Assessment of the efficacy of electrical vestibular nerve stimulation as an alternative therapy in the management of Insomnia in the setting of Post-Traumatic Stress Disorder

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Abstract (300 word limit)

Statement of the Problem: Post-Traumatic Stress Disorder (PTSD) is a common psychiatric disorder that develops following exposure to a traumatic event and is associated with several health consequences, such as anxiety disorders and sleep disturbances or insomnia. Treatment options for PTSD are limited. Non-invasive electrical vestibular stimulation (VeNS) is a drug-free treatment that has shown to significantly improve insomnia severity index (ISI)[1] but this technology has not previously been tested in the setting of PTSD. **Methodology & Theoretical Orientation:** A single person case study was performed on an adult participant with Insomnia and PTSD. The VeNS Device was used for 30-minutes each day over a 12-week period. Baseline ISI and PCL-5 were established prior to the study, with repeated scores measured at weeks, 4, 8 & 12. **Findings:** In this case study, the participant presented with an initial ISI score of 20 (indicative of moderate insomnia) which decreased to 7 (indicative of no clinically significant insomnia) by week 12. Additionally, it was noted that PCL-5 score of 35 at baseline had decreased to 10 which is no longer considered to be indicative of PTSD. **Conclusion & Significance:** This single-person case study supports our hypothesis that VeNS may hold potential as a non-pharmaceutical therapy in the management of mild to moderate insomnia. Interestingly, the additional finding of a significant reduction in PCL-5 may suggest a secondary beneficial outcome on the symptoms of PTSD. To further expand on these initial findings, a fully remote PTSD Trial is now underway in the US to assess the impact of VeNS in the treatment of a larger PTSD population (NCT05242367).

Image

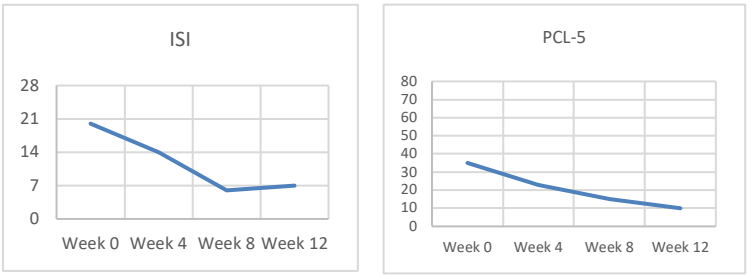


Image 1 Graphs of ISI and PCL-5 Scores

Recent Publications (minimum 5)

1. McKeown J, Goothy SSK (2020) Modulation of sleep using electrical vestibular nerve stimulation prior to sleep onset: a pilot study. J Basic Clin Physiol Pharmacol 2021; 32(2): 19–23.
2. McKeown J, Goothy SSK (2019) Modulation of sleep using electrical vestibular nerve stimulation prior to sleep onset. British Medical Journal 2019.
3. Zhang H. (2010) Therapeutic effectiveness and patient acceptance of a vestibular nerve activation intervention in chronic insomnia. Medicamundi 2010; 54, 89–93.
4. Larkin M B, McGinnis J P, Snyder R I, Storch E A, Goodman W K, Viswanathan A, Sheth SA (2020) Neurostimulation for treatment-resistant posttraumatic stress disorder: an update on neurocircuitry and therapeutic targets. Journal of Neurosurgery 2020; Volume 134: Issue 6, 1715–1723.
5. Kompotis K, Hubbard J, Emmenegger Y, Perrault A, Mu¨ hlethaler M, Schwartz S, Bayer L, Franken P (2019) Rocking Promotes Sleep in Mice through Rhythmic Stimulation of the Vestibular System. Current Biology 2019 29, 1–10.

Photograph

Biography (150 word limit)



Rebecca Armstrong acquired a First-Class Honours degree in Pharmacy from the Federal University of Rio Grande do Sul (Brazil) in 2019. Since, she progressed her career in the Pharmaceutical Industry, more specifically in Quality Compliance in Almac Pharmaceuticals (2020-2022). Currently she works with Neurovalens as their Clinical and Quality Manager, setting up a Clinical Trial for their Neurological Medical Device. As part of this role she is also involved in setting up the company's Quality Management System, compiling SOPs and approving documents.

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Notes/Comments: