

Medications

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SPECIAL MESSAGE

This booklet is designed to help mental health patients and their families understand how and why medications can be used as part of the treatment of mental health problems.

It is important for you to be well informed about medications you may need. You should know what medications you take and the dosage, and learn everything you can about them. Many medications now come with patient package inserts, describing the medication, how it should be taken, and side effects to look for. When you go to a new doctor, always take with you a list of all of the prescribed medications (including dosage), over-the-counter medications, and vitamin, mineral, and herbal supplements you take. The list should include herbal teas and supplements such as St. John's wort, echinacea, ginkgo, ephedra, and ginseng. Almost any substance that can change behavior can cause harm if used in the wrong amount or frequency of dosing, or in a bad combination. Drugs differ in the speed, duration of action, and in their margin for error.

If you are taking more than one medication, and at different times of the day, it is essential that you take the correct dosage of each medication. An easy way to make sure you do this is to use a 7-day pillbox, available in any pharmacy, and to fill the box with the proper medication at the beginning of each week. Many pharmacies also have pillboxes with sections for medications that must be taken more than once a day.

This booklet is intended to inform you, but it is not a "do-it-yourself" manual. Leave it to the doctor, working closely with you, to diagnose mental illness, interpret signs and symptoms of the illness, prescribe and manage medication, and explain any side effects. This will help you ensure that you use medication most effectively and with minimum risk of side effects or complications.

INTRODUCTION

Anyone can develop a mental illness—you, a family member, a friend, or a neighbor. Some disorders are mild; others are serious and long-lasting. These conditions can be diagnosed and treated. Most people can live better lives after treatment. And psychotherapeutic medications are an increasingly important element in the successful treatment of mental illness.

Medications for mental illnesses were first introduced in the early 1950s with the antipsychotic chlorpromazine. Other medications have followed. These medications have changed the lives of people with these disorders for the better.

Psychotherapeutic medications also may make other kinds of treatment more effective. Someone who is too depressed to talk, for instance, may have difficulty communicating

during psychotherapy or counseling, but the right medication may improve symptoms so the person can respond. For many patients, a combination of psychotherapy and medication can be an effective method of treatment.

Another benefit of these medications is an increased understanding of the causes of mental illness. Scientists have learned much more about the workings of the brain as a result of their investigations into how psychotherapeutic medications relieve the symptoms of disorders such as psychosis, depression, anxiety, obsessive-compulsive disorder, and panic disorder.

RELIEF FROM SYMPTOMS

Just as aspirin can reduce a fever without curing the infection that causes it, psychotherapeutic medications act by controlling symptoms. Psychotherapeutic medications do not cure mental illness, but in many cases, they can help a person function despite some continuing mental pain and difficulty coping with problems. For example, drugs like chlorpromazine (Thorazine) can turn off the "voices" heard by some people with psychosis and help them to see reality more clearly. And antidepressants can lift the dark, heavy moods of depression. The degree of response--ranging from a little relief of symptoms to complete relief--depends on a variety of factors related to the individual and the disorder being treated.

How long someone must take a psychotherapeutic medication depends on the individual and the disorder. Many depressed and anxious people may need medication for a single period--perhaps for several months--and then never need it again. People with conditions such as schizophrenia or bipolar disorder (also known as manic-depressive illness), or those whose depression or anxiety is chronic or recurrent, may have to take medication indefinitely.

Like any medication, psychotherapeutic medications do not produce the same effect in everyone. Some people may respond better to one medication than another. Some may need larger dosages than others do. Some have side effects, and others do not. Age, sex, body size, body chemistry, physical illnesses and their treatments, diet, and habits such as smoking are some of the factors that can influence a medication's effect.

QUESTIONS FOR YOUR DOCTOR

You and your family can help your doctor find the right medications for you. The doctor needs to know your medical history, other medications being taken, and life plans such as hoping to have a baby. After taking the medication for a short time, you should tell the doctor about favorable results as well as side effects. The Food and Drug Administration (FDA) and professional organizations recommend that the patient or a family member ask the following questions when a medication is prescribed:

- What is the name of the medication, and what is it supposed to do?
- How and when do I take it, and when do I stop taking it?
- What foods, drinks, or other medications should I avoid while taking the prescribed medication?
- Should it be taken with food or on an empty stomach?

- Is it safe to drink alcohol while on this medication?
- What are the side effects, and what should I do if they occur?
- Is a Patient Package Insert for the medication available?

MEDICATIONS FOR MENTAL ILLNESS

This booklet describes medications by their generic (chemical) names and in italics by their trade names (brand names used by pharmaceutical companies). They are divided into four large categories--antipsychotic, antimanic, antidepressant, and antianxiety medications. Medications that specifically affect children, the elderly, and women during the reproductive years are discussed in a separate section of the booklet.

Lists at the end of the booklet give the generic name and the trade name of the most commonly prescribed medications and note the section of the booklet that contains information about each type. A separate chart shows the trade and generic names of medications commonly prescribed for children and adolescents.

Treatment evaluation studies have established the effectiveness of the medications described here, but much remains to be learned about them. The National Institute of Mental Health, other Federal agencies, and private research groups are sponsoring studies of these medications. Scientists are hoping to improve their understanding of how and why these medications work, how to control or eliminate unwanted side effects, and how to make the medications more effective.

ANTIPSYCHOTIC MEDICATIONS

A person who is psychotic is out of touch with reality. People with psychosis may hear "voices" or have strange and illogical ideas (for example, thinking that others can hear their thoughts, or are trying to harm them, or that they are the President of the United States or some other famous person). They may get excited or angry for no apparent reason, or spend a lot of time by themselves, or in bed, sleeping during the day and staying awake at night. The person may neglect appearance, not bathing or changing clothes, and may be hard to talk to--barely talking or saying things that make no sense. They often are initially unaware that their condition is an illness.

These kinds of behaviors are symptoms of a psychotic illness such as schizophrenia. Antipsychotic medications act against these symptoms. These medications cannot "cure" the illness, but they can take away many of the symptoms or make them milder. In some cases, they can shorten the course of an episode of the illness as well.

