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

Evaluation of major obstetric haemorrhage management in a tertiary unit

T Keown, CTE Groves, E Smith, F Choksey, S Quasim
Anaesthesia, University Hospitals Coventry and Warwickshire, Coventry, UK

Introduction

Major obstetric haemorrhage (MOH) is a leading cause of maternal morbidity and mortality. Optimal blood component transfusion is essential to prevent coagulopathy and complements pharmacological and surgical treatment. We reviewed the management of MOH in our unit.

The audit was registered with local quality improvement department. All MOH (>1500 ml) between August 1st 2019 – July 31st 2020 were reviewed against blood bank data. Eighteen women received FFP. A sample of 18 women who had received packed red cells but no FFP, with similar volume haemorrhage, was used as a comparison group. Retrospective data collected included estimated blood loss (EBL), mode of delivery, cause(s) of MOH, products transfused, pharmacological adjuncts, tests of coagulation (both point-of-care and laboratory) and length of stay on enhanced/critical care. Microsoft Excel® was used for analysis.

Results

The MOH (>1500 ml) rate was 1.9% (107 cases from 5532 deliveries). The two groups were comparable in terms of mode of delivery and cause of PPH (Table 1).

FFP was transfused in 18/107 (17%) cases. All women receiving cryoprecipitate (3/107) were in the FFP group. Tranexamic acid was given in 83% of the no-FFP group and 89% in the FFP group.

Table 1

	FFP (n=18)	No-FFP (n=18)
Mode of delivery		
Unassisted vaginal	8	9
Instrumental	4	4
Non-elective CS	5	5
Elective CS	1	0
Cause of PPH		
Atony	3	2
Trauma	4	6
Abruption	1	1
Retained placenta	3	3
Other/unclear	7	6

One woman had deranged peri–haemorrhage coagulation tests, despite early FFP administration. No women had abnormal platelet counts (if measured) during haemorrhage, but four women had platelet count <80×10^9 /L immediately after haemorrhage, without any evidence of ongoing bleeding. TEG® was performed in two cases. Oxytocics were administered to all cases as per local guidelines. Hypocalcaemia was noted in some cases during the acute phase of haemorrhage management.

Mean blood loss in the FFP group (3372ml) was significantly greater than the no-FFP group (2191ml) (p=0.04, Mann-Whitney U test) (Table 2).

Median length of stay in enhanced or critical care unit was longer in the FFP group (23 h) than the no-FFP group (17 h). Haemoglobin, clotting and fibrinogen were measured more frequently in FFP group.

Table 2

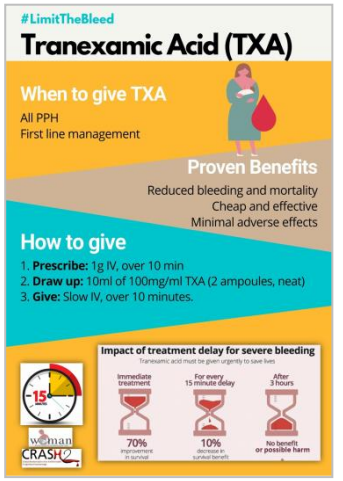
	FFP (n=18)	No-FFP (n=18)
Median LOS in enhanced care (h)	23	17
Average estimated blood loss (ml)	3372*	2191
Hb measured during MOH (%)	16 (89%)	12 (67%)
Clotting measured during MOH (%)	7 (39%)	4 (22%)
Fib measured (%)	17 (94%)	12 (67%)
	** P<0.05, Mann Whitney U Test*	

Discussion

Longer median length of stay and more frequent measurement of Hb, clotting and fibrinogen in the FFP group might reflect the significantly higher volume haemorrhage in this group, with greater morbidity. Overall, transfusion was either in a fixed ratio (2RBC:1FFP) or empirically based on EBL and clinical judgement. FFP was frequently administered, often being transfused early on in the course of the MOH, despite absence of demonstrable coagulopathy. Significant delays were noted in some cases; reasons for this could not be assessed retrospectively, but one factor could be underestimation of EBL, particularly in the labour room.

Recommendations:

- Promote active quantification of EBL in all deliveries.
- Promote earlier tranexamic acid administration, especially when haemorrhage starts outside the theatre setting.
- Change MOH pack 1 from 4 RBC:2 FFP to 4 RBC only.
- Evaluate point-of-care tests to guide transfusion.





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: National Perinatal Epidemiology Unit, University of Oxford 2019.
2. PW Collins, R Cannings-John, D Bruynseels et al. Viscoelastometric-guided early fibrinogen concentrate replacement during postpartum haemorrhage: OBS2, a double-blind randomized controlled trial, BJA: British Journal of Anaesthesia, Volume 119, Issue 3, September 2017, Pages 411–421. Accessed 5th February 2021