

The Vagus Nerve and Neurostimulation for Opioid Use Disorder and Chronic Pain

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SUBMISSION DETAILS

Workshop Summary Non-pharmacologic approaches for treating opioid use disorder, opioid withdrawal symptoms, and chronic pain are a major priority because autonomic dysregulation drives relapse and leads to greater interference of pain in daily life. Transcutaneous auricular neurostimulation (tAN) and non-invasive respiratory-gated auricular vagal nerve stimulation offer promising pathways to reduce opioid craving, opioid withdrawal and chronic pain impact. This session will review the anatomy and physiology of the vagus nerve and how to modulate the autonomic nervous system through auricular stimulation. Primary outcome results will be shared from a recently completed randomized controlled trial (RCT) (PMID: 40409681), funded by a NCCIH P01 program project grant, that investigated the synergistic effects of mindfulness with respiratory-gated transcutaneous vagal nerve stimulation for episodic migraine and related chronic pain. The session will describe the mechanisms of respiratory-gated vagal nerve stimulation, the clinical and physiologic evidence for integrating mindfulness meditation with respiratory-gated vagal nerve stimulation, and demonstrate of video of a sample treatment session. The results of a RCT (PMID: 35978394) leading the FDA to clear a tAN device for treatment of opioid withdrawal symptoms will be shared. Primary outcomes from the RESTORE OUD relapse trial (NCT05053503/R44DA053876) will be presented. Participants will have the opportunity to experience tAN device stimulation during the session. Discussion will focus on clinical integration, including safety screening, contraindications, dosing, and practical strategies for integrating non-invasive auricular neurostimulation into residential and office-based addiction care. Finally, the session will elucidate the potential role of auricular neurostimulation approaches in future therapeutics for chronic pain, mental health, and addictive disorders, especially when autonomic dysregulation may be a contributing factor to chronicity.

Workshop Interaction and Engagement Methods Practical training and problem solving (Role play/Real play) - Presenters or prepared audience members take on various roles to practice techniques/skills., Multi-media usage - If you are considering integrating video clips or other media platforms, please inform AAAP staff prior to your workshop to ensure that the room and AV are

adequately set up., Case Discussion - Use of cases to engage the audience in brainstorming about diagnosis, treatment planning, clinical issues., Other

Interactive Plan Description During the interactive session, the audience will be able to experience the non-invasive, transcutaneous auricular stimulation with one of the two potential devices. The Spark Biomedical Device has been FDA-cleared and can be used for demonstration purposes.

Writing Educational Learning Objectives

Please list at least three (3) brief learning objectives below.

Learning Objective 1 Participants will be able to describe a newly FDA-cleared neurostimulation device for opioid withdrawal management, the data that supports its clinical use in opioid use disorder, and how to integrate neurostimulation into their addiction psychiatry practice.

Learning Objective 2 Participants will be to identify at least one physiologic mechanism impacted by the synergy of mindfulness meditation and respiratory-gated vagal nerve stimulation.

Learning Objective 3 Participants will be able to describe the clinical evidence supporting the synergy of mindfulness meditation and respiratory-gated vagal nerve stimulation for chronic pain conditions.