There are a number of antipsychotic (neuroleptic) medications available. These medications affect neurotransmitters that allow communication between nerve cells. One such neurotransmitter, dopamine, is thought to be relevant to schizophrenia symptoms. All these medications have been shown to be effective for schizophrenia. The main differences are in the potency--that is, the dosage (amount) prescribed to produce therapeutic effects--and the side effects. Some people might think that the higher the dose of medication prescribed, the more serious the illness; but this is not always true.

The first antipsychotic medications were introduced in the 1950s. Antipsychotic medications have helped many patients with psychosis lead a more normal and fulfilling life by alleviating such symptoms as hallucinations, both visual and auditory, and paranoid thoughts. However, the early antipsychotic medications often have unpleasant side effects, such as muscle stiffness, tremor, and abnormal movements, leading researchers to continue their search for better drugs.

The 1990s saw the development of several new drugs for schizophrenia, called "atypical antipsychotics." Because they have fewer side effects than the older drugs, today they are often used as a first-line treatment. The first atypical antipsychotic, clozapine (Clozaril), was introduced in the United States in 1990. In clinical trials, this medication was found to be more effective than conventional or "typical" antipsychotic medications in individuals with treatment-resistant schizophrenia (schizophrenia that has not responded to other drugs), and the risk of tardive dyskinesia (a movement disorder) was lower. However, because of the potential side effect of a serious blood disorder—agranulocytosis (loss of the white blood cells that fight infection)—patients who are on clozapine must have a blood test every 1 or 2 weeks. The inconvenience and cost of blood tests and the medication itself have made maintenance on clozapine difficult for many people. Clozapine, however, continues to be the drug of choice for treatment-resistant schizophrenia patients.

Several other atypical antipsychotics have been developed since clozapine was introduced. The first was risperidone (Risperdal), followed by olanzapine (Zyprexa), quetiapine (Seroquel), ziprasidone (Geodon), and Aripiprazole (Abilify). Each has a unique side effect profile, but in general, these medications are better tolerated than the earlier drugs.

All these medications have their place in the treatment of schizophrenia, and doctors will choose among them. They will consider the person's symptoms, age, weight, and personal and family medication history.

Dosages and side effects. Some drugs are very potent and the doctor may prescribe a low dose. Other drugs are not as potent and a higher dose may be prescribed.

Unlike some prescription drugs, which must be taken several times during the day, some antipsychotic medications can be taken just once a day. In order to reduce daytime side effects such as sleepiness, some medications can be taken at bedtime. Some antipsychotic medications are available in "depot" forms that can be injected once or twice a month.

Most side effects of antipsychotic medications are mild. Many common ones lessen or disappear after the first few weeks of treatment. These include drowsiness, rapid heartbeat, and dizziness when changing position.

Some people gain weight while taking medications and need to pay extra attention to diet and exercise to control their weight. Other side effects may include a decrease in sexual ability or interest, problems with menstrual periods, sunburn, or skin rashes. If a side effect occurs, the doctor should be told. He or she may prescribe a different medication,

change the dosage or schedule, or prescribe an additional medication to control the side effects.

Just as people vary in their responses to antipsychotic medications, they also vary in how quickly they improve. Some symptoms may diminish in days; others take weeks or months. Many people see substantial improvement by the sixth week of treatment. If there is no improvement, the doctor may try a different type of medication. The doctor cannot tell beforehand which medication will work for a person. Sometimes a person must try several medications before finding one that works.

If a person is feeling better or even completely well, the medication should not be stopped without talking to the doctor. It may be necessary to stay on the medication to continue feeling well. If, after consultation with the doctor, the decision is made to discontinue the medication, it is important to continue to see the doctor while tapering off medication. Many people with bipolar disorder, for instance, require antipsychotic medication only for a limited time during a manic episode until mood-stabilizing medication takes effect. On the other hand, some people may need to take antipsychotic medication for an extended period of time. These people usually have chronic (long-term, continuous) schizophrenic disorders, or have a history of repeated schizophrenic episodes, and are likely to become ill again. Also, in some cases a person who has experienced one or two severe episodes may need medication indefinitely. In these cases, medication may be continued in as low a dosage as possible to maintain control of symptoms. This approach, called maintenance treatment, prevents relapse in many people and removes or reduces symptoms for others.

Multiple medications. Antipsychotic medications can produce unwanted effects when taken with other medications. Therefore, the doctor should be told about all medicines being taken, including over-the-counter medications and vitamin, mineral, and herbal supplements, and the extent of alcohol use. Some antipsychotic medications interfere with antihypertensive medications (taken for high blood pressure), anticonvulsants (taken for epilepsy), and medications used for Parkinson's disease. Other antipsychotics add to the effect of alcohol and other central nervous system depressants such as antihistamines, antidepressants, barbiturates, some sleeping and pain medications, and narcotics.

Other effects. Long-term treatment of schizophrenia with one of the older, or "conventional," antipsychotics may cause a person to develop tardive dyskinesia (TD). Tardive dyskinesia is a condition characterized by involuntary movements, most often around the mouth. It may range from mild to severe. In some people, it cannot be reversed, while others recover partially or completely. Tardive dyskinesia is sometimes seen in people with schizophrenia who have never been treated with an antipsychotic medication; this is called "spontaneous dyskinesia."¹ However, it is most often seen after long-term treatment with older antipsychotic medications. The risk has been reduced with the newer "atypical" medications. There is a higher incidence in women, and the risk rises with age. The possible risks of long-term treatment with an antipsychotic medication must be weighed against the benefits in each case. The risk for TD is 5 percent per year with older medications; it is less with the newer medications.

NOTE: the above is identical to

ANTIMANIC MEDICATIONS

Bipolar disorder is characterized by cycling mood changes: severe highs (mania) and lows (depression). Episodes may be predominantly manic or depressive, with normal mood between episodes. Mood swings may follow each other very closely, within days (rapid cycling), or may be separated by months to years. The "highs" and "lows" may vary in intensity and severity and can co-exist in "mixed" episodes.

