

Anaesthetic management of a pregnant woman with preeclampsia and Eisenmenger's syndrome: Role of advanced haemodynamic monitoring

Sir,

Patients with Eisenmenger's syndrome have a right to left shunt which causes systemic hypoxaemia.^[1] Pregnancy induced physiological changes can worsen the Eisenmenger's physiology by causing a fall in systemic vascular resistance (SVR) increasing the right to left shunting.^[2,3] We discuss the challenges we faced in managing a pre-eclamptic patient with Eisenmenger's syndrome in the perioperative period.

A 21-year-old primigravida, at 27 weeks of gestation presented to the emergency department with breathlessness at rest. At presentation, she had cyanosis, tachycardia, tachypnoea and her blood pressure was 150/100 mmHg and SpO₂ 70% on room air. Transthoracic echocardiography (TTE) showed a ventricular septal defect (VSD) with bidirectional shunt, dilated right atrium and right ventricle with right ventricular systolic pressure (RVSP) of 150 mmHg. She was started on sildenafil 25 mg 8th hourly, digoxin 0.25 mg OD furosemide 20 mg BD and nifedipine 10 mg BD.

Elective termination of pregnancy was planned at 32 weeks. On the eve of the planned surgery, left radial artery and right-sided internal jugular vein were cannulated under ultrasound guidance. Baseline intra-arterial blood pressure (IBP) was 150/94 mmHg, CVP (6 mmHg), cardiac output (5.6 L/min), SVR (1290 dyne/s/cm⁵), stroke volume (SV 58 mL). It must be noted that the stroke volume variation is not reliable as a predictor of fluid responsiveness in patients with a bidirectional shunt. Advanced haemodynamic variables were obtained with FloTrac/Vigileo™, Edwards Life sciences, Irvine, CA, USA.

Baseline haemodynamic values were obtained in operating room. We planned for continuous epidural anaesthesia as the resulting sympatholysis could offset the effect of auto transfusion and also to provide better post-operative analgesia. Epidural catheter was successfully secured at L2–L3 level in

the left lateral position. After ruling out intravascular and intrathecal placement, lignocaine 1.5% was administered in two boluses of 5 mL 15 min apart to achieve a level of T6. This resulted in a fall in the mean arterial pressure (MAP) by 25%, a fall in SV and SVR and was treated with two boluses of phenylephrine 25 microgram each. Though the MAP improved, there was a persistent fall in SV, hence dobutamine infusion was begun at a dose of 5 µg/kg/min. Patient experienced discomfort on manipulating the uterus, hence general anaesthesia was induced with sleeping dose of thiopentone 100 mg and succinylcholine 100 mg. was given. Fentanyl was avoided due to the already low MAP. Following intubation, the SV dropped to 26 mL and SVR increased to 1820 dyne/s/cm⁵. IBP was 170/106 mmHg; end-tidalCO₂ was 30–32 mmHg, dobutamine infusion was increased to 10 µg/kg/min resulting in an immediate improvement in SV [Figure 1]. Anaesthesia was maintained with sevoflurane with air and oxygen mixture to achieve a MAC of 0.8–1.0. The patient was maintaining saturation of 85%–90% with FiO₂ of 0.5. After the delivery of the foetus, oxytocin infusion was started at the rate of 5 IU/h with infusion pump. There was a steep increase in CVP to 26 mmHg after delivery and a bolus of furosemide 20 mg was administered. Neonate weighed 2 kg with Apgar score of 6 and 8 at 1 and 5 min, respectively. Analgesia was provided with 5 mL/h of 0.125% bupivacaine. A total of 700 mL of crystalloids were administered based on trends in CVP. Blood gas analysis showed a pH 7.38, PaCO₂ 34 mmHg, PaO₂ 52 mmHg with FiO₂ of 0.5, bicarbonate 21. The patient was extubated and shifted to ICU. Enoxaparin 30 mg subcutaneously OD was started from 1st post-operative day (POD) Patient was

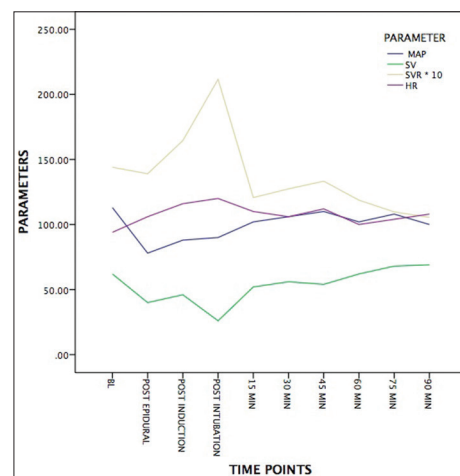


Figure 1: Trends in haemodynamic parameters. MAP—Mean arterial pressure; SV—Stroke volume; SVR—Systemic vascular resistance; HR—Heart rate

shifted to step-down unit on the POD4. The patient was discharged on POD15.

Eisenmenger's syndrome with severe pre-eclampsia is a precarious situation warranting invasive monitoring and careful management. We were able to measure the preload, after load and stroke volume effectively during the crucial time points and perform appropriate actions that led to the safe and successful management of this patient.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

***Muthapillai Senthilnathan, Savitri Velayudhan,
Anusha Cherian, Pankaj Kundra***

Department of Anaesthesiology and Critical Care, JIPMER,
Puducherry, India

Address for correspondence:

Dr. Savitri Velayudhan,
Department of Anaesthesiology and Critical Care, 2nd Floor,
Main Block, JIPMER, Puducherry - 605 006, India.
E-mail: savitri.velayudhan@gmail.com

REFERENCES

1. Gurha P, Nathani B, Rakhija JN. Anaesthetic management of a patient with Eisenmenger's syndrome undergoing caesarean section: A case report. *J Anaesth Clin Pharmacol* 2006;22:417-9.
2. Kahn ML. Eisenmenger's syndrome in pregnancy. *N Engl J Med* 1993;329:887.
3. Gurumurthy T, Hegde R, Mohandas B. Anaesthesia for a patient with Eisenmenger's syndrome undergoing caesarean section. *Indian J Anaesth* 2012;56:291-4.
4. Vincent JL, Pelosi P, Pearse R, Payen D, Perel A, Hoeft A, *et al.* Perioperative cardiovascular monitoring of high-risk patients: A consensus of 12. *Crit Care* 2015;19:224.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

Access this article online	
Quick response code	Website: www.ijaweb.org
	DOI: 10.4103/0019-5049.204244

How to cite this article: Senthilnathan M, Velayudhan S, Cherian A, Kundra P. Anaesthetic management of a pregnant woman with preeclampsia and Eisenmenger's syndrome: Role of advanced haemodynamic monitoring. *Indian J Anaesth* 2017;61:359-60.

© 2017 Indian Journal of Anaesthesia | Published by Wolters Kluwer - Medknow