Anaesthetic management of a patient with multiple system atrophy (Shy–Drager syndrome) for urgent hip surgery

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A 71-year-old male was admitted with a fractured left neck of femur. He had multiple system atrophy (MSA) (Schatz, 1996) diagnosed by a neurologist 18 months previously. MSA shows features of parkinsonism and severe autonomic dysfunction, and a common finding is extreme orthostatic hypotension with failure to mount a reflex tachycardia.

The patient had no other significant past medical history. On examination he demonstrated typical mask-like facies, marked rigidity, akinesia and dysarthria. He had a severe fixed flexion deformity of the cervical spine and limited mouth opening. Supine arterial blood pressure was 140/70 mmHg and had been noted to drop to unrecordable levels when the patient was placed upright. The remainder of his examination and investigations were normal. A medical opinion was sought by the orthopaedic team. It was suggested that general anaesthesia should be used in preference to spinal anaesthesia, because of the risk of severe hypotension. The surgery proposed was a hemiarthroplasty.

The problems presented by this patient were the need to provide a cardiostable anaesthetic, avoiding potentially refractory hypotension resulting from autonomic dysfunction, and the need to secure the airway in a patient predicted to be a difficult intubation. The options for anaesthesia were:

1. General anaesthesia with laryngeal mask airway
2. General anaesthesia with fibreoptic intubation
3. Regional anaesthesia using a spinal technique
4. Regional anaesthesia using a combined spinal epidural technique.

Option 1 was excluded as gastric regurgitation (and therefore risk of aspiration) is a feature of MSA. Awake fibreoptic intubation would be likely to cause severe fluctuations in blood pressure in this patient. It was felt that a spinal anaesthetic could risk severe refractory hypotension if the block spread too high. After a review of the literature, two cases of spinal anaesthesia in similar clinical situations were found. However, the surgical team suspected that the operation could be technically difficult and thus prolonged. Our choice was a combined spinal epidural anaesthetic which would allow a limited low spinal anaesthetic with epidural cover in case of prolonged surgery or inadequate block.

The patient received no premedication. Oxygen was administrated via a facemask and monitoring established. A 14G venous cannula was inserted and midazolam 1 mg given for sedation. Invasive blood pressure monitoring was established. The patient received 500 ml of Hartmann's solution. A 3 in 1 nerve block was performed, using a nerve stimulator and 30 ml of 0.25% bupivacaine. It provided analgesia for positioning the patient without the use of excessive doses of sedatives or analgesics. The patient was turned onto the side of the fracture and an epidural catheter was sited at the L2/3 interspace. A spinal anaesthetic was then performed at L3/4 interspace using a 25G needle and 1.5 ml of 0.5% heavy bupivacaine. The patient was kept on the side of the fracture for 10 minutes. Surgery commenced once a block to T10 had been confirmed. At the end of surgery 8 ml of 0.25% bupivacaine and 40 μg of fentanyl were given via the epidural catheter which was then removed. Surgery was uneventful. The lowest recorded blood pressure was 89/56 mmHg, which was treated with methoxamine 1 mg. The patient remained in recovery for 1 hour before being returned to the ward where he made an uneventful recovery.

The traditional teaching is that spinal anaesthesia risks severe intractable hypotension in patients with autonomic dysfunction. However, a literature search revealed two case reports (Konarzewski and Knorr, 1997; Niquille et al, 1998) of spinal anaesthesia and continuous spinal anaesthesia in patients with MSA. Our aim was to provide a limited low spinal anaesthetic but retain the ability to supplement the block if surgery was prolonged without having to revert to a general anaesthetic. To minimize the use of sedatives and analgesics, which could have compromised the airway, we performed a 3 in 1 block and used the epidural for postoperative pain relief.

In our opinion the effect of the autonomic block resulting from a low spinal anaesthetic is unlikely to be devastating in the presence of the pre-existing autonomic dysfunction provided that the block is of limited extents. HM

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