When people are in a manic "high," they may be overactive, overly talkative, have a great deal of energy, and have much less need for sleep than normal. They may switch quickly from one topic to another, as if they cannot get their thoughts out fast enough. Their attention span is often short, and they can be easily distracted. Sometimes people who are "high" are irritable or angry and have false or inflated ideas about their position or importance in the world. They may be very elated, and full of grand schemes that might range from business deals to romantic sprees. Often, they show poor judgment in these ventures. Mania, untreated, may worsen to a psychotic state.

In a depressive cycle the person may have a "low" mood with difficulty concentrating; lack of energy, with slowed thinking and movements; changes in eating and sleeping patterns (usually increases of both in bipolar depression); feelings of hopelessness, helplessness, sadness, worthlessness, guilt; and, sometimes, thoughts of suicide.

Lithium. The medication used most often to treat bipolar disorder is lithium. Lithium evens out mood swings in both directions--from mania to depression, and depression to mania--so it is used not just for manic attacks or flare-ups of the illness but also as an ongoing maintenance treatment for bipolar disorder.

Although lithium will reduce severe manic symptoms in about 5 to 14 days, it may be weeks to several months before the condition is fully controlled. Antipsychotic medications are sometimes used in the first several days of treatment to control manic symptoms until the lithium begins to take effect. Antidepressants may also be added to lithium during the depressive phase of bipolar disorder. If given in the absence of lithium or another mood stabilizer, antidepressants may provoke a switch into mania in people with bipolar disorder.

A person may have one episode of bipolar disorder and never have another, or be free of illness for several years. But for those who have more than one manic episode, doctors usually give serious consideration to maintenance (continuing) treatment with lithium.

Some people respond well to maintenance treatment and have no further episodes. Others may have moderate mood swings that lessen as treatment continues, or have less frequent or less severe episodes. Unfortunately, some people with bipolar disorder may not be helped at all by lithium. Response to treatment with lithium varies, and it cannot be determined beforehand who will or will not respond to treatment.

Regular blood tests are an important part of treatment with lithium. If too little is taken, lithium will not be effective. If too much is taken, a variety of side effects may occur. The range between an effective dose and a toxic one is small. Blood lithium levels are checked at the beginning of treatment to determine the best lithium dosage. Once a person is stable and on a maintenance dosage, the lithium level should be checked every few months. How much lithium people need to take may vary over time, depending on how ill they are, their body chemistry, and their physical condition.

Side effects of lithium. When people first take lithium, they may experience side effects such as drowsiness, weakness, nausea, fatigue, hand tremor, or increased thirst and urination. Some may disappear or decrease quickly, although hand tremor may persist. Weight gain may also occur. Dieting will help, but crash diets should be avoided because they may raise or lower the lithium level. Drinking low-calorie or no-calorie beverages, especially water, will help keep weight down. Kidney changes--increased urination and, in children, enuresis (bed wetting)--may develop during treatment. These changes are generally manageable and are reduced by lowering the dosage. Because lithium may cause the thyroid gland to become underactive (hypothyroidism) or sometimes enlarged (goiter), thyroid function monitoring is a part of the therapy. To restore normal thyroid function, thyroid hormone may be given along with lithium.

Because of possible complications, doctors either may not recommend lithium or may prescribe it with caution when a person has thyroid, kidney, or heart disorders, epilepsy, or brain damage. Women of childbearing age should be aware that lithium increases the risk of congenital malformations in babies. Special caution should be taken during the first 3 months of pregnancy.

Anything that lowers the level of sodium in the body--reduced intake of table salt, a switch to a low-salt diet, heavy sweating from an unusual amount of exercise or a very hot climate, fever, vomiting, or diarrhea--may cause a lithium buildup and lead to toxicity. It is important to be aware of conditions that lower sodium or cause dehydration and to tell the doctor if any of these conditions are present so the dose can be changed.

Lithium, when combined with certain other medications, can have unwanted effects. Some diuretics--substances that remove water from the body--increase the level of lithium and can cause toxicity. Other diuretics, like coffee and tea, can lower the level of lithium. Signs of lithium toxicity may include nausea, vomiting, drowsiness, mental dullness, slurred speech, blurred vision, confusion, dizziness, muscle twitching, irregular heartbeat, and, ultimately, seizures. A lithium overdose can be life-threatening. *People who are taking lithium should tell every doctor who is treating them, including dentists, about all medications they are taking.*

With regular monitoring, lithium is a safe and effective drug that enables many people, who otherwise would suffer from incapacitating mood swings, to lead normal lives.

Anticonvulsants. Some people with symptoms of mania who do not benefit from or would prefer to avoid lithium have been found to respond to anticonvulsant medications commonly prescribed to treat seizures.

The anticonvulsant valproic acid (Depakote, divalproex sodium) is the main alternative therapy for bipolar disorder. It is as effective in non-rapid-cycling bipolar disorder as lithium and appears to be superior to lithium in rapid-cycling bipolar disorder.² Although valproic acid can cause gastrointestinal side effects, the incidence is low. Other adverse effects occasionally reported are headache, double vision, dizziness, anxiety, or confusion. Because in some cases valproic acid has caused liver dysfunction, liver function tests should be performed before therapy and at frequent intervals thereafter, particularly during the first 6 months of therapy.

in patients with epilepsy have shown that valproic acid may increase testosterone levels in teenage girls and produce polycystic ovary syndrome (POS) in women who began taking the medication before age 20.^{3,4} POS can cause obesity, hirsutism (body hair), and amenorrhea. Therefore, young female patients should be monitored carefully by a doctor.

Other anticonvulsants used for bipolar disorder include carbamazepine (Tegretol), lamotrigine (Lamictal), gabapentin (Neurontin), and topiramate (Topamax). The evidence for anticonvulsant effectiveness is stronger for acute mania than for long-term maintenance of bipolar disorder. Some studies suggest particular efficacy of lamotrigine in bipolar depression. At present, the lack of formal FDA approval of anticonvulsants other than valproic acid for bipolar disorder may limit insurance coverage for these medications.

