Central post-stroke pain in a cancer patient managed with spinal cord stimulation and IV burst ketamine infusions: a case report

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Introduction

A 30-year-old female with recurrent thyroid cancer underwent extensive surgical resection complicated by a right MCA stroke. She subsequently developed central post-stroke pain involving the left face and arm. The patient’s pain was not controlled despite a myriad of oral analgesics and she suffered severe unrelenting pain. Stellate ganglion blocks were performed with transient relief.

Case Description

The patient underwent a spinal cord stimulator (SCS) trial, reporting greater than 50% relief during the 4-day trial. We proceeded with permanent SCS implantation using a 16-contact epidural lead with distal tip at C2 vertebral level (Figures 2,3). During the two years’ post-implantation, she continued to do well with SCS, however, she began to experience occasional pain flare-ups despite SCS reprogramming. Intravenous (IV) ketamine was proposed for her neuropathic pain flare-ups. The patient underwent serial “burst” IV ketamine infusions at 60 mg per session. She reported significant relief lasting about 6 weeks per session.

Discussion

The pain is often debilitating and refractory, increased with physical and emotional stress, and associated with severe depression. Further, it can interfere with rehabilitation and adversely affect quality of life. Many conventional analgesics (anti-depressants, anticonvulsants, opioids, anesthetics) do not provide adequate relief and large clinical trials of treatments are lacking. Amitriptyline is considered first line, but anti-cholinergic side effects often prohibit its use. Lamotrigine may be beneficial as a mono or adjuvant therapy, providing modest pain relief, as demonstrated in a small RCT. Other medications, such as gabapentinoids, are helpful in a variety of neuropathic pain syndromes but lack evidence in CPSP. There has been some support for the use of the NMDA antagonist, Ketamine. It has shown to be beneficial in other central neuropathic conditions, such as post-spinal cord injury pain, where patients reported decreased spontaneous and evoked pain. It was also beneficial, providing short term relief (1 h), in CPSP patients prior to motor cortex stimulation. It has been suggested as an appropriate medication to trial in refractory CPSP patients.

SCS has been utilized with success in patients with neuropathic limb pain, such as in complex regional pain syndromes, sympathetically-maintained pain states, and post-laminectomy pain, among others. It is the most frequently used neurostimulation technique for chronic pain as it is minimally invasive with high efficacy and low complication rates. In a retrospective study of SCS for CPSP, about 30% had successful permanent implants. Of those with permanent implants, about 80% reported good or fair pain relief at 2 years. Similar results were found in other retrospective studies. These findings demonstrate that SCS is a viable option to treat medically refractory post-stroke pain patients.

Conclusion

Spinal cord stimulation and ketamine infusion should be considered for the treatment of central post-stroke pain, particularly in those patients with severe and refractory pain.

References