An effective pharmacological management of postburn hypertrophic scar pain

Sir,

The pain associated with burn injuries is intense, unremitting, chronic and often debilitating.

Second degree burns (involving the dermis) are usually associated with moderate to severe pain in the acute phase. Second degree burns during the healing phase may be complicated by hypertrophic scars (HS). Pain associated with post burn HS is caused by small fiber damage rather than large nerve entrapments.[1] Third degree burns involving the muscles may lead post burn contractures leading to nerve entrapments. Chronic post burn may lead to peripheral and central sensitization thereby causing allodynia. Burn cases are usually associated with thermal allodynia.

A wide variety of treatments are available to treat HS associated pruritus, pain, movement restriction and cosmetic disfigurement. These include intralesional corticosteroids, topical treatments, cryotherapy, surgery, radiation, silicone gel dressing and laser therapy.[2]

Patient being discussed is a 25-year-old male patient who had suffered extensive burn injury due to explosion of a domestic liquefied petroleum gas cylinder [Figure 1]. The burn had occurred approximately 18 months back. The medical records of primary care revealed that the burn was 35% and grade 2. The recovery care had been performed at a local district hospital. The later part of recovery was complicated by development of HS with associated burning pain.

Patient presented to us with severe burning pain in the HS. The pain was worse particularly in the summers and relatively better in the winters. Application of menthol talc decreased the symptoms for some time. Due to the severe thermal (warm) and dynamic mechanical (brush) allodynia the patient was unable to wear clothes over the affected part. The chronic pain had rendered the patient jobless, highly irritable, sleepless and depressed. The DN4 score at presentation was 5/10

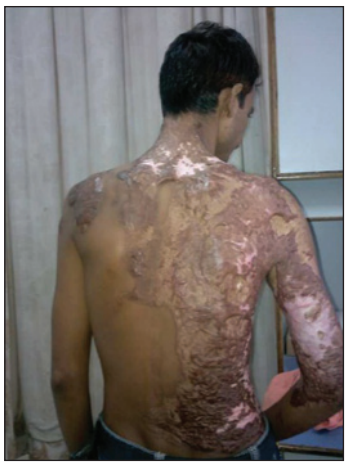

Figure 1: Patient with extensive post burn hypertrophic scar

and pain on the visual analog scale (VAS) varied between 30 and 70/100.

Physical examination revealed extensive HS over the burnt area. The sensations over the affected area were normal without any static mechanical allodynia (allodynia to touch and pressure).

The scar was too extensive to consider any local therapy (e.g., steroid infiltration within the scar). The cosmetic deformity was not an issue for the patient so a decision to start systemic therapy with tablet pregabalin and amitriptyline was made.

Pregabalin was advised 75 mg in the night for 3 days and then twice a day thereafter. Amitriptyline was advised in the dose of 10 mg in the night for 1 week followed by 25 mg thereafter. Patient was kept on a fortnightly follow-up. Patient showed a significant improvement in symptoms within 5 days with progressive improvement in symptoms as the treatment proceeded.

At 3 months since the start of treatment patient has shown progressive improvement and is now pursuing his occupation and has started socializing with friends. His sleep has normalized and he is much less irritable. While on medicines the DN4 score was 0/10 and VAS was 10/100.

Neuropathic pain has always been a difficult to treat in comparison with the nociceptive pain. Diabetic neuropathy and neuropathic pain associated with it has been the basis of treatment of the neuropathic pain in other disorders.

We propose that systemic medical therapy using standard anti-neuropathic medications may be effective in treating pain in HS. Pregabalin by binding to the $\alpha 2\delta$ subunit of the voltage-dependent calcium channel in the central nervous system decreases the release of neurotransmitters including glutamate, noradrenaline, substance P and calcitonin gene-related peptide.[3] Amitriptyline inhibit sodium channels and L-type calcium channels, inhibits serotonin-norepinephrine reuptake by blocking the serotonin transporter and the norepinephrine transporter leading to elevation of the synaptic concentrations of these neurotransmitters, thus an enhancement of neurotransmission in the descending pain modulating pathway.[4]

Although pharmacotherapy is essential for management of HS pain, the role of psychotherapy in the form of a variety of cognitive-behavioral therapies including distraction, imagery, biofeedback or hypnotic analgesia provided by trained staff cannot be underemphasized.

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