Letters to Editor

Scrambler therapy – A novel treatment approach for chronic postoperative pain

Madam,

Chronic postsurgical pain (CPSP) is a major health problem worldwide, incidence of which has remained unchanged over the years. Globally, CPSP is being recognized as a health priority; Indian Association for the study of Pain (IASP) had dedicated 2017 as a “Global year against pain after surgery,” aiming to increase awareness about postsurgical pain.

Scrambler therapy was introduced in 2013 as a nonpharmacological modality of pain management and was devised on the basis of a model of chronic pain originating from Italy. This model states that chronic pain results from repetitive firing of C-fibers and a failure to communicate the message of recovery to the central nervous system by pain receptors.

Scrambler therapy basically works on the principle of “neuroplasticity,” remodeling the brain center responding to pain as nonpain.

We applied this technique in patients with CPSP not attributable to the underlying malignancy and were successful in reducing opioid requirements.

Case 1

A 40-year-old male presented with pain in the lower back, left lumbar, and iliac region, 6 months after left open adrenalectomy for adrenal cancer resection. Numeric rating score (NRS) pain was 6/10. The patient was started on ibuprofen and paracetamol (tab flexon) with opioid tramadol.

On follow-up after 15 days, pain had increased to an NRS of 8/10. Strong opioid morphine was started at a dose of 5 mg every 4 h, and adjuvant in the form of gabapentin was added. On the second follow-up after 15 days, the dose of morphine was increased to 10 mg every 4 h. After 6 months of oral opioid therapy, the patient reported an NRS of 6/10.

Suspecting disease recurrence or vertebral metastasis causing persistent pain, a contrast-enhanced computed tomography scan abdomen was performed, which showed no residual mass or any bony metastasis. Scrambler therapy was started as a nonpharmacologic adjuvant with the aim of preventing opioid escalation.

Case 2

A 56-year-old male, a case of carcinoma right buccal mucosa, underwent excision and adjuvant radiotherapy in 2009. The patient was disease-free from 2010 to 2017. Disease recurred in the form of a nonhealing ulcer at the operated site. The
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We successfully explored the use of scrambler therapy in patients with CPSP. Taking the results of these cases forward, the use of scrambler therapy for CPSP should be studied in large randomized clinical trials.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form the patient’s have given their consent for their images and other clinical information to be reported in the journal. The patients understand that their name and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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Table 1: Details of scrambler therapy and the reduction in pain scores and analgesic requirements in each patient

| Patient | Diagnosis | Area of pain | NRS at start of scrambler therapy | Analgesics at start of therapy | Total sessions | Duration of each session (min) | Dial setting (10-70) | NRS at end of therapy | Analgesics at end of therapy |
|---------|-----------|--------------|----------------------------------|-------------------------------|---------------|-------------------------------|-------------------|----------------------|-------------------------------|
| 1       | Adrenal carcinoma - post adrenalectomy | Lower back, left lumber and iliac [Figure 1] | 6/10 | Morphine 10 mg 4th hourly | 10 | 35 | 60 | 1/10 | Flexon TDS Gabapentin 300 mg TDS |
| 2       | Carcinoma right buccal mucosa post resection | Right side of face and right upper chest [Figure 1] | 6/10 | Tramadol 50 mg TDS Gabapentin 300 mg OD | 10 | 35 | 50 | 0/10 | Gabapentin 300 mg OD |

NRS=Numeric rating score

patient underwent resurgery in July 2017, with excision and pectoralis major myocutaneous flap reconstruction. Postsurgery radiotherapy was given to face and neck and treatment was completed in October 2017. The patient was disease-free and was referred to pain clinic with complaints of pain on the right side of the face and right upper chest with an NRS of 6/10.

Pain may have been due to localized fibrosis and inflammation due to radiotherapy; also postsurgical tissue and nerve damage may have contributed to the pain. Keeping these two causes of pain in mind, the patient was started on flexon and gabapentin 300 mg. Tramadol 50 mg was added on the first follow-up visit after 1 week as there was no relief in pain. In view of the stable disease state, we decided to start scrambler therapy to avoid escalation of opioids.

Details of scrambler therapy are summarized in Table 1, and electrode placement around the area of pain is depicted in Figure 1.

Scrambler machine (MC5-A Calmare®) produces 16 different electrical currents. Surface electrodes transmitting the impulses are placed on the area surrounding the pain. The electrical current and voltage delivered correspond to the setting of 10–70 on the dial of the machine representing the lowest and the highest current and voltage.

This intensity of voltage and current is altered on the dial by the operator till the pain sensation is replaced by a pleasant vibrating sensation. Classically, this therapy is given for 10 sessions on successive days, each session of 30–45 min. The expected duration of pain relief may be weeks to months after 10 sessions and booster sessions may be given if there is a relapse of pain.

Scrambler therapy is gaining acceptance as an effective approach to control pain with varying underlying etiologies such as chemotherapy-induced neuropathic pain and diabetic neuropathy.\(^5\)
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