Most people who have bipolar disorder take more than one medication. Along with the mood stabilizer--lithium and/or an anticonvulsant--they may take a medication for accompanying agitation, anxiety, insomnia, or depression. It is important to continue taking the mood stabilizer when taking an antidepressant because research has shown that treatment with an antidepressant alone increases the risk that the patient will switch to mania or hypomania, or develop rapid cycling.⁵ Sometimes, when a bipolar patient is not responsive to other medications, an atypical antipsychotic medication is prescribed. Finding the best possible medication, or combination of medications, is of utmost importance to the patient and requires close monitoring by a doctor and strict adherence to the recommended treatment regimen.

ANTIDEPRESSANT MEDICATIONS

Major depression, the kind of depression that will most likely benefit from treatment with medications, is more than just "the blues." It is a condition that lasts 2 weeks or more, and interferes with a person's ability to carry on daily tasks and enjoy activities that previously brought pleasure. Depression is associated with abnormal functioning of the brain. An interaction between genetic tendency and life history appears to determine a person's chance of becoming depressed. Episodes of depression may be triggered by

stress, difficult life events, side effects of medications, or medication/substance withdrawal, or even viral infections that can affect the brain.

Depressed people will seem sad, or "down," or may be unable to enjoy their normal activities. They may have no appetite and lose weight (although some people eat more and gain weight when depressed). They may sleep too much or too little, have difficulty going to sleep, sleep restlessly, or awaken very early in the morning. They may speak of feeling guilty, worthless, or hopeless; they may lack energy or be jumpy and agitated. They may think about killing themselves and may even make a suicide attempt. Some depressed people have delusions (false, fixed ideas) about poverty, sickness, or sinfulness that are related to their depression. Often feelings of depression are worse at a particular time of day, for instance, every morning or every evening.

Not everyone who is depressed has all these symptoms, but everyone who is depressed has at least some of them, co-existing, on most days. Depression can range in intensity from mild to severe. Depression can co-occur with other medical disorders such as cancer, heart disease, stroke, Parkinson's disease, Alzheimer's disease, and diabetes. In such cases, the depression is often overlooked and is not treated. If the depression is recognized and treated, a person's quality of life can be greatly improved.

Antidepressants are used most often for serious depressions, but they can also be helpful for some milder depressions. Antidepressants are not "uppers" or stimulants, but rather take away or reduce the symptoms of depression and help depressed people feel the way they did before they became depressed.

The doctor chooses an antidepressant based on the individual's symptoms. Some people notice improvement in the first couple of weeks; but usually the medication must be taken regularly for at least 6 weeks and, in some cases, as many as 8 weeks before the full therapeutic effect occurs. If there is little or no change in symptoms after 6 or 8 weeks, the doctor may prescribe a different medication or add a second medication such as lithium, to augment the action of the original antidepressant. Because there is no way of knowing beforehand which medication will be effective, the doctor may have to prescribe first one and then another. To give a medication time to be effective and to prevent a relapse of the depression once the patient is responding to an antidepressant, the medication should be continued for 6 to 12 months, or in some cases longer, carefully following the doctor's instructions. When a patient and the doctor feel that medication can be discontinued, withdrawal should be discussed as to how best to taper off the medication gradually. ***Never discontinue medication without talking to the doctor about it.*** For those who have had several bouts of depression, long-term treatment with medication is the most effective means of preventing more episodes.

Dosage of antidepressants varies, depending on the type of drug and the person's body chemistry, age, and, sometimes, body weight. Traditionally, antidepressant dosages are started low and raised gradually over time until the desired effect is reached without the appearance of troublesome side effects. Newer antidepressants may be started at or near therapeutic doses.

Early antidepressants. From the 1960s through the 1980s, **tricyclic antidepressants** (named for their chemical structure) were the first line of treatment for major depression.

Most of these medications affected two chemical neurotransmitters, norepinephrine and serotonin. Though the tricyclics are as effective in treating depression as the newer antidepressants, their side effects are usually more unpleasant; thus, today tricyclics such as imipramine, amitriptyline, nortriptyline, and desipramine are used as a second- or third-line treatment. Other antidepressants introduced during this period were **monoamine oxidase inhibitors (MAOIs)**. MAOIs are effective for some people with major depression who do not respond to other antidepressants. They are also effective for the treatment of panic disorder and bipolar depression. MAOIs approved for the treatment of depression are phenelzine (*Nardil*), tranylcypromine (*Parnate*), and isocarboxazid (*Marplan*). Because substances in certain foods, beverages, and medications can cause dangerous interactions when combined with MAOIs, people on these agents must adhere to dietary restrictions. This has deterred many clinicians and patients from using these effective medications, which are in fact quite safe when used as directed.

The past decade has seen the introduction of many new antidepressants that work as well as the older ones but have fewer side effects. Some of these medications primarily affect one neurotransmitter, serotonin, and are called **selective serotonin reuptake inhibitors (SSRIs)**. These include fluoxetine (*Prozac*), sertraline (*Zoloft*), fluvoxamine (*Luvox*), paroxetine (*Paxil*), and citalopram (*Celexa*).

The late 1990s ushered in new medications that, like the tricyclics, affect both norepinephrine and serotonin but have fewer side effects. These new medications include venlafaxine (*Effexor*) and nefazadone (*Serzone*).

Cases of life-threatening hepatic failure have been reported in patients treated with nefazodone (Serzone). Patients should call the doctor if the following symptoms of liver dysfunction occur - yellowing of the skin or white of eyes, unusually dark urine, loss of appetite that lasts for several days, nausea, or abdominal pain.

Other newer medications chemically unrelated to the other antidepressants are the sedating mirtazepine (*Remeron*) and the more activating bupropion (*Wellbutrin*). Wellbutrin has not been associated with weight gain or sexual dysfunction but is not used for people with, or at risk for, a seizure disorder.

Each antidepressant differs in its side effects and in its effectiveness in treating an individual person, but the majority of people with depression can be treated effectively by one of these antidepressants.

Side effects of antidepressant medications.

