https://doi.org/10.24207/ABEC.2023.22380

Effects and parameters of taVNS in individuals with atrial fibrillation: An infographic

Maria Williane de Sousa Ribeiro[1], Nicole Beatriz Nascimento Miranda[1], Fernanda Leite Dias Dantas Estevam[1], Tiago da Silva Lopes[2]

1. Bahia Adventist College – Cachoeira (BA), Brazil
2. Center for Mathematics, Computing and Cognition – Federal University of ABC – Santo André (SP), Brazil

Introduction: Transcutaneous auricular vagus nerve stimulation (taVNS) is a non-invasive neuromodulatory technique used to modulate autonomic excitability through electrical stimulation of the vagus nerve. Studies have demonstrated that taVNS can be used as a therapeutic strategy for managing arterial fibrillation (AF). This infographic aims to highlight the evidence on the effect and parameters of taVNS in individuals with AF. **Method:** We conducted a review using the combination of descriptors in PubMed (Transcutaneous Electric Nerve Stimulation) AND (Nerve Stimulation, Vagal) OR (Nerve Stimulation, Vagus) OR (Nerve Stimulations, Vagal) AND (Atrial Fibrillation), which included six clinical trials of human adults over 18 years old using taVNS. **Results:** taVNS can promote an increase in the PQ interval on the electrocardiogram by increasing parasympathetic tone. Furthermore, taVNS may prevent AF progression through anti-arrhythmogenic effects, such as anti-adrenergic neural remodeling mechanisms, decreased pro-inflammatory cytokines, and decreased AF burden. **Discussion:** The acute effect of taVNS may increase P wave alternation (PWA), which is believed to be related to AF. However, the chronic effect of taVNS for six months promotes a decrease in PWA and AF burden. Furthermore, taVNS may alter cardiac variability ratio parameters by increasing the HF/LF ratio in individuals with AF, which may be a sign of sympathovagal rebalancing. However, taVNS may improve autonomic balance by decreasing the HF/LH ratio in healthy individuals. **Conclusion:** taVNS may be a useful therapeutic tool in the management of individuals with AF due to its anti-arrhythmogenic effects.