

Bipolar Disorder: A Major Setback in Substance Abuse

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Abstract

Substance abuse refers to harmful or precarious use of psychoactive substances, including alcohol, cannabis and illicit drugs. It is directly and indirectly responsible for millions of morbidities each year. It is a crucial snag of present generation. Illegitimate use of psychoactive drugs can lead to lunatic illnesses. The prevalence of psychotic disorders among patients with substance abuse has attended noticeable magnitude. This study indicates that bipolar disorder is more likely to occur in patients with substance abuse. Chronic substance abuse can lead to down-regulation of concerned receptors as well as erosion of gray matter in the prefrontal cortex of brain. Hence, it would be imperative to address bipolar disorder from the perspective of potential and progressive adverse effect of substance abuse. The observation of study indicates that bipolar disorder is more prevalent in cannabis, alcohol and cocaine abuse cases. Drug abuse disorders are associated with impaired outcome of manic depression maladies that brings severe high or low moods, thinking and behavior.

Key words: *Bipolar, Mania, Hypomania, Depression, Substance abuse.*

Introduction

Bipolar disorder is a mental condition that causes marked plunging of mood, energy and ability to think clearly. It is a state of mental illness in which mood reversals achieve emotional highs (mania or hypomania) as well as emotional lows (depression) at two distinct periods of time¹. It is observed that bipolar disorder is partly caused by an underlying complication with discrete brain circuits and the functioning of brain neurotransmitters. According to a scientific study, bipolar disorder is a severe and often chronic psychotic sickness touching almost 2% to 5% of population^{2,3}. It exists in two forms: bipolar I and bipolar II. The difference between these two subtypes lies in the severity of the manic episodes. In bipolar I disorder, the manic episode is full blown, while a person with bipolar II will experience hypomanic episode without any

characteristic change in depressive phase⁴. Factors that may influence the risk of developing bipolar disorder for the first episode include – consanguinity, drugs and alcohol abuse tendency and major life changes such as nervous breakdown. These factors may cause certain imbalance in the normal level of dopamine, norepinephrine and serotonin⁵. These neurotransmitters have influential roles on mood swings (figure 1). Among the all factors, drug abuse and alcoholism are wide spread factors especially in adolescents and youth. It has been observed that bipolar disease is more facile in youth as compared to old individuals⁶.

Substance abuse is habitual intake of illegal drug or substance for the purpose of psychostimulation or euphoria. Substance abuse can lead to drug-dependence. The term drug-dependence refers to a state arising from repeated intake of an abusive substance on regular basis. It is capable of altering mood and feelings. The person suffering from drug dependence has either psychological or physical dependence, addictions or habituation in order to acquire euphoria, retraction from reality or for the purpose of social adjustment⁷. Drug addiction is complex condition, a brain disease which is characterized by compulsive substance use despite many

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serious consequences. Bipolar disorder is one of the serious upshots which is frequently observed in substance abuse cases. This article emphasizes on bipolar disorder as a major setback in substance abuse cases.

