

## Hypobaric spinal anesthesia in a paraplegic patient

Sir,

Increasing numbers of patients with spinal cord injury present for surgery. Selection of a proper anesthesia technique must prevent autonomic hyperreflexia, which may occur mainly with complete lesions above T<sub>7</sub>.

A 38-year-old male patient with history of a firearm injury, complete T<sub>7</sub> transection, and paraplegia since 17 years was admitted for surgery. He had frequent violent spasms provoked by minor stimuli as skin hygiene care below the level of the lesion, but no previous episodes of autonomic hyperreflexia. Patient had history of ischial flap reconstruction surgery due to an ischial pressure sore in jackknife position under general anesthesia and at present posted for fistulectomy.

Hypobaric spinal anesthesia was achieved with 7.5 mg hypobaric bupivacaine 0.3% in jackknife position. Muscle spasms were produced during local anesthetic administration prior to institution of spinal anesthesia. Patient maintained intraoperative hemodynamic stability and he suffered no spasms after neuraxial anesthesia implementation. Sensory block determination was not achieved due to impossible assessment of sensory loss.

After surgery, the patient was transferred to the postanesthesia recovery unit in prone and head-down tilt position, and discharged to the ward after 2 h without any side effects.

Autonomic hyperreflexia occurs in about 85% of patients with spinal lesions above T<sub>7</sub>.<sup>[1]</sup> Hypertension is the most common clinical feature, that may be accompanied by symptoms such as headache, flushing, pupillary dilatation, or bradycardia. In our case, the patient had an important risk of developing autonomic hyperreflexia.

Neuraxial anesthesia may avoid autonomic hyperreflexia and spasms associated with spinal cord injury, and its use has been reported mostly in obstetrics.<sup>[2,3]</sup> Hypobaric spinal anesthesia may be performed in paraplegic patients undergoing this kind of surgery as a good alternative to general anesthesia. An hyperbaric solution should not be used in this position to avoid cephalic spread. Difficult performance of neuraxial anesthesia may be encountered due to altered anatomy caused by spasticity, previous back surgery, and bony deformities. Besides, determination of the sensory block level may be impossible. In some patients, the level of the block may be

determined by observing the level at which spastic paraparesis becomes flaccid.<sup>[4]</sup> We could perform the technique in the prone position without incidences, even when he had previous back surgery secondary to the firearm injury, but we were not able to assess the sensory or motor block. Both 0.15% and 0.1%<sup>[5]</sup> hypobaric spinal bupivacaine have been used effectively for anorectal surgery in nonparaplegic patients, with selective sensorial blockade. We used a greater dose and concentration as we wanted to achieve muscular relaxation in order to avoid spasms and enough sensorial blockade to prevent autonomic hyperreflexia.

In conclusion, hypobaric spinal anesthesia is a safe and useful technique for paraplegic patients undergoing surgery due to ischial pressure sores, in jack-knife position. This technique provides hemodynamic stability and prevents autonomic hyper-reflexia and spasms associated to surgical stimulation.

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