Antidepressants may cause mild, and often temporary, side effects (sometimes referred to as adverse effects) in some people. Typically, these are not serious. However, any reactions or side effects that are unusual, annoying, or that interfere with functioning

should be reported to the doctor immediately. The most common side effects of tricyclic antidepressants, and ways to deal with them, are as follows:

- *Dry mouth*--it is helpful to drink sips of water; chew sugarless gum; brush teeth daily.
- *Constipation*--bran cereals, prunes, fruit, and vegetables should be in the diet.
- *Bladder problems*--emptying the bladder completely may be difficult, and the urine stream may not be as strong as usual. Older men with enlarged prostate conditions may be at particular risk for this problem. The doctor should be notified if there is any pain.
- *Sexual problems*--sexual functioning may be impaired; if this is worrisome, it should be discussed with the doctor.
- *Blurred vision*--this is usually temporary and will not necessitate new glasses. Glaucoma patients should report any change in vision to the doctor.
- *Dizziness*--rising from the bed or chair slowly is helpful.
- *Drowsiness as a daytime problem*--this usually passes soon. A person who feels drowsy or sedated should not drive or operate heavy equipment. The more sedating antidepressants are generally taken at bedtime to help sleep and to minimize daytime drowsiness.
- *Increased heart rate*--pulse rate is often elevated. Older patients should have an electrocardiogram (EKG) before beginning tricyclic treatment.

The newer antidepressants, including SSRIs, have different types of side effects, as follows:

- *Sexual problems*--fairly common, but reversible, in both men and women. The doctor should be consulted if the problem is persistent or worrisome.
- *Headache*--this will usually go away after a short time.
- *Nausea*--may occur after a dose, but it will disappear quickly.
- *Nervousness and insomnia (trouble falling asleep or waking often during the night)*--these may occur during the first few weeks; dosage reductions or time will usually resolve them.
- *Agitation (feeling jittery)*--if this happens for the first time after the drug is taken and is more than temporary, the doctor should be notified.
- Any of these side effects may be amplified when an SSRI is combined with other medications that affect serotonin. In the most extreme cases, such a combination of medications (e.g., an SSRI and an MAOI) may result in a potentially serious or even fatal "serotonin syndrome," characterized by fever, confusion, muscle rigidity, and cardiac, liver, or kidney problems.

The small number of people for whom **MAOIs** are the best treatment need to avoid taking decongestants and consuming certain foods that contain high levels of tyramine, such as many cheeses, wines, and pickles. The interaction of tyramine with MAOIs can bring on a sharp increase in blood pressure that can lead to a stroke. The doctor should furnish a complete list of prohibited foods that the individual should carry at all times. Other forms of antidepressants require no food restrictions. MAOIs also should not be

combined with other antidepressants, especially SSRIs, due to the risk of serotonin syndrome.

Medications of any kind--prescribed, over-the-counter, or herbal supplements--***should never be mixed without consulting the doctor; nor should medications ever be borrowed from another person.*** Other health professionals who may prescribe a drug--such as a dentist or other medical specialist--should be told that the person is taking a specific antidepressant and the dosage. Some drugs, although safe when taken alone, can cause severe and dangerous side effects if taken with other drugs. Alcohol (wine, beer, and hard liquor) or street drugs, may reduce the effectiveness of antidepressants and their use should be minimized or, preferably, avoided by anyone taking antidepressants. Some people who have not had a problem with alcohol use may be permitted by their doctor to use a modest amount of alcohol while taking one of the newer antidepressants. The potency of alcohol may be increased by medications since both are metabolized by the liver; one drink may feel like two.

Although not common, some people have experienced withdrawal symptoms when stopping an antidepressant too abruptly. Therefore, when discontinuing an antidepressant, gradual withdrawal is generally advisable. Questions about any antidepressant prescribed, or problems that may be related to the medication, should be discussed with the doctor and/or the pharmacist.

ANTI-ANXIETY MEDICATIONS

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 include irritability, uneasiness, jumpiness, feelings of apprehension, rapid or irregular heartbeat, stomachache, nausea, faintness, and breathing problems.

Anxiety is often manageable and mild, but sometimes it can present serious problems. A high level or prolonged state of anxiety can make the activities of daily life difficult or impossible. People may have generalized anxiety disorder (GAD) or more specific anxiety disorders such as panic, phobias, obsessive-compulsive disorder (OCD), or post-traumatic stress disorder (PTSD).

Both antidepressants and anti-anxiety medications are used to treat anxiety disorders. The broad-spectrum activity of most antidepressants provides effectiveness in anxiety disorders as well as depression. The first medication specifically approved for use in the treatment of OCD was the tricyclic antidepressant clomipramine (*Anafranil*). The SSRIs, fluoxetine (*Prozac*), fluvoxamine (*Luvox*), paroxetine (*Paxil*), and sertraline (*Zoloft*) have now been approved for use with OCD. Paroxetine has also been approved for social anxiety disorder (social phobia), GAD, and panic disorder; and sertraline is approved for panic disorder and PTSD. Venlafaxine (*Effexor*) has been approved for GAD.

Anti-anxiety medications include the *benzodiazepines*, which can relieve symptoms within a short time. They have relatively few side effects: drowsiness and loss of coordination are most common; fatigue and mental slowing or confusion can also occur. These effects

make it dangerous for people taking benzodiazepines to drive or operate some machinery. Other side effects are rare.

Benzodiazepines vary in duration of action in different people; they may be taken two or three times a day, sometimes only once a day, or just on an "as-needed" basis. Dosage is generally started at a low level and gradually raised until symptoms are diminished or removed. The dosage will vary a great deal depending on the symptoms and the individual's body chemistry.

It is wise to abstain from alcohol when taking benzodiazepines, because the interaction between benzodiazepines and alcohol can lead to serious and possibly life-threatening complications. It is also important to tell the doctor about other medications being taken.

People taking benzodiazepines for weeks or months may develop tolerance for and dependence on these drugs. Abuse and withdrawal reactions are also possible. For these reasons, the medications are generally prescribed for brief periods of time--days or weeks--and sometimes just for stressful situations or anxiety attacks. However, some patients may need long-term treatment.

