Arch Phys Med Rehabil. 1984 May;65(5):228-31. Related Articles, Links

Transcutaneous electrical nerve stimulation: its role in the control of chronic pain.

Fried T, Johnson R, McCracken W.

An assessment was made of the effectiveness of long-term transcutaneous electrical nerve stimulation (TENS) in the treatment of chronic posttraumatic pain. Compensation Board files showed that 846 patients received TENS from 1975 to 1979, with more than 70% having intractable back pain. Of this group using TENS, 44.6% were free of disability, and an additional 36.2% were capable of modified work. Questionnaire responses were obtained from 563 of 637 patients receiving TENS in 1978 or 1979. At the six-month follow-up, most respondents (472, 83.8%) reported continuing benefit from TENS, including a reduction of pain (418, 74.2%), less need for medication (322, 57.2%), and improved sleep patterns (331, 58.8%). Only 13.6% of those who had returned to work reported no benefit from TENS, while 18.4% of those still unemployed reported no benefit. Among those who had returned to work (264 cases, 46.9% of respondents), benefit was reported equally by those with back injuries and by those with other injuries. The responses observed in this trial seem larger and more long-lasting than could be obtained by a placebo effect, and further attempts at a controlled trial may be warranted. However, there are major practical difficulties to such an investigation, and the resulting controversy could reduce the therapeutic effectiveness of TENS in conditions where alternative treatments are either ineffective or undesirable.

Am J Emerg Med. 1987 Jan;5(1):6-10. Related Articles, Links

Transcutaneous electrical nerve stimulation versus oral analgesic: a randomized double-blind controlled study in acute traumatic pain.

Ordog GJ.

A double-blind controlled analgesic study was undertaken in outpatients suffering acute traumatic pain. One hundred patients completed the study and were randomly assigned to four treatment groups, each receiving either functioning transcutaneous electrical nerve stimulators (TENS), placebo TENS, acetaminophen with codeine and a functioning TENS, or acetaminophen with codeine and a placebo TENS. Pain was assessed prior to treatment, at 48 hours, and at one month using a visual analog scale. A statistically significant difference in pain relief occurred between the placebo and functioning TENS groups. The TENS was approximately as effective as acetaminophen (300-600 mg) with codeine (30-60 mg) but had no side effects. Transcutaneous electrical nerve stimulators have been shown to be effective in the management of acute traumatic pain and may be indicated for patients who cannot be given medications.
Publication Types:

- Clinical Trial
- Randomized Controlled Trial

Pain. 1993 Jul;54(1):99-106. Related Articles, Links

Comment in:

- Pain. 1994 Jan;56(1):122; author reply 123.

Is TENS purely a placebo effect? A controlled study on chronic low back pain.

Marchand S, Charest J, Li J, Chenard JR, Lavignolle B, Laurencelle L.

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Although high-frequency low-intensity transcutaneous electric nerve stimulation (TENS) has been extensively used to relieve low back pain, experimental studies of its effectiveness have yielded contradictory findings mainly due to methodological problems in pain evaluation and placebo control. In the present study, separate visual analog scales (VAS) were used to measure the sensory-discriminative and motivational-affective components of low back pain. Forty-two subjects were randomly assigned to 1 of 3 groups: TENS, placebo-TENS, and no treatment (control). In order to measure the short-term effect of TENS, VAS pain ratings were taken before and after each treatment session. Also, to measure long-term effects, patients rated their pain at home every 2 h throughout a 3-day period before and 1 week, 3 months and 6 months after the treatment sessions. In comparing the pain evaluations made immediately before and after each treatment session, TENS and placebo-TENS significantly reduced both the intensity and unpleasantness of chronic low back pain. TENS was significantly more efficient than placebo-TENS in reducing pain intensity but not pain unpleasantness. TENS also produced a significant additive effect over repetitive treatment sessions for pain intensity and relative pain unpleasantness. This additive effect was not found for placebo-TENS. When evaluated at home, pain intensity was significantly reduced more by TENS than placebo-TENS 1 week after the end of treatment, but not 3 months and 6 months later. At home evaluation of pain unpleasantness in the TENS group was never different from the placebo-TENS group.(ABSTRACT TRUNCATED AT 250 WORDS)
Publication Types:

- Clinical Trial
- Randomized Controlled Trial

PMID: 8378107 [PubMed - indexed for MEDLINE]

Orthopedics. 1986 Oct;9(10):1346-51. Related Articles, Links

Postoperative TENS pain relief after knee surgery: objective evaluation.

Arvidsson I, Eriksson E.

A comparison was made between the pain-relieving effect of placebo-transcutaneous electrical nerve stimulation (TENS), high frequency TENS, and epidural analgesia with dilute local anesthetics in 15 patients with open knee surgery. Assessment of pain was compared with the patients' ability to contract their quadriceps muscle; the ability was measured with integrated EMG (IEMG) before and after the different treatments. The results showed that placebo-TENS had no significant effect on either pain perception or on IEMG. High frequency TENS given for 15 min to 20 min decreased pain perception by 50% at rest and by 11% after quadriceps contraction. High frequency TENS increased muscle contraction ability by 305%, compared with the initial contraction before treatment. Epidural injection of a dilute local anesthetic decreased pain perception by 90% at rest and by 67% after contraction, and increased muscle contraction ability by 1,846%. TENS undoubtedly has a place in the postoperative pain treatment, although its effect is not as strong as that of epidural analgesia with local anesthetics. TENS, however, is easy to administer, lacks side effects, and can be administered by the patients themselves.

Publication Types: Case Reports Clinical Trial Controlled Clinical Trial
PMID: 3490659 [PubMed - indexed for MEDLINE]