

## Anesthetic management of a 137-year-old patient fracture of neck femur

Sir,

Management of geriatric patients can be a challenge to anesthesiologist due to limited organ reserve, the compromised organ function, and the unique disease predispositions.<sup>[1]</sup> A 137-year-old man came with fracture neck femur for dynamic hip screw surgery (DHS). Patient had dementia and was a known case of ischemic heart disease (IHD) since 8 years. He was therapy with oral ramipril 2.5 mg once a day (OD), montrate 10 mg twice a day, atorvastatin 10 mg OD, and aspirin 75 mg OD. He also had presbyopia, lens opacification, decreased high-frequency acuity, was edentulous, decreased muscle mass, and decreased bone density. His general condition was poor (wt: 45 kg, body mass index: 17.58 kg/m<sup>2</sup>) with pulse 94 beats per minute regular and blood pressure 110/70 mm Hg. Systemic examination was otherwise normal. Biochemical evaluation showed hemoglobin of 9.9 g/dl, blood sugar (random) 160 mg/dl, normal liver function test, and serum creatinine of 1.3 mg/dl. Chest X-ray showed emphysematous changes and pulmonary function tests were suggestive of mild restrictive and obstructive changes.

Electrocardiogram had changes suggestive of an old inferior wall myocardial infarction. Echocardiography revealed left ventricular (LV) anterolateral hypokinesia and LV diastolic/systolic dysfunction with LV ejection fraction 35–40%. Dobutamine stress echocardiography was negative for ischemia. The patient was started on enoxaparin 40 mg subcutaneous OD, which was continued in the postoperative period.

It was decided to give continuous epidural anesthesia with routine monitoring (five lead ECG, noninvasive blood pressure, pulse oximetry, and temperature). A central venous catheter was inserted in the right internal jugular vein to guide

fluid management. A 20G Epidural catheter space was placed by paramedian approach via the L3-L4 interspace and it was fixed at 8 cm (12 h after dose of enoxaparin). Test dose of 3 ml 2% lidocaine, with 1:200,000 epinephrine, was injected. A total of 10 ml 0.5% bupivacaine with 2 mcg/ml fentanyl was given in a titrated manner through catheter, to achieve a sensory level of T8. Oxygen was administered by the mask @ 6 l/min and fluids were given to maintain a central venous pressure of 8–10 mm Hg. The patient remained hemodynamically stable throughout the 90 min procedure. After the surgery, patient was shifted to the intensive care unit for monitoring. Postoperative analgesia was given by an epidural infusion of 0.125% bupivacaine with fentanyl 2 mcg/ml @ 2–4 ml/h. Effective postoperative pain relief led to patient ambulation on 3<sup>rd</sup> post-op day in this case, decreasing the risk of embolism and stroke.

Perioperative adverse effects on the cardiac, pulmonary, cerebral systems, and on cognitive function are the main concerns for elderly surgical patients.<sup>[2]</sup> Regional anesthesia techniques attenuate the perioperative stress response, improve myocardial oxygenation, reduce the release of troponin T, and effectively control refractory unstable angina pectoris.<sup>[3]</sup> A recent systemic review on 141 trials including 9559 patients reported that overall mortality and the number of myocardial infarction were reduced by one-third in patients who were allocated to neuraxial block.<sup>[4]</sup> Epidural anesthesia also decreases blood loss during total hip arthroplasty, prevents intraoperative hypertension in patients with intraoperative ischemia, maintains tissue perfusion, and reduces postoperative pulmonary complications and reduced cognitive dysfunction.<sup>[2,4,5]</sup> These advantages strongly support the use of regional anesthesia for elderly patients undergoing surgery.<sup>[3,4,6]</sup>

We successfully managed the oldest patient receiving anaesthesia for surgery (as per Limca Book of records) for DHS under epidural anesthesia with bupivacaine and fentanyl. Considering the age, poor cardiorespiratory function, epidural anesthesia was considered the anesthetic technique of choice in the present case.

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