

## **S2: Neuromodulation in Geriatric Psychiatry: Innovations and Insights in ECT, TMS, tDCS, and Cannabinoid Therapies**

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With the rapidly aging population worldwide, the psychiatric care of older adults faces increasingly complex challenges. Geriatric psychiatry must adapt to address the rising prevalence of depression, anxiety, and cognitive impairments with innovative and effective treatments. Neuromodulation in geriatrics encompasses a variety of innovative treatments designed to help manage symptoms of various neurological and psychiatric conditions common in older adults. This symposium will explore the mechanisms, clinical applications, safety, and up-to-date research in Electroconvulsive Therapy (ECT), Transcranial Magnetic Stimulation (TMS), Transcranial Direct Current Stimulation (tDCS), and cannabinoid therapies in older adults.

ECT, conducted under anesthesia, induces seizures via small electric currents through the brain. It is proven to be safe and efficacious in severe depression, catatonia, agitation, aggression in dementia, and other neuropsychiatric conditions especially in the elderly. TMS is a non-invasive procedure that applies electromagnetic pulses to stimulate nerve cells in specific areas of the brain, thought to change neural activity and is FDA-approved for treatment resistant depression. tDCS, employing low direct current via scalp electrodes, is being increasingly explored for depressive disorders and cognitive disorders. Cannabinoids, activating cannabinoid receptors, emerge as a promising option for dementia-related agitation.

In this symposium, Dr. Georgios Petrides will present updated research on the effectiveness of ECT to treat agitation in patients with dementia. Dr. Adriana Hermida will review the TMS literature and share clinical outcomes from Emory University. Dr. Maria Lapid will discuss tDCS effectiveness in depression among older adults. Dr. Brent Forester will examine cannabinoids' role in dementia-related agitation, including ongoing clinical trials with dronabinol.

The learning Objectives for this session is to understand the principles, applications, benefits, and potential side effects of various neuromodulation techniques and cannabinoids in geriatric care. By the end of the presentation, attendees should be able to explain the mechanisms of action of ECT, TMS, tDCS, and cannabinoids, identify the conditions they can treat, and discuss their relevance and effectiveness in geriatric psychiatry. Furthermore, attendees should be able to compare these techniques and make informed decisions about their use in clinical practice.