Audit of the use of ROTEM in Major Obstetric Haemorrhage in The National Maternity Hospital

The National Maternity Hospital
Vita Gloriosa Vita ~ Life Glorious Life

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BACKGROUND

Major Obstetric haemorrhage (MOH) is a leading cause of maternal death and morbidity.[1] Blood loss during MOH can increase rapidly while awaiting laboratory results. Management can be by ROTEM guided algorithm or by the administration of shock packs at the onset of MOH.[2] Studies demonstrate that ROTEM based management of MOH has resulted in significant reduction of massive transfusions and more tailored administration of blood products.[3]

AIMS

Examine the parameters that may influence the use of ROTEM during MOH over 1.5L.

METHODS

A retrospective review of MOH with estimated blood loss (EBL) of > 1.5L from 2019-2021. Information collected included EBL, cause of MOH, out of hours, presence of consultant anaesthesiologist.

RESULTS

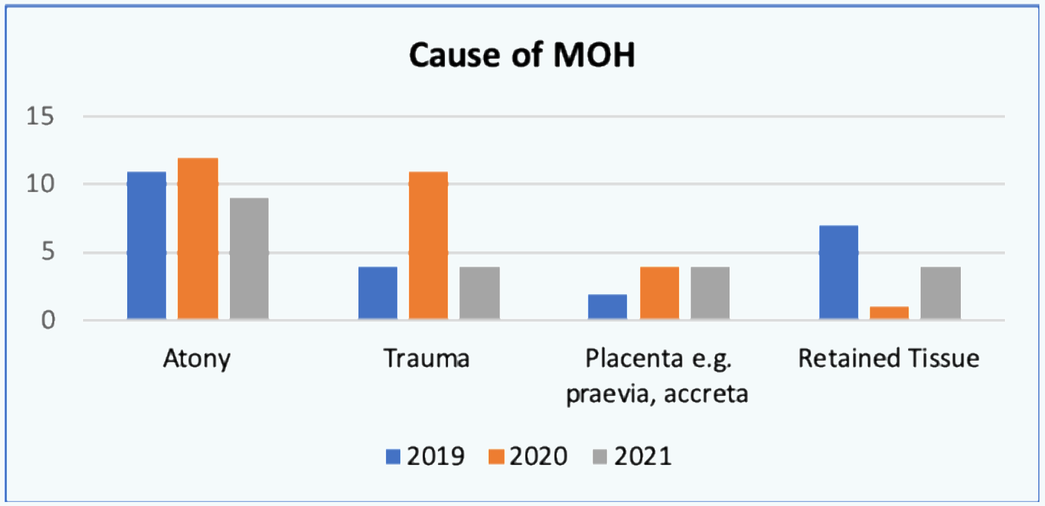
% ROTEM Use in MOH

	TOTAL MOH	MOH +ROTEM	%
2019	108	24	22%
2020	112	28	25%
2021	129	23	18%

Breakdown of ROTEM use by EBL

EBL	1.5-2L	2.1-2.5L	2.6-3L	>3.1L
2019	13.9%	20%	50%	100%
2020	15.3%	29.4%	50%	100%
2021	3.44%	32%	60%	75%

RESULTS



When consultant present &/or informed ROTEM was use

2019	2020	2021
30%	29%	24%

Out of hours use

2019	2020	2021
67%	57%	57%

Conclusion

- ROTEM was used in approximately 20-25% of the total MOH cases each year.
- Atony was found to be the leading cause of MOH.
- Over 50% of the cases where ROTEM was used occurred out of hours.
- In 2019 & 2020 there was a higher % use of ROTEM in lower volume EBL cases compared to 2021.
- This may reflect part of the ”settling in” period to gain practice and experience with its use.
- In 2021 there was a move towards more selective use of ROTEM, where EBL >2L.
- When a consultant anaesthesiologist was present &/or informed ROTEM was used 25-30% of the time.
- This shows that consultant practice varied. Some preferring the ROTEM guided algorithm approach with others preferring administration of MOH shock packs.
- Other reasons why ROTEM was not used related to machine malfunction and the clinical picture where ROTEM was deemed not necessary.

Familiarity and experience with ROTEM seems to be the greatest influencing parameter for its use in MOH with a coinciding shift to the use of ROTEM in higher EBL cases. A future audit will be conducted to evaluate the potential role of ROTEM in reducing blood product transfusion requirement.

References:

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2. McNamara, H., Kenyon, C., Smith, R., Mallaiah, S. and Barclay, P. (2019), Four years' experience of a ROTEM®-guided algorithm for treatment of coagulopathy in obstetric haemorrhage. Anaesthesia, 74: 984-991.
3. Ondondo B. O. Management of Major Obstetric Haemorrhage Using ROTEM Point-of-Care Haemostasis Analysers Can Reduce Blood Product Usage Without Increasing Fibrinogen Replacement Therapy. Biomed Pharmacol J 2018;11(3)