

# Letter to the Editor

## Peripartum Cardiomyopathy (PPCM): anesthetic and obstetric monitoring, management and medico-legal aspects

Dear Editor,

The incidence of Peripartum Cardiomyopathy (PPCM) during pregnancy has increased over the past few decades, partly because of rising average maternal age. Causative factors commonly associated with higher rates of age-related conditions are obesity, diabetes mellitus, hypertension, and cardiovascular problems.

There are some important medico-legal implications related to early diagnosis and treatment of cardiovascular complications during pregnancy, delivery, and postpartum. Firstly, it should be considered that the onset of cardiomyopathy can easily be overlooked and missed. Hence, women of advanced maternal age need to be closely monitored throughout their pregnancies. It is advisable for such patients to give birth by cesarean section (CS)<sup>1</sup>. The outcome is likely to be closely related to maternal and fetal complications.

Prior to anesthesia and CS, these patients need to go through preanesthetic assessment, in order to minimize the risk of cardiovascular complications stemming from CS<sup>2,3</sup>.

Invasive hemodynamic monitoring (of the kind previously carried out by the Vigileo hemodynamic monitor) or non-invasive monitoring techniques (e.g. Impedance cardiography) and the administration of low drug doses are paramount, because the cardiac reserve is generally reduced in such high-risk patients. The degree of hemodynamic stability, a satisfactory sensory block and rapid mobilization provided by low drug doses may be particularly advantageous in those patients<sup>4-7</sup>.

Monitoring during anesthesia for CS and in postpartum period has to be provided in PPCM patients in light of the high rates of high morbidity and mortality linked to that segment.

When high drug doses are used in single shot spinal anesthesia for CS, cardiac functions may get worse, leading to lower Systemic Vascular Resistance (SVR), Stroke Volume (SV) and Cardiac Output (CO). These effects of drugs may also decrease, in such a way, placental perfusion, thus negatively affecting maternal and fetal well-being<sup>5</sup>.

In case of PPCM patients, in order to avoid the administration of high drug doses for neuraxial anesthesia during CS, it is important to use combined spinal epidural (CSE) techniques; single shot spinal anesthesia is not indicated. By using the CSE technique, we can administer low drug doses (LDLA), and inject some pain control drugs, if necessary (e.g. paracetamol)<sup>8-10</sup>.

Malvasi et al<sup>11</sup> confirm that Low-Dose Neuraxial Anesthesia (LDLA), a CSE technique with reduced dose of drugs, usually lipophilic opioids and local anesthetics, can provide a rapid and effective analgesia with minimal hemodynamic effects, maintaining leg mobility. In the two groups of patients that were observed, 5 ml of levobupivacaine (LB) 0.15% were administered, with a 5 mcg of sufentanil in the former group, vs. 4 ml of LB 0.125% with 5 mcg of sufentanil both into the spinal space, and a tuohy 18-g needle, 3-7 mL of xylocaine carbonate 0.5% plus 1 mcg/ml of sufentanil in the latter group. If needed, an epidural catheter was used for top-up during CS and for postoperative analgesia. In case of complications during CS and post-partum arising in such patients, fetal distress (brain sparing) owing to placental hypoperfusion and maternal cardiovascular complications (cardiac failure, myocardial infarction or cardiac arrest) may occur<sup>9</sup>.

For those PPCM patients, a cardiologic, obstetric and anesthesiological multi-disciplinary approach needs to be put in place during pregnancy, CS and in postpartum. Such approach arguably constitutes a good practice in medicine and it is of utmost importance for a favorable maternal and fetal outcome.

In case of maternal and fetal complications, tort lawsuits aimed at seeking compensation are common, and overall, the litigation risk is high. Compliance with guidelines and good practices grounded in institutional recommendations and medical evidence, as for other aspects of childbirth<sup>12</sup>, certainly represents an adequate, cautious stance that can shield operators from malpractice allegations<sup>2,13</sup>. Moreover, this approach can help reduce liability insurance costs in a field where compensatory damages can be extremely high for doctors and health care facilities, making it difficult to find suitable insurance coverage<sup>14-16</sup>.

### Conflict of interest

The authors declare no conflicts of interest.

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