



A REVIEW OF

Antidepressant Medications

By Dr. David G. Beltzman, MD

This is a review of antidepressant medications commonly used for individuals with brain injuries. Before covering individual medications, I would like to address several issues related to their use. Medications labeled as “antidepressants” represent somewhat of a misnomer. They are labeled as such because they have undergone double blind placebo controlled studies in their treatment of depression; but they are used to treat many disorders including anxiety, sleep, pain syndromes, obsessive compulsive disorder and headaches, just to name a few.

When antidepressants are prescribed, practitioners and patients should be aware of a number of issues, including ...

1. Rule out other non-diagnosed medical conditions prior to treatment, which may cause depression. These conditions can be discovered through a physical exam and blood work.
2. It is also important to identify medical conditions and medications taken by the patient including commonly used natural supplements. Interactions between medications prescribed by multiple doctors

are a common source of added illness and failed opportunity to treat depression.

3. Take a personal and family psychiatric history. Individuals with brain injuries can develop depression due to the injury, but their psychiatric history will often influence treatment decisions.

4. Be aware of the potential side effects of antidepressants. This information can be given by the prescribing clinician or found in literature. There are also extensive resources available on the Internet regarding medication side effects and drug interactions. Another good source for information is your local pharmacist, who should have access to this information.

Treating Depression

It is not possible to include all available treatment options in this article, but treatments available for the general population are potentially appropriate for those with brain injuries. Research shows that depressed individuals (*in the general population*) respond better to the combination of medication and psychotherapy compared to either

treatment alone. This research is not proven in the brain injury population, but in my experience, I have found it to be true.

Individuals with brain injuries may be more sensitive to medications so they should begin treatment with lower doses and advance slowly. This is particularly true early in the recovery process. It can be frustrating to undergo treatment and not experience relief, but patients need to realize that only 30 to 60 percent of individuals suffering from depression respond to their first medication trial. It can take multiple trials and several approaches before a person experiences substantial relief.

Following is a review of medications by class along with descriptions of common concerns. This list is not exhaustive so please consult with your physician or medical consultant for more complete information.

Common cautions for antidepressant medication:

1. All medications with antidepressant effects can create mood changes and lead to mania — excitement manifested

by mental and physical hyperactivity, disorganization of behavior and elevation of mood. That happens most often to people who are Bipolar or are vulnerable to emotional highs and lows.

2. Recently there have been reports of antidepressants promoting suicidal thoughts in depressed patients.

3. Most antidepressants can lower an individual's seizure threshold.

4. All medications can cause stomach upset and rashes — some more serious than others.

5. In my observations, all medications can cause side effects that differ from person to person. When beginning a new medication, report all physical and emotional changes to your prescribing clinician.

