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The Treatment of Mental Disorders through Medication
Jessica Jaynes

Colorado Psychiatry Center is an outpatient mental health center that focuses on treating a variety of mental disorders through medication. The psychiatrists focus on getting a diagnosis for each of their patients in order to help them return to a functional, happy life through treatment [1]. For the summers of 2011 and 2012 I had the opportunity to intern at Colorado Psychiatry Center. During my time there, I did a variety of things that exposed me to a number of mental disabilities including anxiety, depression, bipolar disorder, and ADHD. This experience helped me to gain a better understanding of how medications are used to target different mental disorders and the brain areas involved. I also gained an understanding of the importance of mental health care and how each patient should be looked at as an individual.

Getting a correct diagnosis for a patient is crucial in their recovery. Sometimes this can be difficult because symptoms of mental disabilities are variable for different patients. Some patients exhibit symptoms more than others, and some even exhibit different symptoms. While interning at the psychiatrist office I was also able to shadow the doctor and PAs. This was a very valuable experience that allowed me to witness firsthand what some mental disabilities look like, including some of the symptoms associated with different disorders. After the initial appointments with patients, the doctors would often discuss with me what diagnosis they were going to make, plus some of the symptoms that the patient complained of that gave them reason to believe in their diagnosis. For example, patients with ADHD will have a hard time having a continuous train of thought [2, 3]. Patients with bipolar disorder will experience feelings of grandiosity, risky behavior, and restlessness when they are having a manic episode, but also experience times of depression [4, 5]. Depression consists of trouble sleeping, a saddened mood, and potentially suicidal thoughts [6]. When diagnosing, it is important to identify key characteristics of mental disorders as well as be able to differentiate between mental disorders that are have similar symptoms. For example, a doctor needs to distinguish bipolar disorder from depression during the initial diagnosis by finding out whether or not the patient experiences manic episodes. Knowing some of the most common symptoms is crucial to a good diagnosis.

Once a diagnosis has been obtained, patients can be treated. At Colorado Psychiatry Center, treatment is generally done with medication. To prescribe these medications, the doctors at Colorado Psychiatry Center have an algorithm that they follow—meaning that there is a hierarchy of drugs that should be prescribed. Not every drug is effective for every patient, so if the first medication does not work, the psychiatrist will move on to the next one in the algorithm, which will have a different target within the brain. Most medications for mental disabilities work by acting on neurotransmitters inside the brain. Neurotransmitters are chemicals that transmit signals from a neuron to a target cell across a synapse [7]. Once across a synapse, neurotransmitters then can bind to receptors, which will generally cause an action potential that will propagate an electrical signal through the axon [8]. Some of the most common neurotransmitters involved in mental disabilities include serotonin, dopamine, and norepinephrine. Serotonin regulates appetite, sleep, learning, mood, and behavior.
dopamine is involved in the reward system [11]; and norepinephrine has also been found to affect the reward system, alertness and arousal [12].

While shadowing at Colorado Psychiatry Center, I was also responsible for filling prescription refill requests. This experience helped me become familiar with what was commonly prescribed for different mental disabilities. In depression, there are low levels of serotonin and dopamine [13], so medication for patients with depression targets these neurotransmitters. Some of the most common medications prescribed are wellbutrin and sertraline. Wellbutrin is a drug that increases the concentration of dopamine [14], while sertraline blocks the reuptake of serotonin to enhance its functional activity. If one of these drugs is not working effectively the other will be prescribed and most likely work because they act on different systems.

Patients with bipolar disorder are most often treated with Lithium because it treats both the manic and depressive phases. It is a mood-stabilizing drug that both decreases norepinephrine release and increases serotonin synthesis. This is very effective because it targets both the high concentration of norepinephrine and low levels of serotonin found in patients with bipolar disorder [15].

ADHD is most commonly treated with Concerta, Adderall, or Focalin. These are stimulants that increase the low levels of dopamine and norepinephrine. In patients with ADHD, the low levels of norepinephrine are associated with their inattentiveness and the low levels of dopamine lead to impulsivity problems. All of these drugs have different strengths and side effects, so whatever medication works best for a particular patient is what is used [16].

It is important to remember that there are particular areas within the brain that are impacted by mental disabilities. It helps to understand different areas of the brain to get a better idea of what is going on in each mental disability and how the symptoms arise. The amygdala is a brain area which plays a large role in many disorders, one being anxiety. The amygdala is a brain area within the limbic system that functions in emotional processing, especially in the perception of fear. Patients with anxiety and social phobias have an over-responsive amygdala due to their imbalance of neurotransmitters. An over-responsive amygdala would most likely cause anxiety because more things will elicit a fear response in the brain. The neurons within the amygdala will fire more often, signaling other areas of the brain that you should be scared [17].

Another example of understanding mental disabilities by looking at the brain areas involved is ADHD. Patients with ADHD have problems within their frontal lobe. The frontal lobe is an area of the brain that is responsible for attention, planning, motivation, and rewards. This helps to explain the symptoms found in those with ADHD; they have a lack of motivation and attention. Furthermore, the area within the frontal lobe that controls and inhibits behavior is underactive in patients with ADHD. This explains the impulsivity seen in ADHD [2].

When treating mental disabilities it is important to see the patient as an individual rather than as their disorder. Each patient is different, but once the treatment plan is figured out, it makes a huge difference. After the correct diagnosis is reached, psychiatrists use their knowledge of neurotransmitters and brain areas involved in the disorder to help prescribe medication for their patient. These medications are often very successful, and it is wonderful to witness improvement in the lives of the patients as
they recover. Although treatment with medication works for many individuals, it doesn’t work for all. There are some patients that do not want to go on medication, or are not responding to their treatment. In these cases, patients are referred to psychologists: This method of treatment can also be very helpful.

I really appreciate the opportunity I had to intern at Colorado Psychiatry Center. I learned a lot about mental disabilities, which was extremely valuable. However, I think the most satisfying part was being able to witness the recovery of patients. Mental disabilities can severely impact the lives of those involved, so being able to see patients improve while being treated was exceedingly refreshing and rewarding.

References


7. “Neurotransmitter” at Dorland’s Medical Dictionary


