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Efficacy, safety and efficiency of transcutaneous nerve stimulation for the treatment of chronic musculoskeletal pain. *Executive summary*

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Executive summary

BACKGROUND AND RATIONALE

Chronic pain is continuous or intermittent pain during more than five days a week that lasts more than three months. Relieving pain in patients with chronic pain remains one of the main challenges to public healthcare in the modern society, since it is considered the primary cause of suffering, disability and diminished quality of life in patients with chronic pain.

Chronic musculoskeletal pain has a high prevalence, and it includes a variety of disorders causing pain in the bones, joints, muscles and surrounding tissues. Musculoskeletal pain affects 33% of adults and stands for 29% of days of sick leave. The economic cost of musculoskeletal plain is estimated to be only below the cost of heart disease.

Low back pain is the most common and most costly type of chronic musculoskeletal pain. Low back pain has a significant economic impact, since it is a major cause of absenteeism in the workplace and a leading cause of visits to healthcare centers. As many as 60% to 90% of the adult population is at risk of developing low back pain at some point in their lives.

Low back pain can be treated with a broad range of interventions including drug therapy, surgery, physical exercise, patient education, physiotherapy, cognitive behavioral therapy and other non-pharmacologic therapies, such as Transcutaneous Electrical Nerve Stimulation (TENS).

TENS is a method of pain relief in which a small battery-powered device transmits low-voltage electric impulses through electrodes on the skin to a region in pain. TENS is based on the electric stimulation of the peripheral nerves near the source of maximal pain or corresponding metameric level. This technology is aimed at relieving chronic low back painby modifying.

OBJETIVE

Determining the efficacy, safety and efficiency of TENS for the treatment of chronic musculoskeletal pain.

MATERIALS AND METHODS

A systematic review was performed of the literature available on the efficacy and safety of TENS. On such purpose, a systematic search for clinical trials and systematic reviews was conducted using the reference databases MEDLINE and EMBASE until November 2012. Additional

search was performed on the databases CINAHL (*Cumulative Index to Nursing and Allied Health*), CRD (*Centre for Reviews and Dissemination*), Cochrane, ECRI (Emergency Care Research Institute), IBECS (*Spanish Bibliographic Index of Health Sciences*), IME (*Spanish Medical Index*), NICE (*National Institute for Health And Clinical Excellence*) and WOS (*Web of Science*) during the last year.

A critical review of the selected literature was performed to identify potential methodological limitations that might affect their validity. Finally, the results reported by each study were collected and summarized.

RESULTS

We found three studies assessing the efficacy and safety of TENS versus placebo TENS in patients with chronic low back pain. These studies had different designs, since one of them was a systematic review of literature, other was a controlled clinical trial and other was a randomized clinical trial. While the review and the randomized clinical trial had a robust methodology, the controlled trial had a limitation to the sequential assignation.

Outcomes could not be grouped due to the heterogeneity of the studies. However, all studies agreed in that TENS was not more efficient than placebo in patients with chronic low back pain for any of the variables analyzed such as pain relief, functional disability, etc.

As regards safety, the studies reported skin irritations as a primary side effect, while no severe side effects were observed.

An economic evaluation on the use of TENS could not be performed due to its inefficacy versus for chronic low back pain as compared to placebo.

CONCLUSIONS

- TENS is not effective for the treatment of chronic low back pain.
- The studies analyzed do not demonstrate that TENS is more efficient as compared to placebo TENS for any of the variables assessed in patients with chronic low back pain. Thus, pain relief was not achieved, and functional disability did not improve in patients treated with TENS.
- According to the literature reviewed, TENS is a safe technique.
- The inefficacy of TENS makes it unnecessary to perform any cost-effectiveness evaluation study.