

Effectiveness of transcutaneous electrical nerve stimulation as a supplement to multimodal analgesia for acute post-operative pain following abdominal surgery

Sir,

Acute pain is one of the most common problems seen in the post-operative period and is known to increase the morbidity and the cost of hospitalisation by delaying the recovery of the patient. Epidural analgesia is the preferred technique of regional anaesthesia to treat post-operative pain after many surgical procedures. However, it could be associated with side effects such as bradycardia and hypotension. Transcutaneous electrical nerve stimulation (TENS) has been shown to have definite benefits as a complimentary therapy in managing acute post-operative pain and has no side effects, unless and until contraindicated in particular patients.^[1,2] Effective TENS analgesia can facilitate early post-operative recovery and reduce the hospital stay. TENS results in post-operative pain relief by releasing endogenous opioids by its action on the pain gate.^[3]

A 40-year-old man underwent hemicolectomy procedure for malignancy of the colon. The patient had severe pain with a visual analogue score (VAS) of 8/10 in the immediate post-operative period and so was immediately started on epidural analgesia (0.125% bupivacaine with 2 µg/ml fentanyl at a rate of 4 ml/h after a slow bolus of 10 ml). However, the epidural infusion had to be stopped on the first post-operative day (POD1) itself in view of hypotension and an inotrope had to be started transiently to maintain mean arterial pressure at >60 mmHg although the pain relief was excellent. The medical and surgical reversible causes for hypotension were ruled out. Intravenous nalbuphine 10 mg was administered eighth hourly for analgesia which was found to be ineffective. Subsequently, the patient was referred to the Physiotherapy Department for TENS therapy.

We provided TENS therapy to relieve the pain by an instrument with an inbuilt interferential therapy and TENS unit-PRI model developed by Technomed

Electronics, Chennai. TENS was used as an adjunct to the intravenous analgesics. The frequency of TENS was kept constant at 100 Hz for two sessions of 25 min each every day. The patient was asked to quantify pain using a VAS scale before starting TENS and at the end of each day's treatment. The haemodynamics of the patient was continuously monitored and recorded at the beginning of the TENS treatment and the end of each day. The VAS was found to be 7/10 at the end of two sessions of TENS therapy on POD1. At the end of the second session on the second POD, the pain had subsided to a VAS score of 1/10 with stable haemodynamics. The pain relief facilitated early mobilisation and effective chest physical therapy leading to an early discharge from the Intensive Care Unit.

TENS played an important role as an adjunct in managing pain for this patient who did not respond haemodynamically well to epidural analgesia. The patient also did not report any form of complaints with the treatment and was well-compliant to TENS. This raises an important question if TENS should become a part of routine multimodal post-operative pain management since it has no side effects and is also economical. Chandra *et al.* published a randomised controlled trial which found TENS as an important adjunct in relieving acute post-operative pain following thoracotomy.^[4] TENS has no known side effects and is easy to deliver and economical as well. TENS can also be administered by patients themselves for effective management of post-operative pain.^[5] Considering the numerous benefits of TENS, it appears that it can play an important role as an adjunct and a complementary therapy in providing post-operative analgesia.

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Conflicts of interest

There are no conflicts of interest.

**Stephen Rajan Samuel, Arun G Maiya,
Nita Varghese¹**

Department of Physiotherapy, SOAHS, Manipal University,
¹Department of Anaesthesiology, Kasturba Medical College, Manipal
University, Manipal, Karnataka, India

Address for correspondence:

Dr. Arun G Maiya,
Department of Physiotherapy, SOAHS, Manipal University,
Manipal - 576 104, Karnataka, India.
E-mail: arun.maiya@manipal.edu

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