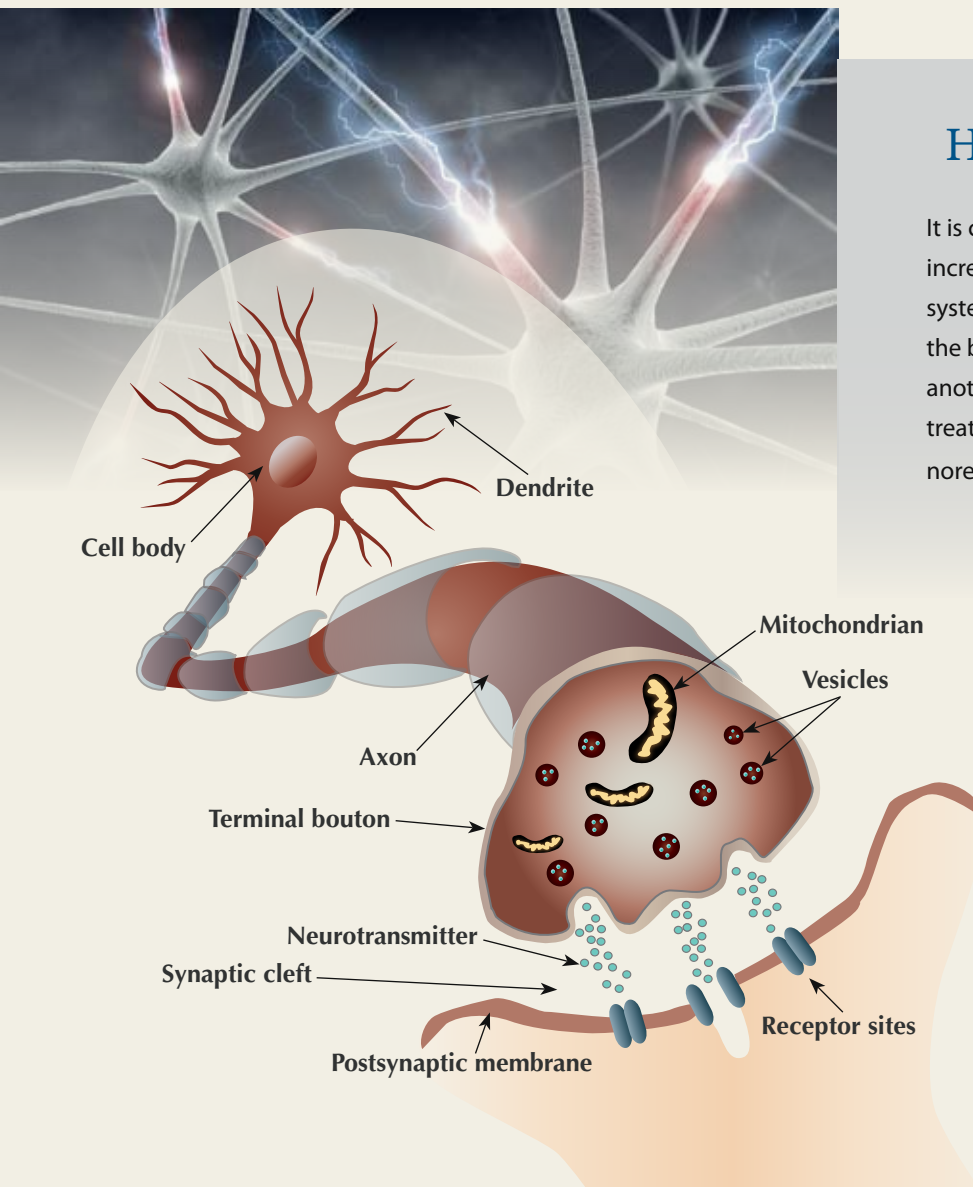
Selective Serotonin Reuptake Inhibitors (SSRIs) — These are among the most prescribed antidepressant medications. It is believed they work by increasing the level of available serotonin to nerves in the nervous system. The prototype is Prozac (*fluoxetine*). Other medications in this class include Zoloft (*sertraline*), Paxil (*paroxetine*), Celexa (*citalopram*) and Lexapro (*escitalopram*). All of those medications have similar side effects, with some more prominent in one drug compared to others. By in large, SSRIs are well tolerated by most people.

When initiating treatment, SSRIs may cause "activation" (*feeling nervous*). It is also common to experience weight change, sweating, gastrointestinal upset and dry mouth. SSRIs commonly cause a reduction

of sexual interest in both men and women; and both often have trouble reaching an orgasm.

Serious side effects include: increased depression and suicidal thinking, lowering of sodium, seizures and increased bleeding potential.

Serotonin / Norepinephrine Reuptake Inhibitors (SNRIs) — There are two medications in this class, Effexor (*venlafaxine*) and Cymbalta (*duloxetine*). Effexor has been used for many years and Cymbalta has been available for about two years. These medicines work through both serotonin and norepinephrine pathways. Cymbalta has also been reported to help with neurogenic pain syndromes that can occur subsequent to injury or chronic



How Antidepressants Work

It is commonly believed that antidepressants work by increasing available neurotransmitters in the nervous system. Neurotransmitters are chemicals made within the body that nerves use to communicate with one another. The neurotransmitters most focused on when treating depression with medication are serotonin and norepinephrine.

