Editorial

iMedPub Journals
www.imedpub.com

Biomarkers Journal
ISSN 2472-1646

2021
Vol.7 No.11:e107

A Brief Overview on Biomarkers for Bipolar Disorder

Sarah Evans*

Department of Anesthesiology, University of Lorraine, Metz, France

***Corresponding author:** Sarah Evans, Department of Anesthesiology, University of Lorraine, Metz, France, E-mail: sarahevans225@gmail.com

Received date: November 12, 2021; **Accepted date:** November 26, 2021; **Published date:** December 03, 2021

Citation: Evans S (2021) A Brief Overview on Biomarkers for Bipolar Disorder. Biomark J Vol.7 No.11: e107.

Description

Bipolar Disorder (BD) is a chronic mental illness with a complicated cause and symptoms that vary between mania and sadness. Morphological changes in BD are associated with alteration of cerebral functioning, resulting to impairment in the brain's cellular plasticity and resilience, as repeatedly shown in post-mortem studies. Many studies have currently reported changes in the morphology of brain tissues, brain cells, and the periphery.

Dysregulation of the molecular pathways of inflammation and neurotrophins might be significantly related to these changes. In the brain and peripheral tissues, factors that regulate neurological cells are expressed in a region-specific way. This shows that peripheral indicators might be used to address brain changes that occur throughout the progression of BD and other mental diseases.

Biomarkers are critical tools for understanding the molecular changes that occur in BD. Because of the disorder's heterogeneity, the idea of establishing a particular biomarker is still being investigated; nevertheless, a set of biomarkers might be used to identify subgroups of patients and create novel therapies. The main objective is to examine and combine the existing studies on the morphological, genetic, and molecular abnormalities seen in BD. The possibility for these discoveries to be used as biomarkers is also considered.

Furthermore, these indications might be used as diagnostic tools, to follow illness progression, and to contribute in the development of more accurate and specific therapy for people with BD. This topic is organized into sections that include structural, genetic, and peripheral BD alterations.

The use of neuroimaging technology to detect biomarkers is one such strategy. Structural neuroimaging, functional imaging, Diffusion Tensor Imaging (DTI), and magnetic resonance spectroscopy are examples of neuroimaging technologies. Through the study of structural and functional changes, such technologies have enabled a better understanding of the pathophysiology of BD. These changes might be used as possible biomarkers for BD and could help with diagnosis and prognosis.

Neuroimaging can be used to examine white matter integrity in people with BD. White matter is made up of myelinated axons and glial oligodendrocytes. DTI or Diffusion-Weighted Imaging (DWI), which assess Fraction Anisotropy (FA), Radial Diffusivity (RD), and apparent diffusion coefficient, are the most frequent methods for detecting abnormalities in white matter integrity. White matter consistency and its capacity to block water transport into tissues are determined by FA and ADC measures, whereas myelin abnormalities and axonal damage are determined by the RD value. Demyelination and anomalies in white matter integrity are indicated by aberrant results of these measurements.

Brain morphometric studies have increased in importance with the emergence of non-invasive MRI and other neuroimaging technologies. These developments enable the assessment of brain disorders based on form and size over time, opening up a new concept of fresh diagnostic techniques. In the case of BD, morphometric changes in certain brain areas may provide insights into possible molecular indicators and diseases that are currently unknown.

These morphometric alterations in the brain may disturb brain circuits by altering neurotransmitter release, impairing synaptic plasticity, connection, and cellular resilience. Thus, because neurotransmitter systems are broadly dispersed across the neural circuit and are thought to reflect motivational, cognitive, and behavioral symptoms of BD, they should be considered as possible biomarkers.