It is essential to talk with the doctor before discontinuing a benzodiazepine. A withdrawal reaction may occur if the treatment is stopped abruptly. Symptoms may include anxiety, shakiness, headache, dizziness, sleeplessness, loss of appetite, or in extreme cases, seizures. A withdrawal reaction may be mistaken for a return of the anxiety because many of the symptoms are similar. After a person has taken benzodiazepines for an extended period, the dosage is gradually reduced before it is stopped completely. Commonly used benzodiazepines include clonazepam (*Klonopin*), alprazolam (*Xanax*), diazepam (*Valium*), and lorazepam (*Ativan*).

The only medication specifically for anxiety disorders other than the benzodiazepines is buspirone (*BuSpar*). Unlike the benzodiazepines, buspirone must be taken consistently for at least 2 weeks to achieve an antianxiety effect and therefore cannot be used on an "as-needed" basis.

Beta blockers, medications often used to treat heart conditions and high blood pressure, are sometimes used to control "performance anxiety" when the individual must face a specific stressful situation--a speech, a presentation in class, or an important meeting. Propranolol (*Inderal*, *Inderide*) is a commonly used beta blocker.

MEDICATIONS FOR SPECIAL GROUPS

Children, the elderly, and pregnant and nursing women have special concerns and needs when taking psychotherapeutic medications. Some effects of medications on the growing body, the aging body, and the childbearing body are known, but much remains to be learned. Research in these areas is ongoing.

In general, the information throughout this booklet applies to these groups, but the following are a few special points to keep in mind.

CHILDREN

The 1999 MECA Study (Methodology for Epidemiology of Mental Disorders in Children and Adolescents) estimated that almost 21 percent of U.S. children ages 9 to 17 had a diagnosable mental or addictive disorder that caused at least some impairment. When diagnostic criteria were limited to significant functional impairment, the estimate dropped to 11 percent, for a total of 4 million children who suffer from a psychiatric disorder that limits their ability to function.⁶

It is easy to overlook the seriousness of childhood mental disorders. In children, these disorders may present symptoms that are different from or less clear-cut than the same disorders in adults. Younger children, especially, and sometimes older children as well, may not talk about what is bothering them. For this reason, it is important to have a doctor, another mental health professional, or a psychiatric team examine the child.

Many treatments are available to help these children. The treatments include both medications and psychotherapy--behavioral therapy, treatment of impaired social skills, parental and family therapy, and group therapy. The therapy used is based on the child's diagnosis and individual needs.

When the decision is reached that a child should take medication, active monitoring by all caretakers (parents, teachers, and others who have charge of the child) is essential. Children should be watched and questioned for side effects because many children, especially younger ones, do not volunteer information. They should also be monitored to see that they are actually taking the medication and taking the proper dosage on the correct schedule.

Childhood-onset depression and anxiety are increasingly recognized and treated. However, the best-known and most-treated childhood-onset mental disorder is attention deficit hyperactivity disorder (ADHD). Children with ADHD exhibit symptoms such as short attention span, excessive motor activity, and impulsivity which interfere with their ability to function especially at school. The medications most commonly prescribed for ADHD are called stimulants. These include methylphenidate (*Ritalin*, *Metadate*, *Concerta*), amphetamine (*Adderall*), dextroamphetamine (*Dexedrine*, *Dextrostat*), and pemoline (*Cylert*). Because of its potential for serious side effects on the liver, pemoline is not ordinarily used as a first-line therapy for ADHD. Some antidepressants such as bupropion (*Wellbutrin*) are often used as alternative medications for ADHD for children who do not respond to or tolerate stimulants.

Based on clinical experience and medication knowledge, a physician may prescribe to young children a medication that has been approved by the FDA for use in adults or older children. This use of the medication is called "off-label." Most medications prescribed for childhood mental disorders, including many of the newer medications that are proving helpful, are prescribed off-label because only a few of them have been systematically studied for safety and efficacy in children. Medications that have not undergone such testing are dispensed with the statement that "safety and efficacy have not been established in pediatric patients." The FDA has been urging that products be

appropriately studied in children and has offered incentives to drug manufacturers to carry out such testing. The National Institutes of Health and the FDA are examining the issue of medication research in children and are developing new research approaches.

The use of the other medications described in this booklet is more limited with children than with adults. Therefore, a special list of medications for children, with the ages approved for their use, appears immediately after the general list of medications. Also listed are NIMH publications with more information on the treatment of both children and adults with mental disorders.

THE ELDERLY

Persons over the age of 65 make up almost 13 percent of the population of the United States, but they receive 30 percent of prescriptions filled. The elderly generally have more medical problems, and many of them are taking medications for more than one of these conditions. In addition, they tend to be more sensitive to medications. Even healthy older people eliminate some medications from the body more slowly than younger persons and therefore require a lower or less frequent dosage to maintain an effective level of medication.

The elderly are also more likely to take too much of a medication accidentally because they forget that they have taken a dose and take another one. The use of a 7-day pill-box, as described earlier in this brochure, can be especially helpful for an elderly person.

The elderly and those close to them--friends, relatives, caretakers--need to pay special attention and watch for adverse (negative) physical and psychological responses to medication. Because they often take more medications--not only those prescribed but also over-the-counter preparations and home, folk, or herbal remedies--the possibility of adverse drug interactions is high.

WOMEN DURING THE CHILDBEARING YEARS

Because there is a risk of birth defects with some psychotropic medications during early pregnancy, a woman who is taking such medication and wishes to become pregnant should discuss her plans with her doctor. In general, it is desirable to minimize or avoid the use of medication during early pregnancy. If a woman on medication discovers that she is pregnant, she should contact her doctor immediately. She and the doctor can decide how best to handle her therapy during and following the pregnancy. Some precautions that should be taken are:⁷

- If possible, lithium should be discontinued during the first trimester (first 3 months of pregnancy) because of an increased risk of birth defects.
- If the patient has been taking an anticonvulsant such as carbamazepine (Tegretol) or valproic acid (Depakote)--both of which have a somewhat higher risk than lithium--an alternate treatment should be used if at all possible. The risks of two other anticonvulsants, lamotrigine (Lamictal) and gabapentin (Neurontin) are unknown. An alternative medication for any of the anticonvulsants might be a conventional antipsychotic or an antidepressant, usually an SSRI. If essential to

the patient's health, an anticonvulsant should be given at the lowest dose possible. It is especially important when taking an anticonvulsant to take a recommended dosage of folic acid during the first trimester.

