Falsely Reassuring ROTEMs in Eclampsia – a Case Report

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Background

Eclampsia is a severe, life-threatening complication of pregnancy-specific hypertension, characterised by sudden onset seizures in the absence of another cause.1 While preeclampsia, with typical hypertension and proteinuria, may proceed the seizures, it may also develop without warning signs. The precise mechanism of eclampsia is unknown but thought to be due to dysfunction of the blood brain barrier and cerebral blood flow autoregulation due to hypertension.1 Management revolves around magnesium sulfate administration, anti-hypertensive medications, foetal monitoring and urgent delivery.1 A known sequalae of eclampsia is abnormal coagulation, and potentially even Disseminated Intravascular Coagulopathy (DIC); thus, putting women at risk of either clots or bleeding.2 ROTEM is commonly used in the setting of massive obstetric haemorrhage to guide factor replacement, but its role in the eclamptic patient with heavy bleeding is unknown.2

Aim

The aim of this report is to describe the case of an eclamptic woman with massive hemoperitoneum secondary to DIC, following caesarean delivery, despite falsely reassuring ROTEMs.

Case

A 36yo Indigenous woman, G5P4, 36 and 4 weeks pregnant, was brought into a tertiary hospital by QAS, after a 1 minute witnessed tonic-clonic seizure. QAS found her unresponsive on her bed, with foam at the mouth and post-ictal confusion. She was hypertensive to 170/110, and thus magnesium sulfate was commenced on route to hospital. She had a history of gestational hypertension in her previous pregnancy, requiring iatrogenic preterm birth, and was a current smoker; but nil diagnosed hypertension in this pregnancy. On arrival to hospital, she was hemodynamically stable, GCS 14, and foetal wellbeing was reassuring. A vaginal examination demonstrated an unfavourable cervix, thus an emergency caesarean section was performed. The delivery was uncomplicated, with an estimated blood loss of 500ml and baby born in vigorous condition. 4 hours post-operatively, the patient was experiencing increasing pain and a distended abdomen and a 24 point drop in haemoglobin. Throughout the night, she became progressively tachycardic, borderline hypotensive, and with worsening anaemia, with bedside ultrasound confirming hemoperitoneum. An urgent re-look laparotomy removed 1.7L of blood/clots, with no obvious cause of bleeding identified; thus 2 PRBC's were transfused. ROTEMs taken pre-operatively and post-operatively were normal, with no further product replacement indicated. While she remained haemodynamically stable, she had watery bleeding from skin incision requiring pressure bandage application, and her haemoglobin progressively dropped again over the following 16 hours; with an urgent CT suggesting a 7x9x10cm intra-abdominal haematoma and possible arterial blush at the left internal iliac branch vessel. A second relook laparotomy found a 400ml clot in the vesicovaginal space but again, no definitive source of bleeding. ROTEM sent intra-operatively showed EXTEM CT of 48 (low), and 5 bags of apheresis cryoprecipitate were given, in addition to 6 further units of PRBC's: but otherwise, a normal ROTEM. Her INR, PT, APTT, and platelets remained in normal range, with fibrinogen mildly elevated at 4.8 (1.7 – 4.5). A further 200ml frank blood was drained via drain. She was managed with diuretics in the following days for fluid overload but otherwise made a full recovery and was discharged day 7 postpartum.

Discussion

This case highlights the potential pitfall of ROTEM-guided factor replacement in the setting of likely DIC in patients with eclampsia. Despite image and intra-operatively proven bleeding, the ROTEMs remained largely normal; proving the severity of clotting dysfunction does not always correlate with that of the hypertension or pathology results. At the time of publication, there are no studies evaluating the accuracy of ROTEM for eclamptic patients and thus clinical judgement of coagulation status and risk of bleeding should ultimately guide product replacement and management, to avoid post-operative sequalae described in this case. More research is required to establish validated ranges for ROTEM in pregnancy and eclamptic patients. Overall, clinicians should have a low clinical suspicion for coagulopathy in women with severe preeclampsia or eclampsia, regardless of ROTEM results.

1. Magley M, Hinson MR. Eclampsia. [Updated 2024 Oct 6]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK554392/
2. Perry KG Jr, Martin JN Jr. Abnormal hemostasis and coagulopathy in preeclampsia and eclampsia. Clin Obstet Gynecol. 1992 Jun;35(2):338-50. PMID: 1638825.