Bipolar Disorder: Literature Review

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Bipolar disorder is a common disorder in the United States. The purpose of this literature review is to help patients be able to manage their condition and maintain a stable mood. There are several risk factors included in bipolar disorder. The literature review will discuss several factors and how patients think and manage their diagnosis. Bipolar disorder patients' mood states will be observed during this study, analyzing what could be the cause. Decisions and risk-taking will be investigated further by researchers in this study. The effects of medications are another concern on how it affects the body of the bipolar disorder population.

Alterations of the Cerebellum and Basal Ganglia in Bipolar Disorder Mood states detected by Quantitative T1p Mapping

Bipolar disorder is a psychiatric illness that makes a person have severe mood changes from happy to depressed. The article discusses how the cerebellum and basal ganglia mood states are detected when altered. Most of the advanced imaging taken of the brain has indicated the frontal and limbic regions of the brain that are central to one's emotions (Johnson et al., 2018). Researchers still have not been able to find the pathophysiology underlying this disease. "The purpose of the current study was to investigate whether rotating frame (T1p) differences in bipolar disorder varied across mood states: euthymia, depression, and mania (Johnson et al., 2018). The quantitative study focuses on the relaxation times throughout the brain of patients that have bipolar disorder. Temporal changes in pH and macromolecular concentrations affect mood states, and researchers predict that T1p mapping will affect mood state-dependent brain differences (Johnson et al., 2018). This article can assist the research of a common bipolar disorder.

Key Points

Researchers found that in bipolar disorder, the pH was reduced in some brain areas using MR spectroscopy (Johnson et al., 2018). The T1p relaxation increased in the cerebellum and cerebral for patients with bipolar disorder instead of participants without a history of psychiatric illness. Researchers ensure that cerebellar observation may significantly affect mood regulation (Johnson et al., 2018). The method of this article is a descriptive quantitative study with 40 participants with bipolar disorder. These 40 participants split into two groups, with 11 having different mood states and 29 having healthy control participants matched for age and gender (Johnson et al., 2018). Researchers recruited participants to have a total number of scans in the study, including 27 in a euthymic state, 12 scans in a depression state, 13 in a manic state, and 29 healthy scans (Johnson et al., 2018). Moods were scaled using the Montgomery-Asberg Depression Rating Scale and the Young Mania Rating Scale (Johnson et al., 2018). Researchers documented the patients' mediation and psychiatric history before the study started. For the entire study, there were a total of 81 sessions with participants. The depressed and manic group found relaxation times to be increased in the cerebellum but had reduced times in the basal ganglia. “The euthymic group has clusters increased T1p relaxation times throughout the brain, with particularly pronounce clusters in the cerebellum and cerebral white matter” (Johnson et al., 2018). In the study, cerebral and cerebellar gray matter were compared in bipolar disorder participants, researchers found the data not to be significant. The p-value for this specific study is 0.5; therefore, the data is significant to the study (Johnson et al., 2018). This study adds to the evidence of the cerebellum and basal ganglia as an interest in the mood states and allows researchers to investigate further the research (Johnson et al., 2018). Researchers hope this study leads to new insights into the disorder and targets under-appreciated brain regions (Johnson et

al., 2018). This journal focuses on the possible regions of the brain that could be the cause of the psychiatric disorder.

Assumptions

The data in this article provides assumptions following what the author provided. The study has data to support the findings of cerebellar alterations in bipolar disorder and new insight into how different moods may affect the cerebellum and other regions such as basal ganglia (Johnson et al., 2018). Researchers found higher pH and macromolecular concentrations in the basal ganglia for depressed and manic moods. During the study, researchers found an increased T1p relaxation time in the cerebellum with reduced pH and metabolic variation (Johnson et al., 2018). Lithium and medications could also potentially affect the T1p differences in bipolar disorder. “Researchers found differences between mood states, potentially in basal ganglia and surrounding tissues in depression and mania, suggesting the involvement of the regions in the manifestations of altered mood states” (Johnson et al., 2018). Although researchers did find evidence, further studies involving various mood symptoms would benefit bipolar patients.

Deficit/Conclusion

Although there needs to be more research on whether the cerebellum and basal ganglia affect the mood state of bipolar disorder, the article does provide evidence. Therefore, the reasoning is accepted for this particular student. Throughout the article, the author finds evidence of how specific parts of the brain may result in the formation of the moods of bipolar patients. The author provides reliable sources to support their reasoning of the mood states. “The euthymic group had clusters of increased T1p relaxation times throughout the brain, with particularly pronounced clusters in the cerebellum and cerebral white matter” (Johnson et al.,

2018). Cerebellar alterations were observed in three mood states, suggesting it is a trait of the illness (Johnson et al., 2018). If nursing fails to accept the line of reasoning, there will be no other way to see if this treatment works. If the line of reasoning fails, research will no longer support the cerebellum and basal ganglia affecting the mood state of bipolar patients. The implications would include having no further leads on how brain parts affect moods.