- Benzodiazepines are not recommended during the first trimester.

The decision to use a psychotropic medication should be made only after a careful discussion between the woman, her partner, and her doctor about the risks and benefits to her and the baby. If, after discussion, they agree it best to continue medication, the lowest effective dosage should be used, or the medication can be changed. For a woman with an anxiety disorder, a change from a benzodiazepine to an antidepressant might be considered. Cognitive-behavioral therapy may be beneficial in helping an anxious or depressed person to lower medication requirements. For women with severe mood disorders, a course of electroconvulsive therapy (ECT) is sometimes recommended during pregnancy as a means of minimizing exposure to riskier treatments.

After the baby is born, there are other considerations. Women with bipolar disorder are at particularly high risk for a postpartum episode. If they have stopped medication during pregnancy, they may want to resume their medication just prior to delivery or shortly thereafter. They will also need to be especially careful to maintain their normal sleep-wake cycle. Women who have histories of depression should be checked for recurrent depression or postpartum depression during the months after the birth of a child.

Women who are planning to breastfeed should be aware that small amounts of medication pass into the breast milk. In some cases, steps can be taken to reduce the exposure of the nursing infant to the mother's medication, for instance, by timing doses to post-feeding sleep periods. The potential benefits and risks of breastfeeding by a woman taking psychotropic medication should be discussed and carefully weighed by the patient and her physician.

A woman who is taking birth control pills should be sure that her doctor knows this. The estrogen in these pills may affect the breakdown of medications by the body--for example, increasing side effects of some antianxiety medications or reducing their ability to relieve symptoms of anxiety. Also, some medications, including carbamazepine and some antibiotics, and an herbal supplement, St. John's wort, can cause an oral contraceptive to be ineffective.

INDEX OF MEDICATIONS

To find the section of the text that describes a particular medication in the lists below, find the generic (chemical) name and look it up on the first list or find the trade (brand) name and look it up on the second list. If the name of the medication does not appear on the prescription label, ask the doctor or pharmacist for it. (Note: Some drugs are marketed under numerous trade names, not all of which can be listed in a short publication like this one. If your medication's trade name does not appear in the list--and some older medicines are no longer listed by trade names--look it up by its generic name or ask your doctor or pharmacist for more information.) Stimulant medications that are used by both children and adults with ADHD are listed in the children's medications chart).

ALPHABETICAL LIST OF MEDICATIONS BY GENERIC NAME⁸

GENERIC NAME

TRADE NAME

Combination Antipsychotic and Antidepressant Medication

Symbyax (Prozac & Zyprexa) fluoxetine & olanzapine

Antipsychotic Medications

aripiprazole	Abilify
chlorpromazine	Thorazine
chlorprothixene	Taractan
clozapine	Clozaril
fluphenazine	Permitil, Prolixin
haloperidol	Haldol
loxapine	Loxitane
mesoridazine	Serentil
molindone	Lidone, Moban
olanzapine	Zyprexa
perphenazine	Trilafon
pimozide (<i>for Tourette's syndrome</i>)	Orap
quetiapine	Seroquel
risperidone	Risperdal
thioridazine	Mellaril
thiothixene	Navane
trifluoperazine	Stelazine
trifluopromazine	Vesprin
ziprasidone	Geodon

Antimanic Medications

carbamazepine	Tegretol
divalproex sodium (valproic acid)	Depakote
gabapentin	Neurontin
lamotrigine	Lamictal
lithium carbonate	Eskalith, Lithane, Lithobid

lithium citrate
topimaratate

Cibalith-S
Topamax

Antidepressant Medications

amitriptyline
amoxapine
bupropion
citalopram (SSRI)
clomipramine
desipramine
doxepin
escitalopram (SSRI)
fluvoxamine (SSRI)
fluoxetine (SSRI)
imipramine
isocarboxazid (MAOI)
maprotiline
mirtazapine
nefazodone
nortriptyline
paroxetine (SSRI)
phenelzine (MAOI)
protriptyline
sertraline (SSRI)
tranylcypromine (MAOI)
trazodone
trimipramine
venlafaxine

Elavil
Asendin
Wellbutrin
Celexa
Anafranil
Norpramin, Pertofrane
Adapin, Sinequan
Lexapro
Luvox
Prozac
Tofranil
Marplan
Ludiomil
Remeron
Serzone
Aventyl, Pamelor
Paxil
Nardil
Vivactil
Zoloft
Parnate
Desyrel
Surmontil
Effexor

Antianxiety Medications

(All of these antianxiety medications except buspirone are benzodiazepines)

alprazolam
buspirone
chlordiazepoxide

Xanax
BuSpar
Librax, Libritabs, Librium

clonazepam	Klonopin
clorazepate	Azene, Tranxene
diazepam	Valium
halazepam	Paxipam
lorazepam	Ativan
oxazepam	Serax
prazepam	Centrax

ALPHABETICAL LIST OF MEDICATIONS BY TRADE NAME

TRADE NAME	GENERIC NAME
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Combination Antipsychotic and Antidepressant Medication

fluoxetine & olanzapine	Symbyax (Prozac & Zyprexa)
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Antipsychotic Medications

Abilify	aripiprazole
Clozaril	clozapine
Geodon	ziprasidone
Haldol	haloperidol
Lidone	molindone
Loxitane	loxapine
Mellaril	thioridazine
Moban	molindone
Navane	thiothixene
Orap (for Tourette's syndrome)	pimozide
Permitil	fluphenazine
Prolixin	fluphenazine
Risperdal	risperidone
Serentil	mesoridazine
Seroquel	quetiapine
Stelazine	trifluoperazine
Taractan	chlorprothixene
Thorazine	chlorpromazine
Trilafon	perphenazine

