Low dose spinal anesthesia for peripartum cardiomyopathy

Sir,

Peripartum cardiomyopathy[1] is a dilated cardiomyopathy associated with cardiac failure in the last month of pregnancy or within five months of delivery. There is no identifiable cause of cardiac failure, no heart disease prior to the last month of pregnancy, and left ventricular systolic dysfunction. It has

an incidence of one per 3500 live births and is associated with a high mortality rate (30–60%).[2] Patients present with breathlessness, chest pain, pedal edema, cardiomegaly, and elevated jugular venous pressure (JVP). Complications like atrial/ventricular arrhythmias, congestive heart failure, pulmonary emboli, and even sudden death can occur. There is a strong association with gestational hypertension and twin pregnancies. The rate of Cesarean delivery increases. Many patients with left ventricular dysfunction become normal after delivery. There is a potential detrimental effect of subsequent pregnancy on the outcome of these patients.

We report the case of a 35 kg, 22-year-old woman (Gravida 3, Para 2, Live 1), with a pregnancy of eight weeks gestation, who was scheduled for medical termination of pregnancy and sterilization. During her previous pregnancy (three years back), she had peripartum cardiomyopathy and had presented with breathlessness on exertion; generalized edema; an ejection fraction of 25%; and global hypokinesia on echocardiography. Her condition had improved with Digoxin, Dobutamine, Warfarin, Spironolactone, and Captopril.

On conceiving again, she was advised by the cardiologist to terminate the pregnancy. During this pregnancy, she had breathlessness only on severe exertion (NYHA Class II). Her echocardiography revealed 45% ejection fraction, while the other investigations were normal. She was on oral carvedilol 12.5 mg twice daily and furosemide 20 mg once daily for the last one month.

In the Operation Theater, after securing an 18 G intravenous cannula, she was preloaded with 250 ml of Ringer lactate. Electrocardiogram, pulse oximetry, and non-invasive blood pressure were monitored. Her preoperative vitals were normal. Five milligrams of 0.5% heavy bupivacaine and 25 μg of Fentanyl citrate were administered intrathecally through the L3-L4 interspace and a sensory block, up to the T6 level, was achieved after seven minutes. The patient remained hemodynamically stable intraoperatively and postoperatively.

Anesthetic management goals to manage such cases include preload optimization, afterload reduction, and increased contractility of the heart. The preload must be optimized by gradual fluid replacement, to maintain a central venous pressure of 10–14 cm H_2O. Analgesia must be adequate to prevent an increase in blood pressure and heart rate. Patients with EF < 20% may benefit from anti-coagulation therapy.[1] Inotropic support can be achieved with Dobutamine or Milrinone. Although, general anesthesia has been used, the myocardial depressant effect of most anesthetic agents can further attenuate the pre-existing low ejection fraction. There are reports of severe embolic stroke[2] and cardiac failure[3] with general anesthesia.

Regional anesthesia leads to vasodilatation, causing a fall in preload and afterload, which prevents thromboembolic events and decreases the epinephrine/norepinephrine levels. Use of an intrathecal opioid prevents an acute fall in blood pressure by decreasing the dose requirement of bupivacaine. This patient was not taking any anticoagulants, thus minimizing the risk of hematoma with spinal anesthesia. We did not insert an epidural catheter as it was a short procedure. Although, regional blocks have been successfully used,[4] Pirlet *et al.*, reported a significant reduction of heart rate and blood pressure in a patient with an ejection fraction of 20%.[5]

We suggest that after adequate preloading of low dose spinal anesthesia, using an opioid is an acceptable option in a patient with peripartum cardiomyopathy.

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