Melatonin's Impact on Platelet Counts in Immune Thrombocytopenic purpura: A Retrospective Study

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Introduction

Melatonin, known for regulating sleep-wake cycles, has shown potential in treating immune-mediated conditions due to its immunomodulatory and anti-oxidative properties[1,2]. While melatonin effects on various disorders have been studied, its efficacy in managing Immune Thrombocytopenic Purpura (ITP) remains largely unexplored.

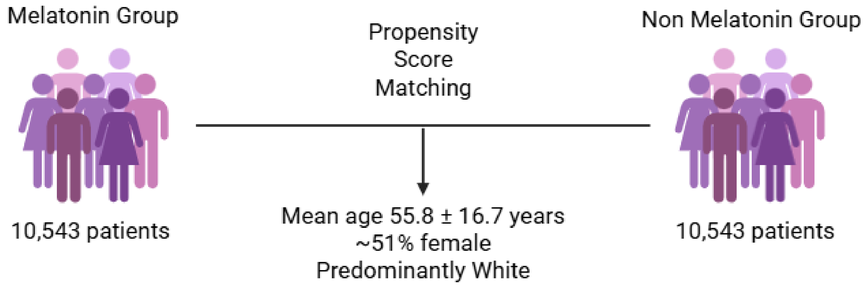
Objectives

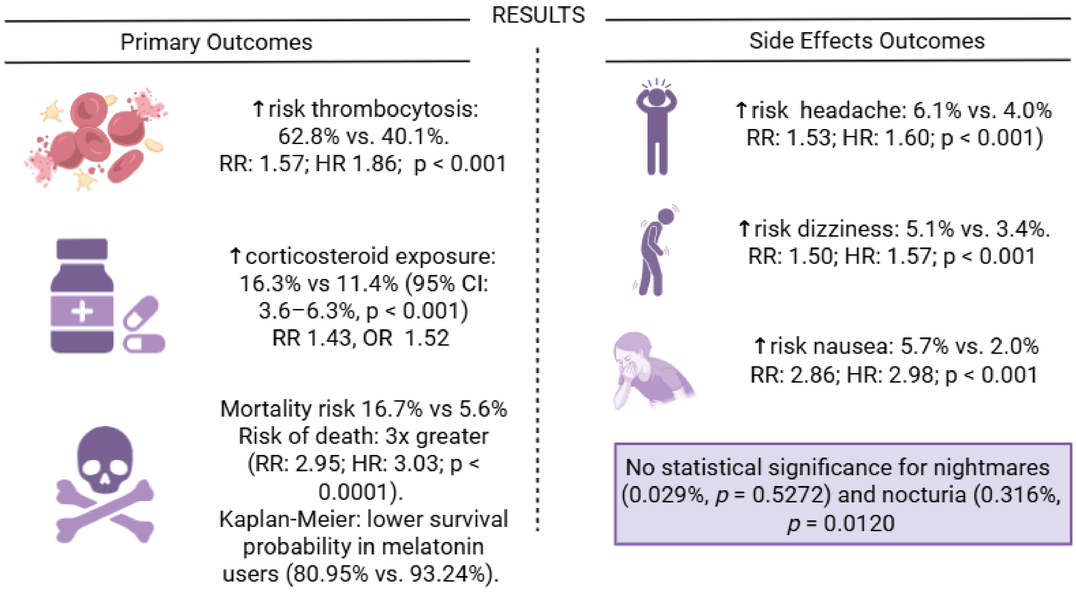
This retrospective study investigates melatonin's impact on platelet counts in ITP patients aged 18-80, aiming to provide insights into novel therapeutic approaches for ITP management.

Methods

This retrospective cohort study utilized the TriNetX database to analyze ITP patients treated with melatonin versus those without melatonin treatment, excluding patients with prior ITP treatment. After propensity score matching, 10,543 patients were included. The primary outcome was platelet count increase, increase on corticosteroid exposure and mortality at year post-treatment, while secondary outcomes included side effects (headache, dizziness, nausea, nocturia and nightmare).

Results





Conclusion

This large retrospective cohort analysis found that melatonin use in ITP patients was associated with a significantly higher risk of thrombocytosis, increased corticosteroid exposure, and elevated mortality compared to those not receiving melatonin. Additionally, melatonin was linked to a greater incidence of headaches, dizziness, and nausea, though nightmares and nocturia were not significantly affected.

References

1. Lucius K. Melatonin Beyond Sleep, Part I: An Overview. Integr Complement Ther. 2022 Jun 10;28(3). doi: 10.1089/ict.2022.29025.klu
2. Reiter RJ, Calvo JR, Karbownik M, Qi W, Tan DX. Melatonin and its relation to the immune system and inflammation. Ann N Y Acad Sci. 2000;917:376-86. doi: 10.1111/j.1749-6632.2000.tb05402.x
3. Carrillo-Vico A, Lardone PJ, Álvarez-Sánchez N, Rodríguez-Rodríguez A, Guerrero JM. Melatonin: Buffering the Immune System. Int J Mol Sci. 2013 Apr 22;14(4):8638-83. doi: 10.3390/ijms14048638
4. Esmaeili A, Nassiri Toosi M, Taher M, Bayani J, Namazi S. Melatonin effect on platelet count in patients with liver disease. Gastroenterol Hepatol Bed Bench. 2021 Autumn;14(4):356-61.