Case Report

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Anaesthesia Section

Emergency LSCS in a Parturient with Pre-eclampsia and HELLP Syndrome with Altered Renal Functions Managed with Regional Anaesthesia

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ABSTRACT

Haemolysis, Elevated Liver enzyme levels, and Low Platelet (HELLP) syndrome is characterised by haemolysis (abnormal peripheral blood smear, increased unconjugated bilirubin), elevated liver enzyme and decreased platelet count. It is an advanced stage of pre-eclampsia. Pre-eclampsia is defined as blood pressure >140/90 mmHg with proteinuria with or without pedal oedema. HELLP syndrome account for 24% of maternal mortality and 40% of perinatal mortality. Anaesthetic management of such parturient is also challenging. This report is about a 35-year-old female patient with HELLP syndrome and altered renal function requiring LSCS. She was managed with regional anaesthesia.

Keywords: Multigravida, Pedal oedema, Pregnancy induced hypertension

CASE REPORT

A 35-year-old female, multigravida (G3P3L2A0) with 35 weeks pregnancy was admitted to the hospital with chief complaints of decreased foetal movement and vomiting. Patient was recently diagnosed as Pregnancy Induced Hypertension (PIH) and was taking tablet labetalol 100 mg/day since last two weeks. There was no history of high blood pressure and anti-hypertensive medication during previous pregnancies. On admission, patient was awake and oriented. There was no history of convulsions at home or at emergency room. Patient's temperature was normal (37.6°C). Her Blood Pressure (BP) was 160/94 mm of Hg, heart rate 100 beats/min and respiratory rate was 20/min. There was pitting oedema in bilateral lower limbs. Patient's laboratory investigations are shown in [Table/Fig-1].

Haemoglobin	10.9 mg/dL	Random blood sugar	151 mg/dL
Haematocrit	34%	Serum LDH	840 mg/dL
Platelet counts	70000/mm^3	Serum bilirubin	6.5 mg/dL
PT	16.3 sec	Direct bilirubin	3.5 mg/dL
APTT	38 sec	Indirect bilirubin	3.0 mg/dL
INR	1.16	Serum sodium	134 mEq/L
Urea	97 mg/dL	Serum potassium	4.1 mEq/L
Creatinine	2.6 mg/dL	SGOT	1324 IU/L
WBC	3800/mm^3	SGPT	346 IU/L

[Table/Fig-1]: Laboratory investigations of the patient.
PT-Prothrombin time; APTT-Activated partial thromboplastin time; INR-International normalised ratio; WBC-White blood cell; LDH-Lactate dehydrogense; SGOT-Serum glutamic oxaloacetic transaminase; SGPT-Serum glutamic pyruvic transaminase

On peripheral smear examination, there was anisocytosis, poikilocytosis, elliptocytosis and few tear drop cells. Urine albumin was present (++). Respiratory system and cardiovascular system examination was normal. Patient was immediately posted for emergency caesarean section under American Society of Anesthesiologists (ASA) III-E and written informed consent was taken.

Anaesthetic Management

Patient was shifted to operation theatre and routine monitor (Electrocardiography, Heart rate, non-invasive blood pressure and SpO_2) was attached. An 18 gauge intravascular cannula was taken and ringer lactate was started. Patient was premedicated with Inj. Glycopyrrolate (0.2 mg) IV, Inj. Ondansetron (4 mg) IV, Inj. Ranitidine (50 mg) IV. Under all aseptic and antiseptic precautions subarachnoid block was given in left lateral position in L3-4 intervertebral space using 25G quincke needle and 2.2 mL of 0.5% Hyperbaric Bupivacaine was given intrathecally. T6 level achieved. In three minutes after the beginning of surgery, a male neonate was delivered, and then resuscitation was initiated by the neonatal team. The neonate was immediately intubated with Apgar scores of 1 and 5 at 1 and 5 minutes, respectively. The patient was given 20 IU oxytocin intravenously followed by intramuscular 250 µg carboprost tromethamine. Patient was given 4 units of platelet concentrate intraoperatively and was managed successfully without any complications. During surgery, the patient was haemodynamically stable.

