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Effects of ultrasound-guided percutaneus neuromodulation in chronic shoulder pain in the hemiplegic patient. A case series

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Abstract

Background and Aims Hemiplegic shoulder pain (HSP) is a very common complaint among patients affected with cerebrovascular accident (CVA). This type of pathology is related with a neuropathic type of pain. Ultrasound-guided percutaneous neuromodulation (US-guided PNM) is a physical therapy technique consisting of low-frequency electric stimulation of peripheral nerves via an acupuncture needle under ultrasound guidance. Because of the relationship between the suprascapular and axillary nerves with the shoulder joint, these represent the target structure for US-guided PNM. This study aimed to observe the effects of the application of US-guided PNM in HSP and to evaluate the possible changes in variables such as pain, functionality and quality of life of patients.

Material and Methods This study was a case series. Patients with HSP were selected between the months of April and June 2018 in the Hospital of Denia. Seven patients were interviewed, after which the experimental group was reduced to five participants. These patients received weekly PNM treatment during three weeks. The parameters used were: frequency (10Hz), pulse width (250 μs), intensity (pain threshold) and time (10 min). The main clinical variables examined were pain, measured using the VAS scale, functionality, via the SPADI scale and physical and mental components of quality of life using the SF12 scale.

Results The results of the VAS scale, expressed as the mean (SD) was 7.2 (1.3) pre-intervention; 3.6 (0.89) post-intervention week 3; and 4 (1.23) post intervention week 5. The results revealed significant changes in the VAS scale which continued until week 5 ($p < 0.05$). The mean obtained in the SPADI scale, expressed as the mean (SD) was 72.4 (1.3) pre-intervention, 55.7 (19.72) post-intervention in week 3 and 59.8 (20.66) post intervention week 5. The changes observed between the pre-intervention sample and the measurements obtained in week 3 and 5 were significant ($p < 0.05$).

Conclusions The US-guided PNM technique was effective in the sample under study for improvement of the patient's sensation of pain. The US-guided PNM technique improves functionality of HSP, as well as the emotional status of patients.

Keywords
- ultrasound-guided percutaneous neuromodulation
- invasive physical therapy
- chronic shoulder pain
- hemiplegia

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