Critical Review OnDepression

PSY 630 Psychopharmacology

Ashford University

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Neurotransmitter and receptor theories link depression to deficiency in neurotransmission to the critical parts in the brain. Chemical imbalances in the brain are a simple explanation given to depression(Lam, 2018). These imbalances in the brain are as a result of biological, psychological and social factors. The brain uses chemicals through the nervous system to communicate with different parts of the body. Neurons communicate via neurotransmitters which is vital for effective brain functioning. Communication chain across the neurons occurs by chemical triggers in the synapses.

Depression is caused by imbalances of neurotransmitters including norepinephrine, serotonin, and dopamine. Antidepressants act on these transmitters and receptors to restore the balance. Serotonin controls various functions of the body that include sexual behavior, sleep, mood, and eating. A decrease in this neurotransmitter causes depression and in some cases a person could feel suicidal. Norepinephrine deficiency causes depressed moods. People with history of repeated depression episodes have a reduced amount of this neurotransmitter hence they are vulnerable to depression. However, not all people experience depression episodes have a decline in norepinephrine. Also, depression can result from a decline in serotonin which triggers the norepinephrine levels to drop.

The link between stress, norepinephrine and depression is dynamic. In a stressful experience, the neurotransmitter enables the body to recognize and respond to it. Depression therefore occurs when the norepinephrinergic system cannot respond to a stressful situation. Dopamine on the other hand, controls the drive to seek pleasure or reward for ourselves. The lack of motivation to like the people or things we did before depression results from decline in dopamine levels (Beck& Alford, 2009).According to receptor theory, the pre- and-post synaptic sites during depression experience super-sensitivity of the beta-adregenic receptors. The sub-sensitivity and neural compensation impacts the receptor activities. Neurotransmitter levels in the intercellular fluid affects receptor transmissions. This inhibits the production of neurotransmitters hence depression occurs.

Depression symptoms occur in a lifetime, some people may experience repeated episodes. The link between symptoms and neurotransmitters can be identified. A decline in serotonin levels could explain the various mood changes that a person experiences. Some of these behaviors include mood changes: feelings of hopelessness, frustration and sadness(CDC n. d.). Also, feeling of anger or irritability over small issues indicates low levels of the neurotransmitter. This can be treated by selective serotonin uptake inhibitors that change the levels of the neurotransmitter in the brain. Some of the drugs include Prozac and Paxil.

Reduced norepinephrine neurotransmitter affects the process in which the body reacts to stressful situations. Some of the symptoms that indicate a drop in this neurotransmitter include anxiety, restlessness and agitation. People get stressed when they are about to experience new things. It also causes slowed thinking and slurred speech often due to anxiety. In overwhelming situation, a person might experience unexplained pain such as headaches and also feelings of worthlessness and self-blame (CDC n. d.). This can be treated by serotonin-norepinephrine reuptake inhibitors that altering the quantity of the two neurotransmitters. These antidepressant drugs include nortriptyline and venlafaxine.

Dopamine impacts pleasure and rewards that people seek. People derive these from different activities such as sport or drawing. Low levels of dopamine causes depression which then causes a person to lose interest in the activities that they liked before(Beck& Alford, 2009). Some of the symptoms that indicate a drop in the neurotransmitter include the reduced concentration, tiredness, and weight loss or weight gain. The lack of motivations do be involved in interests could indicate depression. The Nonepinephrine-dopamine reuptake inhibitors are used to treat the disorder. Some of these antidepressant drugs include Wellbutrin.

According to a study by UK Biobank, depression causes changes to the structure of the brain. It found out that the white matters in the brain were altered by depression episodes. This matter enables communication between brain cells. It facilitates the processing of emotions and thoughts. The study found out that the people with depression had reduced quality of the white matter. During depression, the brain experiences changes as a cautionary measure against the severity of the symptoms. The cerebral cortex thickens as a neuroplastic response to reduce the effects of depressive symptoms(Wasserman, 2011).

The relationship between neurotransmitter and anatomic features and resultant symptoms gives an insight into the treatment of the disorder. Low levels of neurotransmitters cause the brain to produce more white matter to cushion the brain against severity of the depressive episodes. The disintegrating quality of the white matter reduces sensitivity in the brain. It inhibits transmission of signals between the grey matters. This results in some of the symptoms of depressions that include irritability.

During depression, behavioral changes can be noted in a person. These behavioral changes include agitation due to feelings of frustration and irritation. Some people hibernate when experiencing depression; they stay indoors and lack motivation to go outside. The brain structure and functions rely on complex relationships among the components of the brain. Depression affects thoughts, feelings and behavior. It is caused by genetics, hormonal imbalance, and stress and biochemical reactions. The brain experiences changes that affect its functions.

References

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