Anaesthetic management of disseminated intravascular coagulation associated with abruptio placentae and intrauterine death

Sir,

Abruptio placenta can lead to rapid separation of the placenta and result in foetal demise.[1,2] Secondary to abruption, disseminated intravascular coagulation (DIC) can occur due to inappropriate activation of the coagulation and fibrinolytic system.[3,4]

We present a case of a 33-year-old gravida 3 para 2 and live 2 at 22 weeks of gestation with pregnancy-induced hypertension (PIH), who presented to the emergency room with bleeding per vaginum. She was conscious and oriented with a heart rate (HR) of 110 beats/min and a blood pressure (BP) of 100/60 mmHg. On examination, foetal heart sounds were absent. Ultrasound examination confirmed foetal demise. She was planned for emergency hysterotomy and evacuation. Point-of-care investigations revealed a haemoglobin level of 10.5 g/dL and a platelet count of 1 lakh/µL. Samples were sent for blood grouping, cross-matching, prothrombin time/international normalised ratio (PT/INR), activated partial thromboplastin time (APTT), fibrinogen and D-dimer. The patient was shifted to the operation theatre; standard preinduction monitors, an arterial line and two wide-bore 16G intravenous lines were secured. Her HR increased to 140 beats/min and her BP dropped to 90/40 mmHg. Rapid sequence induction was achieved with intravenous glycopyrrolate 0.2 mg, fentanyl 100 µg, ketamine 100 mg and succinylcholine 100 mg. The patient was intubated with a 7 mm cuffed endotracheal tube. Anaesthesia was maintained with isoflurane and atracurium. The uterus was evacuated and adequate contraction was achieved with oxytocin infusion, but oozing from the surgical site continued with no bleeding from other sites. The approximate blood loss was around 2.5L. Laboratory reports showed a PT/INR of 3.72, APTT of 52/32, D-dimer >20 and fibrinogen value less than 50 mg/dL. Thromboelastography (TEG) revealed delayed clot formation and poor strength [Figure 1a]. Three units each of packed red blood cells (PRBCs), fresh frozen plasma (FFP), random donor platelets and 5 units of cryoprecipitate were transfused. Calcium gluconate (20 mEq) correction was given based on arterial blood gas results. The abdominal wound was closed after placing a drain. The patient was extubated on the table. In the recovery area, her BP increased to 180/100 mmHg and she was started on labetalol infusion. TEG repeated in the postoperative period showed normal values [Figure 1b]. The haemogram on the first postoperative day showed 6.9 g/dL, platelet 70,000/µL, fibrinogen 200 mg/dL and PT/INR 1.37. One unit of PRBCs was transfused. Labetalol infusion was tapered. The postoperative period was uneventful, and the patient was discharged on the fourth day.

Premature placental separation is common in women with PIH, trauma, advanced maternal age and uterine anomalies. DIC is a consumption coagulopathy, and a high index of suspicion for deranged coagulation has to be kept in mind. It can be confirmed by platelet count, PT, APTT, fibrin degradation products (FDPs), D-dimer and TEG. FDP is a sensitive test, whereas the D-dimer is more specific for DIC.[5] Early detection and aggressive management with crystalloids, PRBCs, FFP, platelets, cryoprecipitate and prompt surgical intervention under general anaesthesia are vital to avoid multiorgan failure.[6]

The need for viscoelastic point-of-care testing and the availability of blood products for managing patients with DIC is of paramount importance. TEG helps in the early diagnosis and management of coagulopathy as PT/INR and APTT delay resuscitation. Appropriate blood
components as per the finding of TEG help to prevent fluid overload in preeclamptic parturients. Inline fluid warmers are used to avoid hypothermia. The haemolysis of the transfused red blood cells can cause hyperkalaemia, leading to arrhythmias and cardiac arrest. Hence, follow-up of the potassium and calcium values by arterial blood gas sampling is advisable. The response to therapy is monitored clinically and by repeated tests. If all measures fail, the administration of recombinant activated factor VII should be considered.

The rate of recurrence of abruption in the subsequent pregnancy is 5.8%, and hence, pre-conceptional guidance, early diagnosis and treatment are needed to prevent maternal morbidity and mortality. Nevertheless, once DIC develops, early recognition, specific treatment and repeated tests with aggressive correction of coagulation and electrolyte imbalance along with avoidance of hypothermia and metabolic acidosis help in preventing multiorgan failure and mortality.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

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