

How to treat Phantom Limb Pain: Neuromodulation or Neurostimulation? A single case study

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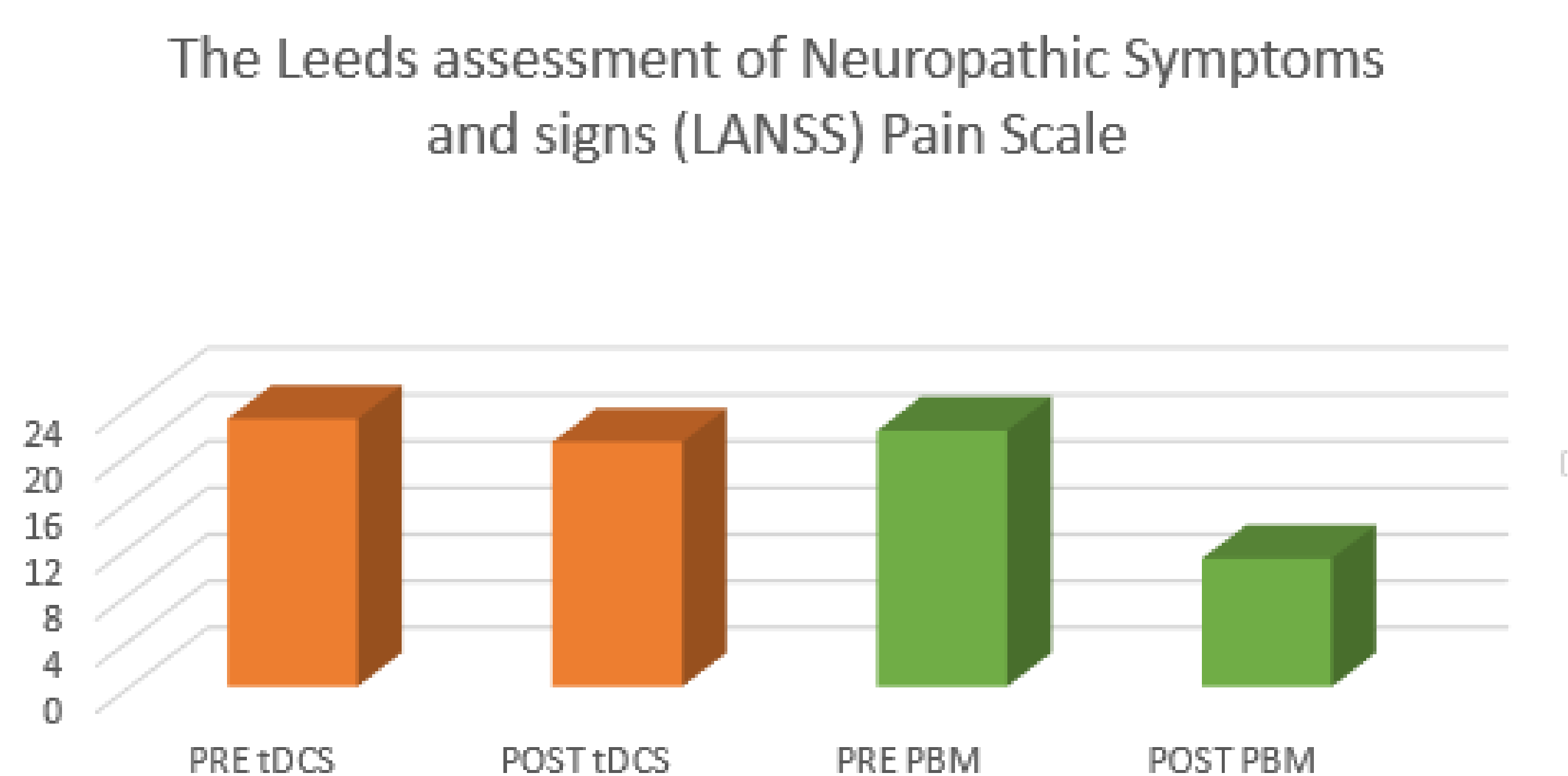
INTRODUCTION:

Phantom limb pain is less rare than we think, unknown to most people because it is sometimes entrusted to a mere psychological component, having obviously repercussions on activity of everyday life. Following the body amputation, many people still have a presence, itchy heat and tingling sensations. Theories on the origin of this pain have initially hypothesized a set of psychological factors triggered by the limb's absence. Then, with the knowledge related to the neuronal relocation within the sensorimotor cortices, the importance of the cortical areas involved, which lose the input signal coming from the limb and adapt to this situation in different ways, is highlighted. Aim of the study was to determine a more central approach, working on the motor control areas of the cortex with two non-invasive instruments: transcranial Direct Current Stimulation (tDCS) and Photobiomodulation Device.

METHODS:

We present a single case of a patient with lower limb amputation and repeated presentations of the painful manifestation. The patient underwent transcranial direct current stimulation (tDCS, 2mA, leftM1) and photobiomodulation at 810 nm both performed in two distinct cycles 1 month apart. A pain assessment scale "The Leeds assessment of Neuropathic Symptoms and signs (LANSS) Pain Scale", both pre and post tDCS and photobiomodulation treatment, was administered to assess pain variation in the amputated limb. Photobiomodulation treatment produces indeed a relief in pain and phantom limb perception.

RESULTS:



CONCLUSIONS:

Cortical Photobiomodulation treatment produces indeed a relief in pain and phantom limb perception in between sessions and after the entire treatment protocol. Moreover, it improves sleep quality and mood allowing our patient to regain his quality of life.