
Labour analgesia in cardiac parturients: *A personalised approach!*

Sir,

The burden of cardiac disease in parturients continues to escalate owing to diagnostic proficiency and treatment advancements and contributes significantly to the maternal mortality.^[1] While the physiological changes of pregnancy compromise the functional status of the parturient rendering the obstetric management challenging, the choice of ideal labour analgesia poses additional concerns.^[1,2] The discussion of three cases highlights the aforementioned elaborating upon a

successful labour analgesia management in cardiac parturients.

The demographic characteristics, clinical and treatment profile of the patients at the time of presentation to the obstetric suite in active labour is enlisted in Table 1. A common scenario featured in the cases wherein the obstetric anaesthesiologist was requested to provide labor analgesia services in absence of a safe period of pre-procedural antiplatelet or anticoagulant discontinuation necessitating an improvisation of the original labour epidural plan.

The alternatives were meticulously considered. Despite patient-controlled analgesia presenting a potential option albeit the practicalities such as lack of necessary monitoring, experienced staff and requisite patient literacy, precluded the adoption.^[3] Therefore,

Table 1: Demographic characteristics and pain score of the parturients during different stages of labour

Age/ Parity	Diagnosis	Profile at presentation		1st Stage of labour			2nd Stage of labour	
		Clinical	Treatment	Duration (H)	No. of ISWB	NRS (0-10)	Duration (min)	NRS (0-10)
26/ Primi	Eisenmenger's syndrome	Spontaneous labour	Clopidogrel + LMWH (On going)	14	4	2-3	20	2-3
34/ Multi	Dilated cardiomyopathy	Spontaneous labour	Clopidogrel + LMWH (On going)	6	1	1-2	10	2-3
28/ Primi	Severe mitral stenosis	Premature rupture of membrane	Clopidogrel + LMWH (Stopped past 2 days)	13	3	2-3	15	2-3

LMWH-Low molecular weight heparin; ISWB-Intradermal sterile water block; NRS-Numerical rating scale

a multimodal staged analgesic regime was formulated wherein intradermal sterile water block (ISWB) was contemplated in the first stage of labour (repeated if numerical rating scale (NRS) ≥ 4) whereas a pudendal nerve block with 5 ml 1% lignocaine administered by the obstetrician via transvaginal approach constituted the analgesic approach to the second stage of labour. Intravenous paracetamol infusion was instituted 6 hourly. At all times, patients were monitored as per American Society of Anesthesiologists guidelines. Oxygen therapy via nasal prongs at 4 L/min was concomitantly administered while observing for any signs of fetal distress, cardiac-failure, and local anaesthetic systemic toxicity (LAST). Throughout the labour, the patients were comfortable with NRS between 2 and 3 [Table 1].

Labor analgesia has a pivotal role in contemplation of a safe vaginal delivery in the cardiac parturient. The catecholamine surge emanating as a consequence of labor pain can detrimentally impact the maternal cardiovascular system (accentuated myocardial stress, decreased ventricular filling time compromising the cardiac output, augmented myocardial oxygen requirement and elevation in pulmonary artery pressure) and utero-placental circulation entailing the risk of foetal malperfusion and acidosis.^[2]

Labour analgesic techniques can be classified into pharmacological and non-pharmacological. Pharmacological techniques include opioids, central neuraxial block (epidural, intrathecal route), and non-steroidal anti-inflammatory drugs.^[4] Non-pharmacological analgesia incorporates psychotherapy, acupuncture, water bath, ISWB, transcutaneous electrical nerve stimulation (TENS), continuous support, hypnosis, and massage.^[4,5] One can pragmatically combine modalities with different mechanisms for a multimodal pain relief in patients where neuraxial block is contraindicated.

ISWB is a simple technique with a 4-point intradermal injection of 0.1 ml distilled water overlying the

Michaelis rhomboid (upper end of natal cleft inferiorly, L5 vertebrae superiorly and posterior inferior iliac spine laterally).^[5] There is a considerable literature substantiating its role in pain relief during first stage of labour with certain studies signifying non-inferiority to epidural analgesia.^[5,6] The common dermatomal (T10-L1) supply of the uterus and the skin overlying Michaelis rhomboid constitutes the physiological analgesic premise based on the gate-control pain theory.^[5,6] In addition, it presents a remarkable ease to perform (does not require advanced setup, pre-procedural investigation, specific patient-positioning, devoid of drug-interactions (LAST), and cost-effective with a short learning curve) while maintaining haemodynamic stability and can be safely repeated.^[6] A meta-analysis found ISWB to significantly lower the caesarean rate to 4.6% compared to 9.9% in the control group.^[7] However, considering the lack of literature on the role of ISWB in second stage of labor, the index case-series employed a pudendal nerve block and local anaesthetic infiltration at the episiotomy incision-site to minimise consequences of second-stage labour pain in this peculiarly predisposed subset.

To conclude, an experienced obstetric anaesthesiologist with a sound working knowledge of the gamut of labour analgesic techniques is pivotal to a favorable foeto-maternal outcome in parturients ailing from cardiac disease. The case-series strengthen the modern notion that there is no sacrosanct in anaesthesia-analgesia and the practice provides colossal opportunities to incorporate tenets of personalised or precision medicine as per the clinical context.

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Conflicts of interest

There are no conflicts of interest.

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