#499 The role of non-invasive neuromodulation NESA in the treatment of multiple sclerosis: a new approach to neurogenic bladder and sleep quality

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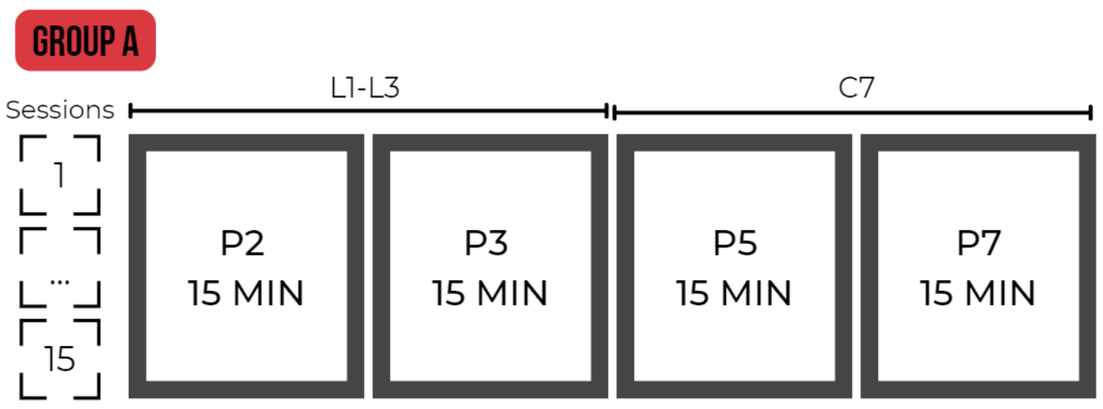
Hypothesis / aims of study

Multiple Sclerosis is an autoimmune inflammatory disease that causes damage to myelin. This damage weakens the ability of nerves to conduct electrical impulses, resulting in various autonomic symptoms such as spasticity, fatigue, neuropathic pain, and urinary incontinence. These factors directly affect the patient's quality of life, which worsens during a flare-up of the disease. In this study, we explore a regulator of the autonomic nervous system: NESA non-invasive neuromodulation, a painless electrotherapy that uses low-frequency microcurrents. Previous studies suggest that normalizing the functions of the autonomic nervous system can alleviate various of the symptoms that people with MS have to suffer, including incontinence, chronic pain or lack of sleep.

The objective of this study is to enhance the management of urinary incontinence resulting from neurogenic bladder and alleviate pain in patients with multiple sclerosis. Additionally, we aim to enhance their overall quality of life.

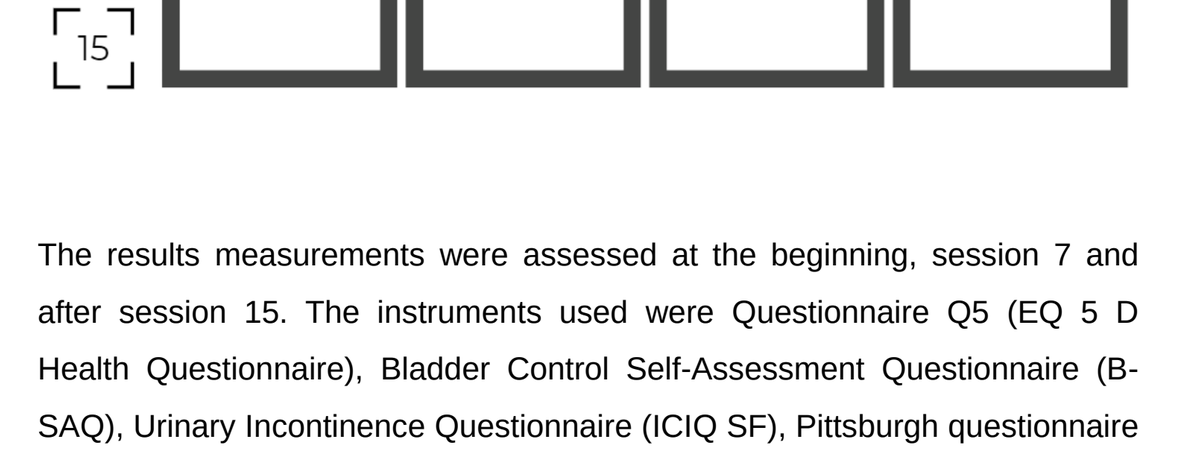
Study design, materials and methods

This is a preliminary quasi-experimental study with 11 patients. All patients provided informed consent, and the corresponding clinical research ethics committee approved the study. The treatment lasted for three weeks with 15 sessions, one per each working day. The sample was randomly divided into two groups:



The results measurements were assessed at the beginning, session 7 and after session 15. The instruments used were Questionnaire Q5 (EQ 5 D Health Questionnaire), Bladder Control Self-Assessment Questionnaire (B-SAQ), Urinary Incontinence Questionnaire (ICIQ SF), Pittsburgh questionnaire for sleep quality and a visual analogue scale for pain (VAS).

