, that providing information will lead to a greater problem with adherence because of fear resulting from receiving information, have not been reflected in the research. Actually, more information has generally meant higher rates of treatment adherence.

Accept a person’s decision regarding medications, and always leave the door open for discussion
Even when a person has been provided clear explanations and information about her/his diagnosis and treatments, s/he may still decide that medication is not an option. There is no negotiating with a person when his/her decision regarding medication is definite. This is true for all of us when we make decisions that we believe are in our best interest. This must be respected, but offer an invitation to discuss it further if s/he should change his/her mind.

Whether or not a person follows a prescribed medication regimen is a more complex issue than just refusing. Operating from a position of recognizing a person’s right to choose, providing the information and tools to make these choices, and accepting these choices without withdrawing support will go a long way in facilitating treatment adherence.

Summary

During this course you have been introduced to all the primary categories of psychiatric medications used to treat major mental illnesses, the intended therapeutic benefits, many of their potential side effects, and precautions that should be taken when using these medications.

This course is also meant to expand your understanding of the benefits of being an informed provider or consumer of mental health medication treatments. As a provider, the more information you have the greater service you can provide to the people that come to you for behavioral healthcare. As a consumer, the greater your knowledge and understanding of these treatments, the more informed you are to make decisions that are in the best interest of your well-being.

Thank you for selecting this course and spending your time to complete it. It is our hope that this information has made a difference.