Decision-Making and Risk in Bipolar Disorder: A Quantitative Study using Fuzzy Trace Theory

Fuzzy trace theory (FTT) is a theory of memory processing that offers new data behind the risk-taking behaviors relevant to bipolar disorders (Sicilia et al., 2019). These risk-taking behaviors can be severe, such as alcohol abuse, sexual promiscuity, unwise financial activities, and crimes (Sicilia et al., 2019). Researchers have developed that the factors in this disorder include impulsivity and manic type. "FTT is a theory of memory processing, which posits that when people exposed themselves to meaningful stimulus in their daily lives, they encode their memories of those experiences using a temporally parallel, dual-processing method, in the form of both verbatim and gist representations" (Sicilia et al., 2019). The primary purpose of this article is to characterize risk-taking and emotional highs and lows, identifying how emotions impact decision-making processes to provide more psychological interventions for this population (Sicilia et al., 2019). This article focuses on FTT predicting risk-taking intentions for the population that suffers from bipolar disorder.

Key Points

Bipolar disorder relates to difficulty regulating emotions and cognitive processing impairments (Sicilia et al., 2019). Behaviors can lead to substance and alcohol abuse, crime, and unnecessary financial expenses. People that suffer from bipolar disorder experience impulsive

and manic states. "FTT offers a new conceptualization of the mechanisms behind risk-taking behaviors that could be relevant for bipolar disorder because rather than understanding risk-taking as a function of impulsivity, mood, or arousal, FTT frames risk-taking as the result of a reasoned process, with potential practical clinical implications" (Sicilia et al., 2019). FTT demonstrates how memories and analytical thinking can lead to risk-taking behaviors (Sicilia et al., 2019). "FTT states that the individual retrieves either gist or verbatim memories to make an informed decision and that this retrieval is impacted by their mental processes and other environmental factors or cues" (Sicilia et al., 2019). This quantitative article used an experimental method for this study. This article used an online questionnaire using Qualtrics software to collect data. Researchers found that the participants from social media that spoke English and provided informed consent were diagnosed with bipolar disorder and were over 18 years of age. Some questionnaires included questions about the patient's diagnosis, type of diagnosis, number of episodes, psychological interventions, and current medications (Sicilia et al., 2019). The mood disorder questionnaire had a positive screening of fifty-three participants. "These models were statistically significant, with relevant predictors showing small or medium effect sizes in the expected direction when predicting intentions to engage in risk behaviors" (Sicilia et al., 2019). The p-value for both panels A and B is 0.001; therefore, the data is significant. Overall, the study's data showed promising results in the links between FTT and risk-taking intentions for bipolar disorders (Sicilia et al., 2019). "The main finding was that gist and verbatim representations are independent predictors of risk-taking intentions, even after controlling for mood and impulsivity" (Sicilia et al., 2019). FTT focuses on the mechanisms of risk-taking behaviors with impulsivity and mood fluctuations. This article may help patients have relief from risky behaviors and the negative consequences that go with the behaviors.

Assumptions

The FTT considers bipolar disorder focuses on the decision-making process of patients suffering from the disorder. Emotion and intuition are part of memory theories. Research and clinical practice show that people with bipolar disorder experience positive feelings of euphoria and achievement when taking risks during manic episodes (Sicilia et al., 2019). “Namely, the endorsement of verbatim was positively correlated with higher risk-taking intentions, and the endorsement of gist principles was correlated with lower risk-taking intentions” (Sicilia et al., 2019). Verbatim and gist scales predict the risk-taking intentions after controlling the mood and impulsivity of bipolar disorder. “People who are more likely to take risks are prone to deny vulnerability when a ‘global measure’ is used but may acknowledge their risks when cued to recall specific events in which they engaged in risk-taking behaviors” (Sicilia et al., 2019). Researchers provide data to support their theory of risk-taking intentions with bipolar disorder.

Deficit/Conclusion

Although this specific study shows promising results in their theory, it does need more research. The author does provide promising results in the data they found. Therefore, the reasoning is accepted for this particular student. The study has shown that preventing risk-taking interventions is not always practical for bipolar disorder. Risk-prevention interventions for bipolar disorder provide information about their behaviors' risks and benefits, and they are more likely to avoid risk choices (Sicilia et al., 2019). There were limitations to the study that every researcher goes through. Providing a small number of participants and not using bipolar patients with lower functioning could have impacted the study (Sicilia et al., 2019). "The main finding was that gist and verbatim representations are independent predictors of risk-taking intentions, even after controlling for mood and impulsivity" (Sicilia et al., 2019). If the author fails to accept

the line of reasoning, research will not be able to discover more about the risky decisions bipolar populations take. Researchers would not be able to prove if risk-taking and bipolar disorder go hand in hand. This data allows other researchers to investigate the theory further, and if the line of reasoning fails, there will be no further investigation. The bipolar disorder would have no further leads on the data of decision making and risk-taking.

