

Anti-anxiety medication and the brain



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When one is bed-ridden with the flu, it only makes sense for that person to see a doctor to seek treatment. Such treatment could be in the form of medications. Much like a physical illness, the anxiety-ridden may even seek medicinal therapy. However, the underlying difference among the medications is their function and how they function. While one may answer those problems for the wide class of antibiotics, may we say the same for treating the ailments of the mind?

In order to understand the advancements in modern medicine and technology, we must first look back to the primitive practices of treating anxiety disorders. In order to treat, psychologists and psychiatrists must be able to diagnose and classify. Before they were recognized by the American Psychological Association in the 1980's, anxiety disorders were seen as normal bouts of stress (Tracy). As a type of neurosis, psychologists and psychiatrists questioned to validity of treatment for the individual. However, even decades before its official classification, anxiety was treated in varied, primitive, and even absurd, ways, including the use of essential oils and salves, applying severely cold or hot temperatures to the inflicted, and draining blood with the use of blood-sucking animals (Tracy). In more negative connotations, medieval doctors placed the blame on mild demonic possession and witchcraft. Following these types of remedies were electric shock therapy and institutionalization, quickly replaced with the invention of lobotomies (piercing the brain with an icepick through the patient's eye), developed by Dr. Moniz and Dr. Walker Freeman in the 1940s. The shocking, unethical practice is abandoned for anti-psychotic therapies and medicines. With advancements in technology came advancements toward modern

medicines, giving psychiatrists the ability to alter the brain's wiring with the use of pills.

Anxiety, in textbook definition, is the feeling of intense fear in response toward an unreal threat (Rathus). To treat mental illness such as anxiety, psychiatrists must know the inner workings of how the nervous system delivers messages. A message is received by the dendrites of a nerve cell, which travels through the cell's body (Rathus). It then moves along the axon, protected by the myelin sheath (Rathus). The message's final destination is the axon terminals, where it passes along the synapse and onto the dendrites of the next nerve cell (Rathus). This message, whatever it entails, continues this repetitive journey in one direction until it reaches its destination (Rathus). The most important part when looking at anxiety disorders is the axon terminals and the synapse, where chemicals containing these messages, neurotransmitters, are released (Rathus). With anxiety disorders, one's body may be low on those "feel-good" neurotransmitters. These neurotransmitters include serotonin, norepinephrine, dopamine, and gamma-aminobutyric acid (GABA) (Staff). Psychiatrists have also concluded that one's with an anxiety disorder may have an excessive amount of the neurotransmitter cortisol, which invokes stress (Staff). Another offender lies right within the brain, the amygdala (Simon). This pea-sized site of the brain responds to fear, and those with anxiety disorders are found with amygdala hyperactivity (Simon). With this pertinent information in mind, psychiatrists can alter the brain's behavior with the presence of these neurotransmitters.

Much like antibiotics alters how the body's immune system behaves, anti-anxiety medication can alter how the nervous system behaves. Anti-anxiety

medication depresses brain activity, lowers vitals such as blood pressure, heart and respiratory rates, and decrease feelings of uneasiness and dread by modifying brain behavior (Association). While these medications cannot safely replenish levels of neurotransmitters, one method of controlling the brain's behavior is closing up the source of the neurotransmitter. This is the role of SSRIs, which stands for Selective Serotonin Reuptake Inhibitors (Staff). Serotonin is famously known as the “feel-good” neurotransmitter and the prime suspect of anxiety and depressive disorders. A problem with many anxiety sufferers is either the lack of serotonin or the quick reuptake of serotonin in their nervous systems (Staff). To remedy this obstacle, SSRIs block the reabsorption of serotonin, allowing the chemical to remain available (Staff). Some FDA approved SSRIs include citalopram (Celexa), citalopram (Lexapro), fluoxetine (Prozac), paroxetine (Paxil, Pexeva), and sertraline (Zoloft) (Staff). Remedies may have its drawbacks, for side effects of these medications include fatigue, dependency, restlessness, muscle tension, blankness, irritability, sleep problems, insomnia, and even its adverse effect, suicidal thoughts among children and teenagers (Staff). Withdrawal from SSRIs, especially sudden, may invoke more intense feelings of dread or uneasiness, nausea, gastrointestinal issues, and strange sensations in vision and touch (Tartagovsky). While these problems may arise, these medicinal therapies work well with those who experience chronic anxiety.

Another approach a psychiatrist turns to is to open receptors to neurotransmitters. This class of medicines are known as benzodiazepines (or Benzos, for short) (Anderson). These medications are known as “

tranquilizers” due to their functions (Anderson). A natural tranquilizer itself, gamma-aminobutyric acid (GABA) is a neurotransmitter which depresses the brain’s activity; this neurotransmitter has also been scarce in those suffering from anxiety disorders (Anderson). Benzodiazepines remedy this by opening the frequency of the GABA-A receptor responsible for reacting with GABA (Anderson). This allows more availability of GABA in the nervous system, inevitably calming the brain and body. Some FDA approved benzodiazepines include clonazepam (Klonopin), diazepam (Valium), alprazolam (Xanax), and oxazepam (Serax) (Anderson). Some benzodiazepines are found to have faster onset action than others (Anderson). Onset action is how fast the medicine acts and how long the treatment lasts. Since these medications are only for short-term usage, the only known side effects of benzodiazepines include drowsiness, forgetfulness, and unusual sleep patterns (WebMD). However, long-term usage of benzodiazepines can lead to dependency and addiction to the medication (WebMD). Abusers of the medication may experience drowsiness, confusion, dizziness, impaired vision, speech, and coordination, respiration difficulties, and even coma-like states and death (WebMD). When used responsibly, benzodiazepines aid in sufferers of acute anxiety and panic attacks.

Just as pharmacologists and medical doctors have found ways to modify a body’s functions, pharmacologists and psychiatrists have also worked to modify the brain’s functions. For those suffering from anxiety disorders, psychiatrists prescribe medications to open and close synapses and receptors in the nervous system of the body, making these “ feel-good”

neurotransmitters more available and inevitably remedy the bed-ridden mind.

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