

49th Annual Conference of ISBTI
TRANSCON 2024
Educate, Excel, Elevate, Empower
21st - 23rd November, 2024
Ahmedabad



MANAGEMENT OF MASSIVE TRANSFUSION IN POST PARTUM HEMORRHAGE- Formula based approach vs Goal Based Massive Transfusion

e POSTER ID- eP051

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INTRODUCTION:

Obstetric Haemorrhage is the major cause of Maternal mortality and morbidity. With blood component therapy as an important indicator of Obstetric morbidity, there is a need to initiate **Quality improvement** by reviewing cases of Postpartum Haemorrhage (PPH) with its management. **Massive Transfusion** have been advocated as an essential tool in managing PPH. The most accepted and tested strategy is the **Formula based approach**. But due to the overexposure to blood components; **Point of care testing-TEG/ROTEM** is now being employed widely.

AIMS and OBJECTIVES:

To analyse two cases of Postpartum Haemorrhage: one managed by Formula based approach and other by Goal based Massive Transfusion.

METHODOLOGY:

Below are two cases of Atonic PPH- one managed by Formula-based-approach and other using ROTEM and is meant to compare and identify the advantages and limitations of each.

CASE 1

24 Year old female G3 P2 L1 NND1

Atonic PPH (following vaginal delivery)

VITALS:

Pulse:120/min
BP-90/50mmHg

Laboratory Parameters:

Hb:6g% Platelet count:1.1 Lakhs
PT/INR: 40.3/3.39
Fibrinogen: 80 mg%

MTP-activated.

Total **of 8 units PRCs, 8 Units FFP, 6 units Platelet concentrate, 10 units Cryoprecipitate** transfused

Patient-Hemodynamically Stable.

Laboratory parameters---within normal limits

CASE 2:

29 year old Female weighing 70kg G3 P1 L1 A1

Atonic PPH

VITALS:

Pulse:110/min
BP-90/60mmHg

Laboratory Parameters:

Hb :9g% Platelet count: 2.1Lakhs
PT/INR: 31.3/2.39 aPTT: 47.4s
Fibrinogen:80 mg%

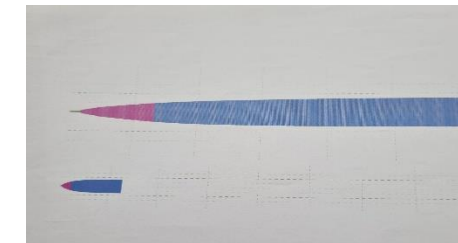
4 units PRC, 2units FFP were transfused.

Bleeding-still persisting. **ROTEM done.**

ROTEM FINDINGS

EXTEM

CT-215s (38-79)
CFT-849s (34-159)
A5-10 (34-55)
A10-17 (43-65)
A15-21 (48-69)
α-angle 23 (48-69)
MCF-20 (50-72)



FIBTEM

CT-59s (38-62)
A5-5mm
A10-5mm (7-23)
MCF-5 (9-25)



According to evidence based **ROTEM A5-PPH Algorithm (2019)**, **10 units Cryoprecipitate, 5 units FFP** -Transfused.

Patient stable. No further bleeding episodes. Laboratory values within normal limits.

RESULTS and DISCUSSION:

Formula based approach have been advocated as an essential tool for facilitating early transfusion of sufficient volume and types of blood products for patients with massive obstetric haemorrhage. Its implementation shown **to improve the timeliness of transfusion and cost-effective.**

In the present scenario, *the number of blood components transfused is much higher*. Transfusing around 8 units of PRCs *without knowing the active physiological status* of the patient is controversial. It can lead to **unwanted exposure** to blood components, increased risk of acute respiratory distress syndrome, sepsis and multiple organ dysfunction and **wastage of Blood Products**.

According to **Goal Based Massive Transfusion**, instead of "**One size fit all**" rule, Management is according to **physiological status of patient**. There is individualised patient care and hence better patient management. Here number of blood components transfused is less. Early achievement of haemostasis-> **early Fibrinogen replacement**.

There is **no standard guidelines** and it varies from patient to patient and is different in each case scenario. Hence is **difficult to validate and standardise**.

There is inter user variability and difficult quality assurance.

CONCLUSION:

Further studies should be conducted to assess whether, Formula Based Approach or Goal based Massive Transfusion therapy, is better in improving Maternal Outcome in PPH and *to comment on the superiority of one over the other*.