A diagram representing the device and its positioning. The electrodes are located in hands and feet through anklets and gloves, and the directional electrode located in the spinal C7. The device can be observed in the background of the image

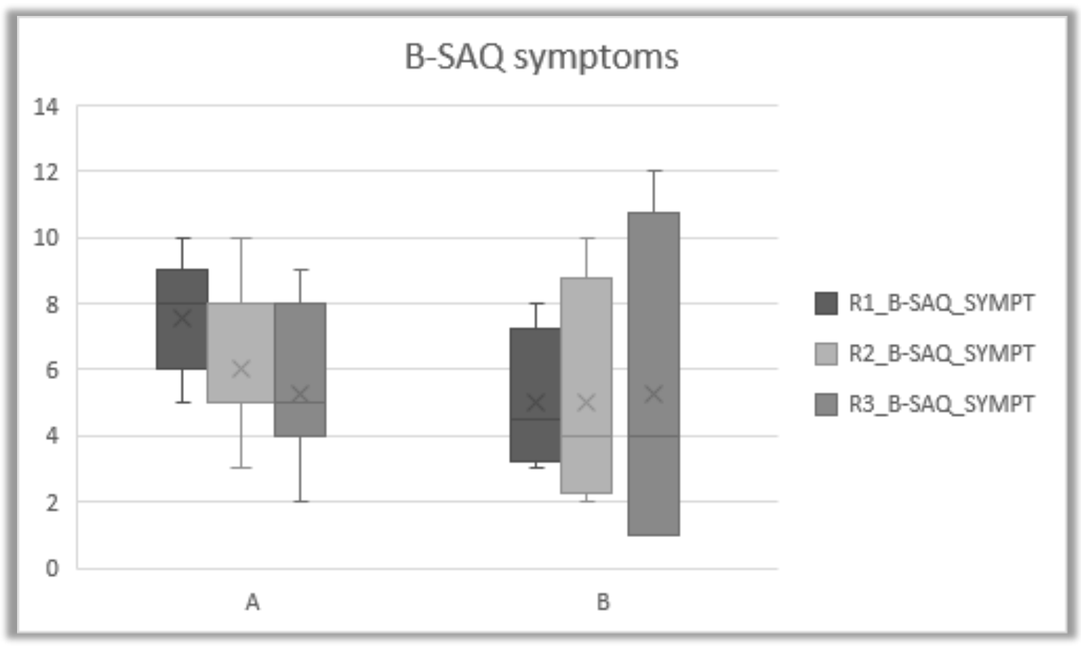


Results and interpretation

Incontinence evaluation

Significant differences were also found in group A for the B-SAQ test in symptoms (p=0.008) and incontinence (p=0.046), with positive improvement observed over the three weeks of treatment.

The results of the ICIQ_SF test showed significant differences between weeks only in group A (p=0.13), while no significant differences were found in group B regarding incontinence assessment.



Pain assessment

Significant differences were observed only in group A (p=0.022), with lower levels reported at the end of treatment.

Sleep quality

Significant differences were found between weeks in both group A (p=0.019) and group B (p=0.030). The Pittsburgh questionnaire scores improved in all patients over the three-week treatment period.

Conclusions

The results of this first study using NESA Non-invasive neuromodulation in MS symptom has shown that is effective to enhance sleep quality, which is it always very poor and fragmented in these patients. It is also demonstrated an improvement in urinary incontinence due to neurogenic bladder. Finally, a reduction in pain perception it was observed too.

This new technology tries to neuromodulate the autonomous nerve system which is involved in a plenty of endogenous regulation such us sleep, stress, bladder or also chronic pain. We could suggest that both programs combination was useful for sleep quality, however combination for the group A was more effective in incontinence and pain too. The present research has some limitation like the small sample, and it will be necessary future studies based on clinical trials to generalize results. However, the improved found it this preliminary research it is a chance for Multiple Sclerosis patients to have a better quality of life.

References

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