Journal Homepage: - www.journalijar.com

INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI: 10.21474/IJAR01/19047
DOI URL: http://dx.doi.org/10.21474/IJAR01/19047

RESEARCH ARTICLE

"SERUM URIC ACID LEVELS IN UNIPOLAR AND BIPOLAR DEPRESSION: A COMPARATIVE MINI-REVIEW"

Thakngam Wangsu[1*], Dr. Jadab Kishore Phukan[2] and Dr. Binita Talukdar[3]

1. Department of Biochemistry, L.G.B Regional Institute of Mental Health, Tezpur, Assam, India.
2. Department of Biochemistry, L.G.B Regional Institute of Mental Health, Tezpur, Assam, India.
3. Department of Psychiatry, L.G.B Regional Institute of Mental Health, Tezpur, Assam, India.

Manuscript Info

Manuscript History
Received: 07 May 2024
Final Accepted: 14 June 2024
Published: July 2024

Key words:-
Depression, Bipolar, Unipolar, Uric acid Level

Abstract

Depression is a common mental health disorder that can be classified as either unipolar or bipolar. There is growing evidence that suggests certain illnesses could be influenced by serum uric acid (SUA). The processes, diagnostic ramifications, and potential treatments for the association between SUA levels and unipolar and bipolar depression are examined in this mini-review, which summarizes recent research on the subject.

Introduction:-

Depression is a highly variable and complex condition. While bipolar disorder includes manic and depressive phases, unipolar depression is characterized by a persistently low mood. Finding biomarkers such as SUA can help with diagnosis and therapy. SUA is a byproduct of purine metabolism that exhibits pro- and antioxidant characteristics, indicating a potential role in mood modulation (1, 2).

Serum Uric Acid in Unipolar and Bipolar Depression

Studies on SUA levels in mood disorders show consistent findings for bipolar illness but inconsistent results for unipolar depression.

Unipolar Depression:

Research reveals contradictory findings about SUA levels in unipolar depression. Higher SUA levels in patients are reported in some studies when compared to healthy controls, which may indicate the involvement of oxidative stress. Kesebir et al. (2014) discovered, for example, that individuals with major depressive disorder (MDD) had considerably greater SUA levels than did control subjects (3). Some studies, however, reveal no changes at all; these findings may be the result of variances in study design, sample size, and confounding variables including medication use and co-occurring diseases (4).

Bipolar Disorder:

Research consistently shows elevated SUA levels in bipolar disorder, particularly during manic and hypomanic episodes. Bartoli et al. (2016) found that individuals with bipolar disorder had higher SUA levels compared to those with unipolar depression and healthy controls . This elevation may reflect increased purinergic activity and altered energy metabolism, suggesting SUA as a state marker for mood episodes in bipolar disorder (1, 2, 5).

***Corresponding Author:- Thakngam Wangsu**
Address**:-** Department of Biochemistry, L.G.B Regional Institute of Mental Health, Tezpur, Assam, India.

Mechanisms Linking Uric Acid and Mood Disorders:

Several mechanisms may explain the association between SUA levels and mood disorders:

1. **Oxidative Stress:** Elevated SUA levels can increase oxidative stress, which is linked to neuronal damage and mood dysregulation (6).
2. **Inflammation:** Uric acid can activate inflammatory pathways, contributing to neuroinflammation observed in mood disorders (7).
3. **Neurotransmitter Dysfunction:** Altered purinergic signaling may affect neurotransmitter systems involved in mood regulation, such as dopamine and serotonin (2).
4. **Energy Metabolism:** Uric acid plays a role in energy metabolism, and disruptions in energy homeostasis have been implicated in mood disorders (6).

Diagnostic and Therapeutic Implications:

The potential role of SUA as a biomarker for mood disorders holds promise for improving diagnostic accuracy and guiding treatment strategies. Elevated SUA levels could help distinguish between unipolar and bipolar depression, particularly during manic episodes. Furthermore, treatments that target inflammation and oxidative stress, like those that lower uric acid levels (like allopurinol), have shown some encouraging outcomes in the treatment of mood disorders (1, 8, 9). To validate SUA's therapeutic potential and diagnostic usefulness, more research is necessary.

Conclusion:-

Research points to a complicated connection between mood disorders and SUA levels, with bipolar illness showing a higher SUA level more frequently. Comprehending the processes that associate SUA with mood regulation could offer valuable understanding of the pathophysiology of these disorders and guide the creation of innovative therapeutic strategies. To elucidate SUA's diagnostic usefulness and investigate its potential as a therapeutic target for mood disorders, more investigation is required.

References:-

1. Bartoli F, Crocamo C, Dakanalis A, et al. Uric acid levels in subjects with bipolar disorder: A comparative meta-analysis. J Psychiatr Res. 2016;81:133-139.
2. Machado-Vieira R, Lara DR, Souza DO, et al. Uric acid as a state marker of mania in bipolar disorder. J Psychiatr Res. 2001;35(3):155-161.
3. Kesebir S, Tatlıdil Yaylacı E, Güriz O, Tarhan N. Serum uric acid levels, oxidative balance, and clinical course in bipolar disorder. Neuropsychobiology. 2014;70(3):133-139.
4. Suresh KP, Chandrasekaran V. Role of uric acid in bipolar disorder: A systematic review and meta-analysis. Int J Adv Med. 2020;7(1):109-116.
5. Salvadore G, Quiroz JA, Machado-Vieira R, et al. The neuroprotective effects of lithium: Implications for the treatment of bipolar manic-depressive disorder. Bipolar Disord. 2010;12(5):452-469.
6. Palazidou E. The neurobiology of depression. Br Med Bull. 2012;101:127-145.
7. Raison CL, Miller AH. Is depression an inflammatory disorder? Curr Psychiatry Rep. 2011;13(6):467-475.
8. Undurraga J, Baldessarini RJ. Uric acid and bipolar disorder: A potential treatment target? J Affect Disord. 2012;141(1):1-3.
9. Soria-Chacartegui P, Cabrera-Muñoz ML, Salagre E, et al. The potential role of uric acid in mood disorders and its use as a biomarker. Int J Mol Sci. 2021;22(4):1875.