Neuraxial Blockade for Cesarean Delivery in Severe Aortic Stenosis

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Background: The optimal approach to provision of anaesthesia care for patients with severe aortic stenosis is controversial. In the non-obstetric setting, aortic stenosis increases the peri-operative mortality risk by up to 14 times. Maternal mortality rates of 17% have been reported with maximal risk at the time of therapeutic pregnancy termination or at delivery. Regional anaesthesia may be considered to be contraindicated for a number of reasons. Firstly, cardiac output is relatively fixed in these patients and secondly, the decreased venous return caused by aortocaval compression, peripartum hemorrhage or sympatholysis from neuraxial blockade can result in severe cardiovascular compromise. We present two cases of critical aortic stenosis that received regional anaesthesia for caesarean section.

Clinical Details: Patient 1 presented in mid-pregnancy with severe dyspnoea and a systolic murmur. There was no history of cardiovascular disease but a bicuspid, stenotic aortic valve was demonstrated on echocardiogram (Table). Patient 2 had congenital aortic stenosis treated with commissurotomy in childhood and porcine valve replacement in adulthood. This valve had subsequently stenosed (Table).

Anaesthetic Technique: Following placement of large-bore I.V. access, radial intra-arterial catheters and antecubital PICC (peripherally inserted central catheter) lines for CVP monitoring and vasopressor administration were sited. Both patients had combined spinal-epidural anesthesia with initial low dose intrathecal bupivacaine (6 and 8 mg respectively), morphine (100mcg) and fentanyl (10mcg). Supplementation with lidocaine (120mg and 80mg) via the epidural catheter was given to achieve a T4 sensory level to touch. Minimal bolus intravenous vasopressor was required in either case to maintain BP within normal range (phenylephrine 200–400 mcg) in the perioperative period. Neonatal Apgar scores were 9 and 10 at one and five minutes respectively for both deliveries. Postoperatively, patients were monitored in the high-dependency unit for 24hrs. There were no postoperative cardiovascular complications in either patient.

Conclusion: Titrated neuraxial techniques with appropriate invasive monitoring can be safely performed in patients with severe aortic stenosis for cesarean section.

References

Additional File:

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<th>Patient</th>
<th>Age</th>
<th>Gravity, Parity</th>
<th>Timing of delivery</th>
<th>Valve area cm²</th>
<th>Peak gradient mmHg</th>
<th>NYHA status</th>
<th>Ejection Fraction %</th>
<th>Anaesthetic Technique</th>
<th>Peripartum monitoring</th>
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CSE: Combined Spinal-Epidural; IBP: Invasive Blood Pressure monitoring; CVP: Central Venous Pressure