
Angelman syndrome and anaesthetic considerations

Sir,

Angelman syndrome (AS) is an orphan genetic disorder, characterised by severe neurodevelopmental delay, balance dysfunction and a 'happy demeanor'.^[1,2]

A 36-year-old girl, genetically investigated for AS, was posted for open cholecystectomy. Written informed consent was obtained from the parents for surgery and for scientific publication without identity disclosure. Patient was carried by her father, was apprehensive, startling at sudden sounds and had heightened separation anxiety. She demonstrated inquisitiveness and hypersociability with an incomprehensible language.

Patient was malnourished, weighing 10 kg and 99 cm high. Spasticity was present in all four limbs. Mild retrognathism with prominent upper incisors, increased sternomental distance and high palatal arch indicated a difficult airway. Rest of the examination was unremarkable.

In view of severe malnourishment, nutritional build-up and protein-calorie rich formula feeds were

given orally at 4 h intervals under close monitoring and 6 weeks later, after a weight gain of 7 kg, she was posted for elective open cholecystectomy [Figure 1].

She exhibited severe parental separation anxiety, and inj midazolam was given in aliquots of 1 mg to a total of 4 mg with fentanyl citrate 25 µg. Patient remained alert with no lessening of separation anxiety. Concerns about delayed awakening prompted having her father accompany her inside the operating theatre.

Anaesthesia was as per standard protocol. Laryngoscopy revealed Cormack and Lehane Grade IV. External manipulation failed, and a 6.0 mm cuffed endotracheal tube was threaded successfully over an intubating bougie. For post-operative analgesia, an 18-gauge epidural catheter (Portex) was placed through the midline approach at 3.5 cm at the L1-L2 interspace after space was located by ultrasound guidance (linear transducer, 6–14 MHz, Terason uSmart 3200T, Teratech Corporation, Burlington). Catheter was secured 5 cm on skin. Anaesthesia was maintained with oxygen, nitrous oxide (40:60) and sevoflurane, 1%–1.5%. Epidural bolus of 8 ml of 0.25% bupivacaine was given before skin incision. There were no significant intraoperative haemodynamic changes. Neuromuscular blockade was reversed uneventfully. Epidural infusion of 0.125% bupivacaine at 4 ml/h



Figure 1: Angelman syndrome

continued for 2 days, and patient was discharged from hospital on the 10th day.

AS, genetically related to Prader–Willi syndrome, is caused by deletion or abnormal expression of the UBE3A gene (15q11-q13). Features such as microcephaly, prognathia, wide-spaced teeth and scoliosis make both intubation and regional blocks difficult.^[1-4] Vertebral and rib abnormalities produce altered respiratory mechanisms leading to propensity for post-operative respiratory and right heart failure. However, routine assessment of lung functions is difficult,^[2,5] and only cardiac assessment could be done preoperatively. Hyperextensibility and joint subluxation demand careful positioning.^[3,5] Anxiolysis and analgesia are important as proper assessment in these smiling patients can be challenging.^[2] Seizures and abnormal electroencephalogram often necessitate anticonvulsant medications.^[1,2] Speech may be minimal or absent with pronounced non-verbal communication skills. Significant peripheral muscular atrophy and vagal hypertonia demand cautious and titrated administration of muscle relaxants and anticholinesterase agents.^[1-4] Furthermore, indications for laparoscopy have to be considered very carefully in view of a predominant vagal tone in these patients with an increased risk of atropine-resistant bradycardia.^[3]

Concomitant deletion of gamma-aminobutyric acid (GABA) receptor subunit genes (GABRA5, GABRB3 and GABRG3) can lead to unpredictable response to GABA agonists, and this can explain the unresponsiveness to midazolam in our patient.^[1,5] Epidural analgesia is usually not the procedure of

choice in patients with tardy neurodevelopmental syndromes in view of existing spasticity but was considered in this case over transverse abdominis plane block due to parental concerns of pain relief for at least 2 days. They had also expressed fears of repeated pulling out of any intravenous line. The risk of epidural analgesia was explained to them.

Unpredictable response to anaesthetic agents with a difficult airway, difficult regional block and sudden asystole should be anticipated and warrant adequate pre-operative preparations.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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