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Kawasaki disease and general anaesthesia: The Know - Hows

Sir,

Kawasaki disease (KD) is a mucocutaneous lymph node syndrome of unknown aetiology affecting infants and children. It is characterised with fever, rash, lymphadenopathy and arteritis with specific predilection to the coronary arteries. Administering general anaesthesia in this subset of patients is challenging. Literature describes only a few and sporadic case reports on its anaesthetic management.[1,2]

We present a case of successful anaesthetic management of a 5-year-old male child weighing 17 kg, diagnosed case of KD posted for full-mouth dental rehabilitation, with on table intermittent two-dimensional (2D) echocardiographic monitoring. The patient was diagnosed with KD 5 months back and subsequently treated with Intravenous (IV) immunoglobulin. Twelve-lead electrocardiogram (ECG) was normal. 2D echocardiogram was suggestive of a good ventricular function with ejection fraction 60%, a 2 mm small ventricular septal defect and atrial septal defect of size 5 mm, both with left to right shunts. Valves were structurally normal. Abnormal dilatation of proximal and mid-segment of the left main coronary artery (LMCA) was noted.

Computed tomography angiography was performed demonstrating a 4 mm LMCA, prominent in calibre and a very short trunk. Other vessels appeared normal with no plaque or stenosis. It was advised to consider a possibility of congenital variant by clinical correlation. The patient was receiving tablet aspirin since then, but was stopped 1 month ago.

A thorough preoperative evaluation was done. 2-D echocardiogram done a month ago did not show any fresh changes. The paediatrician opinion regarding cardiac status was sought and the patient was taken up for anaesthesia and surgery with informed high-risk consent was obtained from the parents. The child was premedicated with 1 mg/kg of oral midazolam, 20 min before procedure. In the OR, monitoring included ECG (lead II and V5), pulse oximetry (SpO_2), non-invasive blood pressure and end-tidal carbon dioxide. After adequate preoxygenation, the child was induced with sevoflurane in air and oxygen mixture. IV access was gained; IV fentanyl 3 mcg/kg. Adequacy of mask ventilation was confirmed, IV atracurium1 mg/kg was administered. In addition, IV propofol 2 mg/kg (as graded boluses during airway manipulation) was administered. Nasal intubation was performed with utmost care so as to avoid any haemodynamic response

maintaining an adequate depth of anaesthesia. Intraoperatively, IV dexmedetomidine 0.3 mcg/kg as infusion was administered over 30 min. In this case, local infiltration was not used as adrenaline was a concern and our dental team as a protocol does not use bupivacaine. We planned for adequate analgesia, particularly avoided tachycardia at any stage and maintained a stable heart rate. 2-D echocardiography was performed twice intraoperatively and once post-operatively, which showed no signs of any abnormal contractility, thrombus, embolus, filling pressure changes or any untoward changes in the cardiovascular system. We were interested in assessing the global ventricular function, regional wall motion abnormalities if any, and we used the apical four- and two-chamber views. The duration of surgery was 2.5 h.

Apart from fentanyl, diclofenac suppository 2 mg/kg and IV paracetamol 20 mg/kg slow infusion over 20 min were given intraoperatively. On completion of the procedure, the trachea was extubated after reversal of neuromuscular blockade. Post-operatively, the patient was shifted to paediatric Intensive Care Unit for observation. Post-operative analgesia regimen was decided as ibuprofen oral suspension 5 mg/kg/dose three times a day.

There exist an array of biochemical tests and invasive monitoring described in the limited literature on anaesthesia for KD. The most dreaded complications are cardiac including coronary artery aneurysms, myocardial involvement and pericardial effusion. The goals of successful management include risk stratification, cardiac status assessment, maintaining stable intraoperative haemodynamics and avoiding triggers of myocardial injury (pain, instrumentation under light planes of anaesthesia). Here, we performed an on table 2-D Echocardiography so as to detect any untoward evidence of myocardial contractility, filling pressure, peripheral vascular resistance or thrombus. We also maintained an adequate myocardial supply-demand ratio by providing adequate multimodal analgesia and dexmedetomidine infusion intraoperatively. Our choice of dexmedetomidine was with regard to its favourable sedative, anxiolytic, limited respiratory and haemodynamic effects.[3,4]

Accordingly, the safety profile for administering general anaesthesia in this high-risk population increases many fold.

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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