The new TENS device (TANYX) improved the somatic pain component of Low Back Pain (LBP), while presenting no effect on the neuropathic component of LBP.

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BACKGROUND: The data in the literature about transcutaneous electrical nerve stimulation (TENS) utility in Low Back Pain (LBP) is conflicting[1,2]. Most studies did not differentiate between the types of pain in a patient suffering from LBP. Either facet related pain (articular/somatic pain) or sciatica (neuropathic pain) may contribute to LBP[3,4]. The most common symptom for degenerative articular facet pain includes localized pain at the back, without radiation to the calf and foot, often more intense at bedtime; while conversely, neuropathic pain will radiate to the leg and/or foot and improve with rest. Not uncommonly, patients may refer both types of pain, presenting articular pain, more evident at night, whilst neuropathic pain will increase its intensity during the day.

OBJECTIVE: To compare the effectiveness a novel TENS device (TANIX®) for management of both articular (somatic) and neuropathic components of LBP.

METHODS: The local Ethics Committee approved the study, and informed consent was obtained. This prospective, cross-over study evaluated the clinical utility of a new, very small and light, high frequency TENS device (TANYX®) in 24 patients suffering from LBP with both neuropathic and articular components. The TENS device was applied in every patient at the lower back (perpendicular to the vertebrae canal, at the level of the 5^{th} lumbar vertebrae). In each patient it was applied twice daily, during 14 days: 1) in the morning, during 30-min before getting out the bed (representative of neuropathic pain); and 2) at night, for 30-min just after going to bed (representative of articular pain). The TENS device produced a mixed, constant/burst frequency of stimulation (85 Hz). Diclofenac (50 mg) up to three times daily was used as rescue analgesic if necessary for pain control. Efficacy was evaluated by pretreatment and posttreatment visual analog scale (VAS) scores for pain, physical activity, quality of sleep and analgesic rescue medication usage.

RESULTS: 24 patients with LBP with both neuropathic and articular components were evaluated. The TENS device decreased the intensity of LBP at night in a strictly segmental manner ($p>0.05$), and there was a statistically significant drop in mean pain score from pretreatment to posttreatment for articular pain ($p<0.01$). Consequently, the quality of sleep improved in all patients, and the number of arousals due to pain secondary to change of position in bed decreased, when compared to the sleep time previous to the TENS application ($p<0.05$). Controversially, the daily neuropathic pain did not improve after TENS use in the morning, as pre- and posttreatment pain scores were similar ($p>0.05$), and pre- and posttreatment rescue analgesic consumption were also similar ($p>0.05$). No adverse effects were observed. However, physical activity was considered improved during 3 hours, the morning by 18 of 24 patients, resulting in facility of getting of the bed, and for routine activities ($p<0.05$), and patients referred only improvement of the well localized LBP.

CONCLUSIONS: TENS application in the morning did not improve neuropathic pain nor improved daily analgesic consumption, in accordance to others, where TENS was not considered useful for neuropathic or radicular pain[1,2]. Nevertheless, TENS application improved articular pain, decreased the number of arousals at night time, resulted in better sleep pattern, and improved physical function in the morning, suggesting its applicability for LBP[5] when somatic component such as degenerative articular facet is present.

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