Vesprin	trifluopromazine
Zyprexa	olanzapine

Antimanic Medications

Cibalith-S	lithium citrate
Depakote	valproic acid, divalproex sodium
Eskalith	lithium carbonate
Lamictal	lamotrigine
Lithane	lithium carbonate
Lithobid	lithium carbonate
Neurontin	gabapentin
Tegretol	carbamazepine
Topamax	topiramate

Antidepressant Medications

Adapin	doxepin
Anafranil	clomipramine
Asendin	amoxapine
Aventyl	nortriptyline
Celexa (SSRI)	citalopram
Desyrel	trazodone
Effexor	venlafaxine
Elavil	amitriptyline
Lexapro (SSRI)	escitalopram
Ludiomil	maprotiline
Luvox (SSRI)	fluvoxamine
Marplan (MAOI)	isocarboxazid
Nardil (MAOI)	phenelzine
Norpramin	desipramine
Pamelor	nortriptyline
Parnate (MAOI)	tranylcypromine
Paxil (SSRI)	paroxetine
Pertofrane	desipramine
Prozac (SSRI)	fluoxetine

Remeron	mirtazapine
Serzone	nefazodone
Sinequan	doxepin
Surmontil	trimipramine
Tofranil	imipramine
Vivactil	protriptyline
Wellbutrin	bupropion
Zoloft (SSRI)	sertraline

Antianxiety Medications

(All of these antianxiety medications except BuSpar are benzodiazepines)

Ativan	lorazepam
Azene	clorazepate
BuSpar	buspirone
Centrax	prazepam
Librax, Libritabs, Librium	chlordiazepoxide
Klonopin	clonazepam
Paxipam	halazepam
Serax	oxazepam
Tranxene	clorazepate
Valium	diazepam
Xanax	alprazolam

CHILDREN'S MEDICATION CHART

TRADE NAME	GENERIC NAME	APPROVED AGE
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Stimulant Medications

Adderall	amphetamine	3 and older
Adderall XR	amphetamine (extended release)	6 and older
Concerta	methylphenidate (long acting)	6 and older
Cylert*	pemoline	6 and older
Dexedrine	dextroamphetamine	3 and older

Dextrostat	dextroamphetamine	3 and older
Focalin	dexmethylphenidate	6 and older
Metadate ER	methylphenidate (extended release)	6 and older
Ritalin	methylphenidate	6 and older

Non-stimulant for ADHD

Strattera	atomoxetine	6 and older
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*Because of its potential for serious side effects affecting the liver, Cylert should not ordinarily be considered as first-line drug therapy for ADHD.

Antidepressant and Antianxiety Medications

Anafranil	clomipramine	10 and older (for OCD)
BuSpar	bupirone	18 and older
Effexor	venlafaxine	18 and older
Luvox (SSRI)	fluvoxamine	8 and older (for OCD)
Paxil (SSRI)	paroxetine	18 and older
Prozac (SSRI)	fluoxetine	18 and older
Serzone (SSRI)	nefazodone	18 and older
Sinequan	doxepin	12 and older
Tofranil	imipramine	6 and older (for bedwetting)
Wellbutrin	bupropion	18 and older
Zoloft (SSRI)	sertraline	6 and older (for OCD)

Antipsychotic Medications

Clozaril (atypical)	clozapine	18 and older
Haldol	haloperidol	3 and older
Risperdal (atypical)	risperidone	18 and older
Seroquel (atypical)	quetiapine	18 and older
Mellaril	thioridazine	2 and older
Zyprexa (atypical)	olanzapine	18 and older
Orap	pimozide	12 and older (for Tourette's syndrome -- Data for

age 2 and older indicate similar safety profile)

Mood Stabilizing Medications

Cibalith-S	lithium citrate	12 and older
Depakote	valproic acid	2 and older (for seizures)
Eskalith	lithium carbonate	12 and older
Lithobid	lithium carbonate	12 and older
Tegretol	carbamazepine	any age (for seizures)

REFERENCES

¹Fenton WS. Prevalence of spontaneous dyskinesia in schizophrenia. *Journal of Clinical Psychiatry*, 2000; 62 (suppl 4): 10-14.

²Bowden CL, Calabrese JR, McElroy SL, Gyulai L, Wassef A, Petty F, et al. For the Divalproex Maintenance Study Group. A randomized, placebo-controlled 12-month trial of divalproex and lithium in treatment of outpatients with bipolar I disorder. *Archives of General Psychiatry*, 2000; 57(5): 481-489.

³Vainionpää LK, Rättyä J, Knip M, Tapanainen JS, Pakarinen AJ, Lanning P, et al. Valproate-induced hyperandrogenism during pubertal maturation in girls with epilepsy. *Annals of Neurology*, 1999; 45(4): 444-450.

⁴Soames JC. Valproate treatment and the risk of hyperandrogenism and polycystic ovaries. *Bipolar Disorder*, 2000; 2(1): 37-41.

⁵Thase ME, and Sachs GS. Bipolar depression: Pharmacotherapy and related therapeutic strategies. *Biological Psychiatry*, 2000; 48(6): 558-572.

⁶Department of Health and Human Services. 1999. *Mental Health: A Report of the Surgeon General*. Rockville, MD: Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institute of Mental Health.

⁷Altshuler LL, Cohen L, Szuba MP, Burt VK, Gitlin M, and Mintz J. Pharmacologic management of psychiatric illness during pregnancy: Dilemmas and guidelines. *American Journal of Psychiatry*, 1996; 153(5): 592-606.

⁸*Physicians' Desk Reference*, 54th edition. Montavale, NJ: Medical Economics Data Production Co. 2000.

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For further information contact:

The National Alliance on Mental Illness
of Greater Chicago

NAMI-GC

1536 W. Chicago Ave., Chicago, IL. 60642

312-563-0445

FAX: 312-563-0467

www.namigc.org