Obstetric Anaesthesia
Annual Scientific Meeting 2021 goes virtual
10-11 June 2021

Effect of ROTEM on management of abnormally invasive placentas in a tertiary referral centre

JC Crofton-Martin (ST7 Anaesthetics), MJ Woolnough (Consultant Obstetric Anaesthetist)
Sheffield Teaching Hospitals, Jessop Wing

Introduction

Use of near-patient coagulation testing such as ROTEM is a recommendation by GPAS for tertiary obstetric units.[1] ROTEM is used to guide replacement of coagulation factors in obstetric haemorrhage, in particular transfusion of fibrinogen concentrate, as fibrinogen levels fall much earlier in this patient group.[2] Our department is a tertiary referral centre for management and delivery of women with abnormally invasive placentas (AIP). In 2014 we introduced an enhanced recovery protocol for these cases, and then in 2019 we started routinely using ROTEM. This Service Evaluation compared the usage of blood and coagulation products before and after the introduction of ROTEM.

Methods

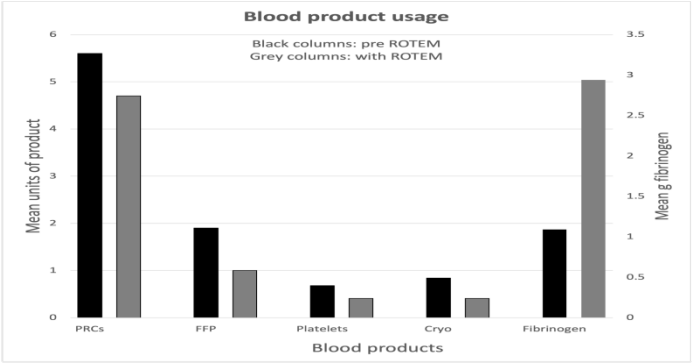
After audit department approval, all women with AIP managed in our department were consented to be included in a database. This database was retrospectively analysed, comparing the group before introduction of ROTEM (2010-2018), with use of ROTEM (2019-2020). We analysed: pre-op Hb, estimated blood loss (EBL), units of blood, platelets, FFP and cryoprecipitate transfused, dose of fibrinogen concentrate, volume of autologous transfusion and length of stay in critical care.

Exclusion criteria: Any patients who were found at surgery to not have AIP. One further patient was excluded as her extreme pathology and massive blood loss (over 45 litres) would have skewed the results.

Results

The pre ROTEM group (pR) contained 42 patients, of which 10 were excluded from the analysis due to insufficient data. The ROTEM group (R) contained 17 patients. We compared pre-op Hb, EBL and cell saver volume in the two groups and found them to be comparable; Hb 113g/l (pR) vs 111g/l (R), and 5.28l EBL (pR) vs 6.42l EBL (R). Volume of autologous transfusion via cell saver was similar in both groups; approximately 1.4l per patient. Mean length of stay in critical care fell from 4 days in the pre ROTEM group to 2.8 days in the ROTEM group. The analysis of blood and coagulation product usage found that use of fibrinogen concentrate increased from 1.09g to 2.94g per patient. Transfusion of all other products fell with use of ROTEM.





Discussion

Introduction of point of care testing has had a marked effect on transfusion of blood products to patients with AIP. Use of fibrinogen concentrate has almost tripled while FFP and cryoprecipitate use has halved. Fibrinogen concentrate has an improved safety profile compared with cryoprecipitate, and contains a known concentration of fibrinogen, whereas the fibrinogen content of cryoprecipitate can vary.[3] Reducing the number of units of red cells and FFP given also reduces the transfusion risk to patients. The higher EBL in the ROTEM group may be due to a change in our method of calculating blood loss in theatre to improve accuracy, which was introduced in September 2019.
Shorter length of stay in critical care (which includes our Advanced Obstetric Care Unit, capable of providing level 2 care) will encourage women to mobilise sooner, reducing risk of post operative thrombosis and respiratory infections, as well as providing a cost saving.

References

1. RCOA. Guidelines for the provision of anaesthesia services for an obstetric population. 2020. http://www.rcoa.ac.uk/gpas/chapter-9

2. Collins PW, Bell SF, de Lloyd L, Collis RE. Management of postpartum haemorrhage: from research into practice, a narrative review of the literature and the Cardiff experience. Int J Obstet Anaesth 2019; 37: 106-17

3. Gertler R, Gottlieb EA, Andropoulos, DB. Cardiopulmonary bypass and management. Chapter 19. In: Cote CJ, Lerman J, Anderson BJ, Ed. A practice of anesthesia for infants and children. 6th ed. Elsevier; 2019.