Common Effects of Bipolar Disorder Medications on Expression Quantitative Trait Loci Genes

The discovery of medications for bipolar disorder is essential. However, research lacks an understanding of the biological cause of the disease and molecular mechanisms of the drugs treating bipolar disorders (Truong et al., 2022). In the study, drugs have been selected from different pharmacological classes to have the readers understand the medications used for bipolar disorder. "As the mechanisms of action of bipolar disorder drugs are still largely unknown, it would be of interest to investigate the common target or mechanisms that they potentially share regardless of drug classifications" (Truong et al., 2022). The study found genes that could be the reason for the drugs' benefits. The primary purpose of this article is to focus on the common targets of the multiple drugs prescribed for bipolar disorder by comparing the phenotypic bipolar data to emphasize the most relevant data (Truong et al., 2022). The study focused on the common genes involved in the beneficial effects of the medication used to treat bipolar disorder and the biological pathways associated with them (Truong et al., 2022). Researchers focus on the effects some medications have on bipolar disorder.

Key Points

Researchers specifically picked four medications in different classes to get a diverse selection for bipolar disorder. “Lithium is a good stabilizer, valproate and lamotrigine are anticonvulsants, and quetiapine is an antipsychotic” (Truong et al., 2022). Drug doses in this research were from the previous dose-response studies in the lab. No drug singly dominated the overall effect on gene expression or cell viability when combining medications (Truong et al., 2022). This study used an experimental method for the data. The model of human neurons used in the study is a human teratocarcinoma cell line, differentiated into postmitotic neuronal cells after being treated with retinoic acid (Truong et al., 2022). “After the 24-hour drug treatment, cells were harvested for RNA analysis” (Truong et al., 2022). “In the study, RNA-seq analysis was performed in dorsolateral prefrontal cortex post-mortem brain samples from 11 bipolar cases and 11 psychiatrically healthy controls from Stanley Medical Research Institute” (Truong et al., 2022). In the study, researchers analyzed 25,017 genes after drug treatments, transcriptional regulation, and transcriptional changes in post-mortem brain samples of bipolar disorder patients to identify genes that could have therapeutic effects (Truong et al., 2022). The study selected the top 2 genes to confirm by real-time quantitative polymerase chain reaction (Truong et al., 2022). The data is significant because the p-value is 0.05. The study found potential genes that had beneficial effects used to treat bipolar disorder and the main biological pathways associated with them (Truong et al., 2022). “These pathways include mitochondrial and endoplasmic reticulum function, as well as ubiquitin-dependent processes whose role in bipolar disorder has not yet been researched thoroughly” (Truong et al., 2022). This study offers new data on the disease psychophysiology and how this new data affects the actions of drugs. “The most significant eQTL genes such as SRPK2 and CHDH are worthy of further investigation, especially the latter

whose coherent significant dose-dependent effects were observed in multiple drug treatments" (Truong et al., 2022). Further research on this topic could improve the lives of the bipolar disorder population.

Assumptions

Psychotropic drugs may be able to modify neurochemical signaling to make the symptoms better. Molecular mechanisms underpinning the efficiency of the drug may reveal that the gene expression during the drug treatment is altered (Truong et al., 2022). "Several studies have utilized microarray technology to explore mechanisms of action of mood stabilizers using various in vitro and in vivo models" (Truong et al., 2022). Transcriptional changes of psychotropic drugs affect multiple biological pathways and cellular processes. "While drugs of different classes are likely to exhibit some different effects, commonalities have also been reported, which may be why these medications are frequently used for bipolar disorder treatment" (Truong et al., 2022). It would be beneficial for bipolar disorder patients to investigate the targets or mechanisms they share concerning the drug classifications (Truong et al., 2022). The data found during research shows promising evidence about the beneficial effects of drugs used to treat bipolar disorder.

Deficit/Conclusion

The author's line of reasoning accepts the benefits of medications used to treat bipolar disorder. Therefore, the reasoning is accepted for this particular student. The implication for this particular study shows further evidence and how it would provide a better insight if the evidence were significant. "Further investigation of these biological processes might offer new insights on the disease pathophysiology and how they relate to the mechanism of action of the drugs" (Truong et al., 2022). The overall study is critical because these medications could improve the

symptoms of bipolar disorder. If nursing fails to accept the line of reasoning, research will no longer provide this topic on how the medication affects bipolar patients. Bipolar patients may not receive effective medications if the line of reasoning fails in nursing. The study found common genes that have beneficial effects used to treat patients and provide the main biological pathways associated with them (Truong et al., 2022). The implications of the study if the line of reasoning fails, researchers would no longer provide leads of the evidence.

Conclusion

Bipolar disorder is a common disorder that affects multiple lives. These articles have provided insights into several beneficial theories that could improve the bipolar disorder population. One of the articles discussed how specific areas of the brain affect different mood states. Decision-making and risk-taking are associated with fuzzy trace theory. Other articles include the beneficial effects of medications used to treat bipolar disorder. These studies provided above can improve the quality of life for bipolar disorder patients. These studies help medical personnel understand the disease and provide different techniques for the symptoms. Bipolar disorder can improve evidence-based practice by improving the outcomes and recovery of individuals diagnosed with this serious mental illness. Several people suffer from bipolar disorder without a diagnosis. The data provides a better understanding for healthcare as a whole to provide the best care. These studies provide essential data to improve the quality of life of many.

References

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