Abdominal Aortic Aneurism Operation in A High Risk Patient Under Combined Spinal Epidural Anesthesia

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Combined spinal epidural (CSE) anesthesia has not been reported as the main anesthetic technique for the high risk surgical patient with abdominal aortic aneurism. Since this was a high-risk patient with severe chronic obstructive pulmonary disease (COPD), CSE anesthesia was the preferred anesthetic technique for this case (1).

Case report

A 69-year-old male patient, 90 kg in weight and 179 cm in height, had aneurysmal dilatation of the abdominal aorta extending from the level of the renal arteries to the iliac arteries. The width of the aneurism was 32 mm and at its maximum it reached to a maximum of 60 mm. The patient had a coronary artery by-pass surgery three months ago under general anesthesia but we were able to wean him from mechanical ventilation on the postoperative 14th day due to the mixed type (obstructive and restrictive) severe chronic obstructive pulmonary disease (COPD). He had severe COPD. Pulmonary function tests were as follows FVC 85.3 %, FEV1 66.8 %, FEV1 / FVC 60.1 % and FEV1 / VC 59.5 %. Blood gas analysis revealed: PH: 7.49, PaO_2: 63.7 mmHg and $PaCO_2$: 31.4 mmHg. Following cardiological consultation he was diagnosed to have ischemic heart disease and heart failure (ejection fraction was 30%) with a 21% risk according to Goldman risk index. Upon admision to the operating room, he was monitored with ECG, SpO_2, rectal temperature, invasive arterial and central venous catheters. CSE anesthesia was performed in the sitting position with loss of resistance technique. Hyperbaric bupivacaine 7.5 mg and fentanyl 25 µg was administered intrathecally. Epidural catheter was placed in the third lumbar intervertebral space. This was followed by 15 ml of 0.1% bupivacaine and 100 µg fentanyl administration through the epidural catheter. When sensorial block reached to thorocal level T4, the operation was started. When required, 6-10 ml 0.25 % bupivacaine and 100mg fentanyl was administered through the epidural catheter intermittently. During operation, haemodynamical parameters (heart rate, mean blood pressure and central venous pressure) were stable. Intraoperatively, with 2lt/minute 100% O_2 masks, blood gas analysis revealed pH: 7.36, PaO_2: 128 mmHg and $PaCO_2$: 38.3 mmHg, BE:-3.6 and SpO_2 98 %. A median laparotomy was performed extending from xiphoid to symphsis pubis. Operation lasted 7 hours and 15 minutes. He received 4000 ml of 0.9% NaCl, 1500 cc colloid and 7 units of whole blood. During the intraoperative period, he had 3000 ml of blood loss and the total urine output was 800 ml. A total of 120 mg bupivacaine and 500 µg fentanyl was administered via intermittent bolus doses. Intraoperative sedation was provided by infusion of intravenous midazolam. Totally 43 mg midazolam was administered. He spent the first postoperative day in ICU In the postopeartive period, he was hemodynamically stable and blood gas analysis revealed pH: 7.45, PaO_2: 68 mmHg, $PaCO_2$: 38 mmHg and BE:-2.5. He was discharged 7 days later.

Discussion

The CSE anesthesia technique was described for the first time in 1937 by Soresi (2). This anesthesia technique can reduce or eliminate some of the disadvantages of spinal and epidural anesthesia, while preserving their advantages. The CSE block offers high speed of onset, efficacy and minimal toxicity of a spinal block combined with the potential of improving an inadequate block or prolonging the duration of anesthesia with epidural supplements, and extending the analgesia into the postoperative period. These advantages make CSE blocks increasingly popular in obstetrics (3,4), orthopedics (5-7) and major vascular surgery (8). Epidural anesthesia has been suggested to provide better results for high risk surgical patients (9). Yet there is limited experience with epidural anesthesia in aorta-iliac disease (10). Spinal anesthesia is more reliable than epidural anesthesia because of its more intense motor and sensory block but the spread of spinal block is unpredictable. Since spinal block is usually a "single-shot" technique, there is little possibility of improving an inadequate block (11). Endotracheal intubation and general anesthesia have effects on the respiratory system, as well as on the cardiac system and gastrointestinal tract. The absence of pulmonary complications impact favorably on our decision to use CSE anesthesia without endotracheal intubation or general anesthesia. The absence of endotracheal intubation and general anesthesia might play a role in diminishing the likelihood developing pulmonary, cardiac or gastrointestinal sequela related to general anesthesia in our patient. We believe that potential complications are present in the use of general anesthesia

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(prolonged ventilation in severe COPD, myocardial depression, prolonged ileus, etc.) The use of CSE anesthesia avoiding endotracheal intubation or general anesthesia contributes to a decreased morbidity. The risk of pulmonary complications are minimal, and this plays a significant role in patients with severe COPD. In addition, postoperative ileus, ICU stay, and hospital stay are all reduced. The advantages of regional anesthesia are numerous. There is an increase in graft blood flow, decreased myocardial oxygen demand, improved pulmonary function and decreased postoperative pain (12,13). CSE anesthesia has not been reported as the main anesthetic technique for the high risk surgical patient with abdominal aortic aneurism. We believe that CSE is a safe anesthesia technique for the high risk surgical patients presenting with abdominal aortic aneurism.

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