

## Persistent hiccup after lumbar epidural steroid injection

Sir,

Hiccup is a voluntary, reflex-like activity. It begins with contraction of the diaphragm and is shortly terminated by the abrupt closure of the glottis.<sup>[1,2]</sup> Hiccups generally usually subside within 48 hours. In case it continues more than 48 hours up to 1 month, it is called a "persistent" hiccup.<sup>[1]</sup> Although the causes are often idiopathic, it is known that hiccup has over 100 etiologies.<sup>[2,3]</sup>

A 61 year-old man, with history of low back pain for over 10 years, was admitted to the Algology (medical treatment of pain as practiced in Turkey) Department with the complaint of low back pain which was radiating to the left leg. The patient was found to have multiple pathologies at different levels on magnetic resonance imaging. We decided to administer a single shot posterior lumbar epidural steroid injection. Patient was placed at prone position on the operation table. A 16 G epidural needle was inserted into L4-5 interval under fluoroscopic guidance using loss of resistance technique and a 10 ml solution consisting of 80 mg triamcinolone acetate and 20 mg bupivacaine was slowly administered. Two hours later after the intervention, Visual Pain Scale decreased from 8 to 0. There was no significant complaint in the early post-interventional period. He was discharged from hospital without any complaint. However, he developed hiccups 15 hours later. These hiccups lasted 3 days and subsided spontaneously.

The possible mechanism of hiccup after epidural injection may be explained by the volume effect. The volume of solution injected into the epidural space may alter the balance of cerebrospinal fluid (CSF) volume, flow and pressure and hiccups may occur as a response to these acute changes in CSF balance. The dural sac is compressed as a result of these injections.<sup>[4]</sup> Other possible explanation could be the administration of mixture of triamcinolone with diluted bupivacaine. Interestingly, when bupivacaine was removed from the mixture, no hiccups were observed.<sup>[1]</sup> The physiological effects of dilute bupivacaine or direct effects of steroids or combination of both may cause hiccups. Epidural local anesthetics given into lower thoracic or upper lumbar epidural spaces may cause sympathetic block leading to parasympathetic domination. Parasympathetic dominance may explain the physiological changes which cause or lead to hiccup.<sup>[3]</sup>

Actual incidence of hiccup after epidural injection (with

or without steroids) is not known.<sup>[2]</sup> More than 1 million epidural steroid injections are performed every year in the world and interestingly, hiccups are reported extremely rarely. Although mechanism and incidence of hiccup due to steroids is not yet known, steroids are known to have an impact on neurotransmitters of the brainstem and neuroexcitatory properties.<sup>[5]</sup> We believe that hiccups are largely ignored and the actual incidence maybe higher than ever thought. The exact mechanism and incidence of hiccup after lumbar epidural steroid injection must be specifically evaluated for any correctable etiology.

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