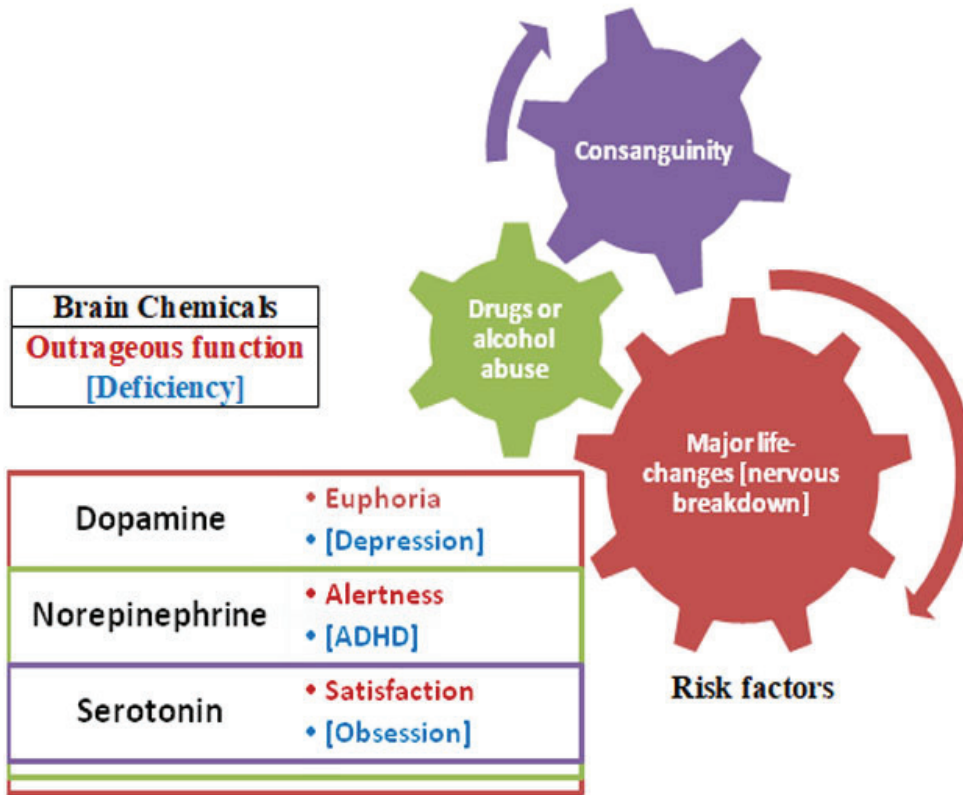


Figure 1: Bipolar disorder – Risk factors and neurotransmitters

Bipolar Disorder and Drug Abuse

The cases of substance abuse are growing up day by day, especially in younger population due to the lack of knowledge and awareness. Teenagers are more susceptible to this vicious katzenjammer, since they are less cognizant with the pros and cons of those felonious substances. Drug abuse has become a significant public health issue of present time. Prior studies have suggested that psychotic illnesses and cognitive impairments are the most noxious adverse effects of this malign habit⁸. There is an intense relation seen between drug abuse and bipolar disorder. Although it has not been seen that bipolar disorder makes people more likely to abuse drugs, but drugs such as cannabis and alcohol often make the symptoms of bipolar disorder worse⁹. Imbalance of neurotransmission in brain as well as certain genetic complicity can also cause bipolar disorder. Traumatic

brain injury is also a risk factor for this illness¹⁰. People with bipolar disorder perceive drastic shifting of mood between intense emotional highs and depressive phase¹¹. There are four major ordeals that a person can experience with substance abuse linked bipolar disorder. Those are manic or hypomanic episodes with depression or mixed episodes. Manic episode is a state of emotion mainly characterized by elevated mood with exaggerated state of well-being. Hypomania is a lenient configuration of mania. Mania or hypomania can occur in bipolar disorder that ranges from depressive lows to manic highs¹².

Cannabis and cannabis products are highly lipid soluble substances¹³. They contain plethora of chemicals. Tetrahydrocannabinol (THC) is one of them which indirectly triggers dopamine release in brain¹⁴. Hence, it can affect brain's reward system also. Similarly, alcoholism and other abusive substance like

cocaine and amphetamine etc have also intense impact on dopaminergic system¹⁵. The fervent reward sensation of drug abuse creates a strong feeling of pleasure. This experience instigates high and more frequent drug intake in order to get more pleasure of the reward response over and over. As a result, craving of the rewards linked with the drug abuse continue to occur, which leads to provocation of repetitive and compulsive use. On the other hand, long-term continued drug abuse results in reduction in the number of dopamine receptors in brain in order to maintain homeostasis for the elevated level of dopamine¹⁶. This reduction in dopamine receptors leads to giant impact on addiction. Firstly, due to less dopamine receptors, a state of reduction in pleasure response is created which is known as ‘anhedonia’ and secondly, this depressive feeling of anhedonia drives the user to administer stronger dose of the substance which leads to acute toxicity¹⁷. Long term substance abuse has diabolical impact on the user. Chronic use of abusive substance starts to erode gray matter in the prefrontal cortex of the recipient. This erosion in prefrontal cortex leads to organic damage. Drug abuse and addiction causes change in the brain that leads to bipolar disorder¹⁸. Even the recipients who were mentally healthy before can develop bipolar disorder due to their substance abuse nature.

