Propriospinal myoclonus following spinal anesthesia: A rare complication

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Spinal myoclonus are sudden, brief, shock-like involuntary movements that originate in the spinal cord.[1,2] It is a rare complication following spinal cord stimulation induced by drugs administered via intrathecal or epidural routes or contrast material or even placement of intrathecal catheters.[3-5]

A 22-year-old female patient underwent split skin graft surgery over injuries of left lower leg sustained after a road traffic accident. She received spinal anesthesia using 27 Gauge Quincke needle, and 12 mg of 0.5% hyperbaric bupivacaine was administered. Surgery was completed in 30 min. In the postanesthesia care unit, 10 min later she developed involuntary myoclonic movements of bilateral upper limbs with frequent episodes of abduction of shoulder and flexion of elbow joints. She received 2 mg of IV. midazolam intravenous (IV) immediately, which reduced the intensity of myoclonus. There was no evidence of impairment of cerebellar or cranial nerve or cognitive function. Postoperative serum electrolytes, blood glucose levels, electrocardiography, computed tomography, and magnetic resonance imaging (MRI) of brain and spinal cord were found to be normal. However, electromyography (EMG) was not done as intensity of myoclonus decreased. She received IV. sodium valproate 1500 mg IV, loading dose was administered followed by 500 mg t.d.s. Oral lorazepam 1 mg t.d.s. was administered concurrently. Because the myoclonic movements persisted on the second postoperative day, IV. levetiracetam 500 mg IV t.d.s. was also added. Thereafter patient had gradual reduction in the number of episodes of myoclonic jerks and on the sixth day patient was discharged symptom-free.

Spinal myoclonus is classified clinically into spinal segmental myoclonus and propriospinal myoclonus.[1] Spinal segmental myoclonus (most common) is due to hyperactivity of anterior horn cells that affect specific spinal innervations, usually in lower extremities. It resolves with complete dissipation of spinal anesthesia.[2,4] Propriospinal myoclonus (extremely rare) is characterized by involvement of slow-conducting intraspinal pathway that connects multiple spinal segments. It is more widely spread with involvement of upper limbs, trunk, and abdomen similar to our patient. The risk of myoclonus is probably individual-specific and the exact etiopathogenesis is impossible to derive. Mechanism of spinal anesthesia resulting in myoclonus is not well understood. Local anesthetic neurotoxicity is one of the postulated mechanisms.[6] The characteristic findings in spinal myoclonus are a normal EEG and normal somatosensory evoked potentials with EMG that shows bursts >100 ms (may be rhythmic) similar to denervation with variable reflex responses.[1] Spinal segmental myoclonus generally resolves with dissipation of spinal anesthesia, and midazolam is used to treat.[4] Propriospinal myoclonus is less responsive to drugs and can last for days to months. Benzodiazepines (clonazepam and diazepam), sodium valproate, carbamazepine, and levetiracetam

have been used successfully.[1] Our patient required multiple drugs to control myoclonus, which resolved in 4 days without any neurological sequelae.

Anesthesiologists need to differentiate propriospinal myoclonus in context of local anesthetic toxicity for better understanding of management and recovery. Also, anesthesiologists should carefully take past anesthetic history and avoid subarachnoid block for patients who had an episode of prior spinal myoclonus as they can recur.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names 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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