Neuron Synapse

Illustrated left: Close-up of a synapse. Molecules of neurotransmitter are enclosed in vesicles in the terminal bouton of the axon. Two vesicles are shown fused to the presynaptic membrane, releasing neurotransmitter in the synaptic cleft. The neurotransmitter initiates activity in the postsynaptic neuron by binding to receptor sites in the postsynaptic membrane.



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illness. Both are well-tolerated medications and often thought of as yielding better results in treating depression (*although that fact has been debated*).

Common side effects include decreased sexual interest and functioning, weight changes, sweating and dry mouth. Serious side effects include lowered sodium, seizures, elevated blood pressure and worsening of depression and suicidality.

Welbutrin (*bupropion*) is in a class by itself. Its mechanism of action is not known, but it has an energizing effect in depressed patients and can be used in the TBI population. However, Welbutrin is known to precipitate seizures, more so than other antidepressants. Therefore it is not recommended for patients with existing seizure disorders. An advantage to taking Welbutrin is that it does not seem to cause weight gain and appears to cause no sexual side effects. It also has been used in patients to help with attention issues. Side effects include serious skin rash, cardiac arrhythmias, hallucinations, elevated blood pressure, dry mouth, headache and anxiety.

Remeron (*mirtazapine*) is another antidepressant in its own class. Its mechanism of action is also not known and it also is devoid of sexual side effects. However, it increases the appetite and often is used when a patient has a significant weight loss. It is also very sedating and therefore used either as a sleeping medication alone or given as an antidepressant at bedtime to aid with sleep.

Tricyclic Antidepressants (TCAs), an older group of medications, were used extensively during the 1970's and 1980's but fell out of favor due to their side effect profile — they can cause fatal cardiac arrhythmias in patients who over



dose. Included in this group are Elavil (*amitriptyline*), Tofranil (*imipramine*), Norpramin (*desimpramine*) and Pamelor (*nortriptyline*). They are powerful antidepressants and are also used for pain, headache, sleep and tinnitus. TCAs can cause changes in blood pressure and cardiac arrhythmias, therefore an EKG is necessary before initiating treatment.

Although not very useful with children or teenagers, this group of medications is very effective in elderly patients. Common side effects include dry mouth, constipation, weight gain, decrease of sexual drive, urinary retention and sweating.

Monoamine Oxidase Inhibitors (MAOIs)

— This is another group of older antidepressants, which are more difficult to use because they require a special diet. The diet is healthy: fresh fruits, vegetables, meat, fish and poultry. However, eating foods high in tyramine (*a substance found in aged foods*) can lead to a hypertensive crisis, stroke and death. Directions for the special diet are easily available but patients with memory problems who are not closely monitored may be at risk. Medications in this class include Parnate (*tranylcypromine*), Nardil (*phelzine*) and Emsam (*selegiline*). Emsam is the exception in this class because it is a transdermal patch, which bypasses the gastrointestinal tract and therefore does not require a special diet. Care must be taken when introducing MAOIs to patients

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because they have multiple interactions with other medicines and substances. These antidepressants are very helpful with anxiety, panic disorder and depression. They are thought to be useful in patients who have bipolar disorder and depression. Common side effects include dry mouth, hypotension, dizziness, a decrease in sexual functioning, constipation and

urinary retention.

Although this list of antidepressants is not exhaustive, I have provided an overview of common medications used by practitioners. Be aware that there are many other compounds used by clinicians to treat depression. Additional classes of medications, which are not antidepressants include mood stabilizers such as Lithium,

Depakote, Tegretol and Lamictal along with atypical antipsychotics — Abilify, Geodon, Zyprexa, Seroquel and Risperdal. I will not review these medications in this article. When considering any medication it is important to be an informed consumer. I recommend finding good information sources and choose a clinician to whom you can relate before undertaking any medication regimen. ♦

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