BIPOLAR DISORDER TEST AND SCREENING

Although there is no any specific blood test or brain scan technique to diagnose bipolar disorder, but certain

tests such as thyroid function test and urine examinations can be carried out in order to identify the aggravating factors¹⁹. These tests can help in diagnosing the problem if other factors such as drug abuse, habituation or addiction are laissez-faire in the pathogenesis. However, most of the cases of bipolar disorder have a close association with substance abuse (figure 2). Comorbid bipolar disorder with substance abuse is frequently observed and has highest rate of dejections including cardiovascular disorders, respiratory disorders and sleep apnea²⁰. People with substance abuse disorder have highest incidences of mania and hypomania amongst the total patients. The prevalence of substance abuse linked bipolar disorder was observed in the patients of Indian hospitals after scrutinizing the data of 6000 patients (from January to December, 2019), which was further segregated on the basis of radix amongst 243 patients of bipolar disorder. The occurrence of substance induced bipolar was noticed in 102 patients (42%). Amongst these, 56 patients (23%) were suffering from cannabis abuse and addiction, while 43 patients (18%) were observed with chronic alcoholism. There were only three patients who were affected with cocaine linked bipolar disorder. Out of the total cases of manic depression, 76 patients had family history of psychiatric illnesses, while 65 patients had no reason for this malady. Although the consumers of alcohol are very high in the population, but the incidences of substance abused disorders were not seen in those people who were occasional drinker and don't violate the guidelines of safe drinking.

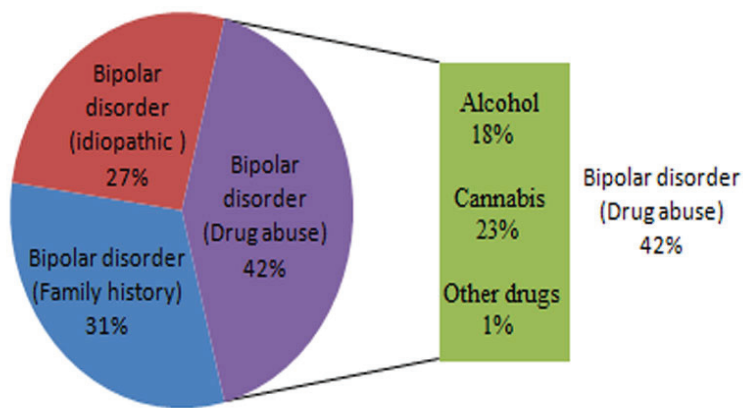


Figure 2: Basal demographic and clinical perceptions of bipolar disease

Conclusion

Drug abuse has become a significant public health concern of present time. Hassle of bipolar disorder and substance abuse are frequently related. The sufferer of substance abuse, addiction and habituation are more likely to have bipolar disorder. During the screening test, almost 243 patients were assessed and explored for bipolar which were approximately 4% of the entire cohort. It was found that the two subtypes of bipolar disorder have nearby similar prevalence in substance abuse cases. Cannabis linked bipolar disorder was in the largest subgroup, at 23%, followed by chronic alcoholism induced 18% and other drugs induced bipolar disorder at 1%. In chronic substance abused patients, the average age of onset of bipolar disorder was 21.2 years, while 26.5 years of mean age value was seen in those without substance abuse. Influential role of family history was also seen in about 31% of the total patients. The mechanism behind substance abused manic depression lies in the imbalancing of neurotransmitters such as dopamine, norepinephrine and serotonin. Long term continued drug abuse results in reduction of dopamine receptors as well as erosion of gray matter in the prefrontal cortex area of brain. In addition to illicit substances, several 'over the counter' drugs as well as prescription medicines have also been involved in the outbreak of bipolar disorder. The cardinal feature of drug or substance induced bipolar disorder is the onset of symptoms in context to abuse, intoxication or withdrawal.

Discussion

The co-occurrence of bipolar disorder is high with substance abuse cases, but the mechanism of pathogenesis has not been explored adequately till date. Evidences suggest that drug addiction has very tenacious consequences and a number of other complications have also been reported in the management and clinical therapeutics²¹. Psychosis is an umbrella term that covers many mental illnesses, in which bipolar psychosis occupies an inclusive spectrum. It is a relapsing mood disorder characterized by mania as well as depression. Delusion may be associated in both depressive and manic phase. In mania, the person may be crabby, overactive or grandiose, while in depression the person may have symptoms like unipolar disorder.

Drug addiction has become a can of worms for youth and teenagers. People with substance abuse have higher percentage of mania and depression than normal population. Reduction in or curtailment of substance abuse sensitization is likely to increase therapeutic benefits in bipolar disorder and other concerned psychotic episodes. Certain environmental factors, such as stress or trauma may cause genetic changes that can propagate down through progeny and may come up with certain psychiatric illnesses or substance use disorder. Bipolar disorder is often labyrinthine by co-occurrence of substance use, and there has been very little studies available particularly targeting the co-morbid population. Thus, an effective as well as substantial focus is required targeting intensive therapeutic interventions so that the rogue ailment could be controlled in due course of time.

Ethical Clearance: This article has been routed through the anti-plagiarism cell of Institutional Review Board.

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