Postoperatively, patient was stable having heart rate 88/min, blood pressure 110/70 mmHg, respiratory rate 14/min. Platelet counts were increasing and last on discharge she was having platelet counts of 1,30,000/mm^3. Patient was followed-up for seven days and discharged on 7th day.

DISCUSSION

HELLP syndrome is a severe life-threatening variant of pre-eclampsia. Pre-eclampsia is a multisystem disease of unknown cause, characterised by hypertension and (BP >140/90) and proteinuria (>300 mg within 24 hours) after 20 weeks of pregnancy [1]. HELLP syndrome originates from abnormal placental development, production of factors that lead to endothelial injury, followed by activation, aggregation and consumption of platelets that can lead to hepatocyte ischemia [1].

Severe pre-eclampsia is characterised by blood pressure >160/110 mmHg at rest, severe proteinuria (>300 mg/day) and oliguria (<400 mL/day), blurring of vision, headache, epigastric pain, signs of pulmonary oedema and cyanosis [1]. Onset is atypical, variable, rapid and can be misdiagnosed with Hepatitis, Viral fever, Idiopathic Thrombocytopenia, Cholecystitis, Abruptio Placenta [2]. HELLP syndrome is associated with high incidence of stroke, heart disease, abruption placenta, premature labour, excessive blood

loss, acute renal failure, cerebral oedema, pulmonary oedema and infections. It may occur during the postpartum period, usually 24-48 hour after delivery of baby.

The main aim of management of patient with HELLP syndrome is to control rise in blood pressure, adequate supply of oxygen to mother and prevent uteroplacental insufficiency [3]. The anaesthetist should also be cautious regarding development of pulmonary oedema and coagulopathy [3]. Choice of anaesthesia in such patients depends on overall condition of the patient as general anaesthesia as well as regional anaesthesia both have effects on mother and baby.

General anaesthesia is associated with complications like difficult intubation, risk of aspiration, catecholamine release due to vasopressor response to tracheal intubation. Increase in catecholamine release may impair uteroplacental blood flow. Exaggerated cardiovascular response may lead to cerebral haemorrhage and oedema [3].

Wang J et al., have successfully managed emergency caesarean delivery in 28-year-old 35 weeks parturient with HELLP syndrome and renal insufficiency. They performed total intravenous general anaesthesia with rapid sequence induction. The lady required transfusion, diuresis, and anticoagulation therapy [3].

HELLP syndrome may lead to coagulopathy and Disseminated Intravascular Coagulation (DIC) which may worsen the outcome [4]. Regional anaesthesia avoids these complications associated with general anaesthesia. There by it increases maternal and foetal outcome. Regional anaesthesia blocks sympathetic outflow thus lowers the uteroplacental resistance and improves intervillous blood flow in PIH patients [5]. Regional anaesthesia decreases the foetal exposure of potential risk of drugs of general anaesthesia. Neurological status of such patients should be closely monitored [5].

HELLP syndrome constitutes an obstetric and anaesthetic emergency that requires expert knowledge and management skills [5,6]. Another common feature of HELLP syndrome is a severe, evolutionary coagulopathy before, during, and after childbirth or caesarean section, which requires a close, continuous clinical evaluation [7]. Concern regarding administration of regional anaesthesia is, associated low platelet count and coagulopathy which may lead to formation of haematoma. Most cases are usually indicated for caesarean section because of deteriorating maternal conditions.

In the index patient, the platelet count was 70000/mm,^{3} which is acceptable to give spinal anaesthesia. Also, there was no alteration in coagulation profile so it was decided to give regional anaesthesia. Intraoperatively, four platelet concentrates were given. Regional anaesthesia was also helpful as patient was having altered renal function test. The parturient was taken under regional anaesthesia (subarachnoid block) and successfully managed without any complication.

CONCLUSION(S)

The administration of spinal anaesthesia not only avoids maternal complications with general anaesthesia like vasopressor response to intubation, difficult intubation, aspiration, exposure of foetus to inhalational agents before delivery but also improves uteroplacental blood flow, postoperative analgesia and gives better neonatal outcome. This case report shows the successful management of a parturient with HELLP syndrome and altered renal function with regional anaesthesia.

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