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Re-audit of the management of blood product administration for major obstetric haemorrhage

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Introduction

- Major obstetric haemorrhage (MOH) is a leading cause of maternal morbidity and mortality[1]
- Local hospital policy for MOH recommends either:
  - 1:1 transfusion of RBC:FFP or
  - Transfusion as directed by thromboelastography (TEG)
- We audited our use of blood products over a 5-month period in 2016 and 2018
  - Results showed that TEG use in guiding transfusion increased from 0% in 2016[2] to 20% in 2018[3]
- Improvement in protocol adherence led to purchase of two TEG6 machines
- We re-audited MOH cases in 2019-2020 and results were compared

Methods

- We conducted a retrospective case note review of 29 MOH cases over a 5-month period in 2019-2020
- A standardised proforma was used for analysing patient demographics, timing of events, causative factors, primary and secondary management and blood product administration

Results

- Patient demographics and mode of delivery were similar in all three audits (Table 1)
- Mean blood loss was lower when compared to previous audits (Table 1)
- Decrease in out-of-hours MOH cases over the 5-year period (88% in 2016 vs 69% in 2018 vs 55% in 2020)
- Tranexamic acid was administered in 100% of cases as compared to 81% in 2016 and 92% in 2018
- Use of TEG increased from 0% in 2016 and 20% in 2018 to 66% in 2020. This resulted in:
  - Decrease in FFP administration from 81% in 2016 to 45% in 2020
  - Reduced use of cryoprecipitate or platelets from 22% in 2016 to 0% in 2020

Table 1: Comparison of patient demographics across 3 audit periods

	2016	2018	2020
Age (mean)	32	35	33
Gestation (mean)	38/40	39/40	39/40
Nulliparous (n)	11	12	15
Multiparous (n)	16	14	14
Total blood loss (mean)	2967 mL	3011 mL	2367 mL

Discussion

- TEG6 is a simple, fully automated point of care (POC) testing system allowing rapid assessment and interpretation of coagulation and helps to streamline transfusion of blood products
- Availability of new easy-to-use TEG6 machines has led to:
  - Improved adherence to our hospital's protocol for transfusion of blood products in MOH
  - Overall reduction in use of coagulation products
- Tranexamic acid use, early involvement of a senior obstetrician & anaesthetist and decrease in out-of-hours MOH cases resulted in overall reduction in mean blood loss
- Scope for further improvement by training staff to use POC testing and raising awareness of the haemostasis protocol to improve blood product usage is highlighted in this re-audit

References

1. MBRRACE-UK. Saving Lives, Improving Mothers' Care-Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2015–17. Oxford: The National Perinatal Epidemiology Unit, University of Oxford 2020

2. Niewiarowski J, Russell R. Management of blood product administration for major obstetric haemorrhage. OAA Obstetric Anaesthesia 2017. https://www.epostersonline.com/oaa2017/node/690?view=true

3. Niewiarowski J, Smith A, Russell R. Improving the management of blood product administration for major obstetric haemorrhage. Int J Obstet Anesth 2019; 39/S1: S50