Anesthetic management of a patient with Susac syndrome: A rare neurological disorder

Sir,
A 35-year-old, 70 kg male presented with a history of bifrontal headache associated with nausea and vomiting, sensorineural hearing loss (L > R), unsteady gait, bilateral partial visual loss, diplopia, and bilateral optical disc edema with peripapillary exudation. The patient had already received intravenous (IV) methylprednisolone, five cycles of plasma exchange therapy, cyclophosphamide, and intratympanic dexamethasone and was now scheduled for duramater and brain biopsy. In the operating room, the patient complained of severe headache and nausea. As such, prior to induction of anesthesia, we examined the optic nerve sheath diameter (ONSD) using ultrasound and found an average of 5.2 mm (right eye) and 5.1 (left eye) suggesting raised intracranial pressure (ICP). The patient had a stable heart rate (80/min), noninvasive blood pressure (130/80 mm Hg) and oxygen saturation (99%). Induction of anesthesia was done with fentanyl (2 mcg/kg) and propofol (2mg/kg). Rocuronium (1 mg/kg) was used for tracheal intubation. After 5 mins of induction, we again performed ONSD which showed approximately 4.5 mm in both eyes. Maintenance of anesthesia was done with oxygen and air (1:1) along with intravenous propofol infusion titrated to maintain BIS of 50–60. Intermittent rocuronium and fentanyl were used for muscle relaxation and pain alleviation, respectively. No volatile anesthetic agent was used. Nitrous oxide was avoided as it has negative effects on cerebral hemodynamics. We also avoided halogenated volatile anesthetics as they cause cerebral vasodilatation. Utmost importance was given to maintaining adequate depth of anesthesia, skeletal immobilization, and pain alleviation. Mild hyperventilation was done to a level not below PaCO$_2$ of 30 mm Hg. Hypotonic solutions were avoided intraoperatively. In our case, we utilized ONSD as an important noninvasive diagnostic tool for intracranial hypertension. The optic nerve sheath is an anatomical extension of the duramater, and the subarachnoid space around the optic nerve is continuous with the intracranial subarachnoid space. Dilatation of optic nerve sheath has been shown to be a much earlier manifestation of ICP rise.

Thus, SS being an extremely rare neurological disorder, improved understanding of this disease is crucial. Baseline neurological status including fundoscopic and audiometric examination should be documented. A proper history of concomitant drug therapy and its associated interaction with anesthetic drugs should also be kept in mind. In our case, we had administered propofol and instituted mild hyperventilation only to negate the effects of raised ICP; however, it should be kept in mind that in the absence of raised ICP, this anesthetic technique may not be advisable as it can worsen cerebral-retinal-cochlear perfusion in an already existing microangiopathic state. Volatile anesthetics with normocapnia would be desirable in the absence of raised ICP. Thus, anesthetic technique in SS should be modified based on the presence or absence of intracranial hypertension. Since no literature has previously described anesthetic management in SS, we believe that our report brings some insight into the pathophysiology of this disorder and, thus, understanding perioperative anesthetic implications.

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Conflicts of interest
There are no conflicts of interest.
Assessing adequacy of collateral foot circulation: A simple bedside test prior to lower extremity arterial cannulation

Sir,

Arterial cannulation for invasive blood pressure monitoring and sequential arterial blood gas analysis is routinely used in the Operating Theatres (OTs) and Intensive Care Units (ICUs). Known complications of this procedure include temporary vascular occlusion, thrombosis, ischemia, hematoma formation, and local catheter-related infection and sepsis. Usually the radial artery of the hand is frequently employed owing to its close proximity to the skin, collateral circulation with the ulnar artery and low rate of complication. Before performing radial artery cannulation or blood sampling, palmar arches should be evaluated by Modified Allen’s Test (MAT) which is a simple bedside test to assess adequate collateral circulation and the patency of hand collateral arteries (radial and ulnar). Quite often, lower extremity arterial cannulation is performed (failed radial artery cannulation, injured/burned upper limb, surgical procedures involving arms or where upper part of the body is not easily accessible) employing the dorsalis pedis or posterior tibial artery. A variation of MAT known as Lower Extremity Allen’s Test (LEAT) has been previously described, which utilizes a hand held doppler probe. However, Doppler probes may not be universally available. Thus, there exists paucity of simple bedside tests which can be performed prior to arterial cannulation of lower extremities which can evaluate the adequacy of arterial collateral flow.

We propose a simple amendment of MAT which can be performed at the bedside test to assess distal lower extremity collateral circulation by supplementing sequential arterial compression and release with pulse oximetry.

With the patient lying supine, the pulse oximeter is attached to any of the toe for recording of baseline oxygen saturation and waveform. Both dorsalis pedis artery and posterior tibial artery are identified superficially by the pulsations and simultaneously compressed till pulse oximetry waveform flattens. Pressure on the posterior tibial artery is then released. Return of waveform

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