

Parathyroidectomy under superficial cervical plexus block in a patient with severe kyphoscoliosis

Sir,

Severe kyphoscoliosis can occasionally lead to torsion of the central airways and increased airway resistance.^[1] Bronchial torsion can lead to catastrophic respiratory complications and general anaesthesia with endotracheal intubation can be dangerous in these patients. Parathyroidectomy is usually performed under general anaesthesia, a choice of surgeon as well as the patient. If preoperative localisation and intraoperative parathyroid hormone assay is possible, minimally invasive parathyroidectomy (MIP) is sometimes performed under deep/superficial cervical plexus block (CPB).^[2,3] Superficial CPB with 0.35 mL/kg of 0.5% levobupivacaine can be an alternative to combined CPB for MIP.^[3] The efficacy of superficial CPB is similar to that of the combined block, but the frequency of anaesthesia-related complications is lower in superficial CPB.

Appropriate depth of sedation allows for patient

comfort, without compromising spontaneous ventilation during operation under local/regional anaesthesia. Sedation which maintains haemodynamic stability is required in patients with cardiopulmonary compromise. Dexmedetomidine, a selective alpha 2-adrenergic agonist acts on locus caeruleus, hence it is related to sleep and respiratory control. Dexmedetomidine is less likely to precipitate airway obstruction and has greater haemodynamic stability than propofol.^[4] We report a case of severe kyphoscoliosis who underwent one gland parathyroidectomy successfully under superficial CPB.

A 39-year-old female patient (height 120 cm, weight 20 kg, body mass index 13.889) was scheduled for left, one gland parathyroidectomy for parathyroid adenoma. An year ago, she had undergone a correctional operation for kyphoscoliosis. Laboratory test results indicated hypercalcaemia (calcium 12.3 mg/dL), hyperparathyroidism (1320 pg/mL) and CO₂ retention (PaCO₂ 50.9 mmHg). Preoperative pulmonary function tests such as vital capacity and the respiratory muscle power are useful for predicting postoperative respiratory complication. However, the patient refused to undergo pulmonary function test. In the operating room, the patient's surgical position was limited due to severe thoracolumbar kyphoscoliosis. A volume of 4 mL of 2% mepivacaine and 5 µg of epinephrine mixed with 3 mL of normal saline was injected along the posterior border of the sternocleidomastoid muscle using an ultrasound (CX 50, Philips, Bothell WA, USA). After CPB was done, the patient was sedated with intravenously administered dexmedetomidine (Abbott Laboratories, Abbott Park, IL, USA). The loading dose was 0.5 µg/kg over 15 min and the continuous dose was 0.2 µg/kg/h for next 45 min. BIS was monitored and maintained between 80 and 90. Intraoperative parathyroid hormone assays were performed at baseline (1,750 pg/mL), and at 5 min (1034 pg/mL), 10 min (114.8 pg/mL), and 15 min (93.5 pg/mL) after mass resection. During the operation, vital signs were stable and she did not complain of any pain and respiratory symptoms.

Chest wall deformation induced by severe kyphoscoliosis can be a cause of postoperative respiratory failure. Postoperative pulmonary complications contribute to morbidity and mortality. Irreversibly increased airway resistance and decreased inspiratory muscle function contribute

to progression to respiratory failure.^[5] Moreover, bronchial torsion in kyphoscoliosis patients lead to difficult intubation and airway obstruction.^[1] General and regional anaesthesia in patients with kyphoscoliosis is challenging for the anaesthesiologist due to difficult intubation owing to bronchial torsion and head/neck position. Dexmedetomidine may be useful for prolonging duration of action of local anaesthetics or providing sedation during the procedure, especially in patients with compromised cardiac reserve.^[4] In our case, dexmedetomidine provided optimal state of sedation and analgesia during the surgery Ultrasound-guided block along with dexmedetomidine infusion can be safe and useful in patients with pulmonary compromise secondary to kyphoscoliosis.

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