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6.0 Clinical transfusion

6.3 Evidence based transfusion medicine practice

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Intention to comply does not equal compliance

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Background: Patient blood management (PBM) can decrease transfusion rates, mortality and major complications. PBM on Randwick campus incorporates the ROTEM algorithms, as well as a cardiothoracic protamine and tranexamic acid (TXA) guideline.

Aims: ROTEM algorithms have been in place on the Randwick Campus since 2016 and have been previously shown to reduce unncessary blood product use as well as streamline the management of major bleeding, leading to less wastage.

There has been a high level of acceptance of these guidelines by anaesthetists, surgeons and perfusionists as well as by blood bank .This is the first broader evaluation of compliance with these algorithms and guidelines

Methods: A voluntary QR code linked REDCap questionnaire was used to capture the transfusion decision following a ROTEM test during a critical bleed. It was implemented across the Randwick Campus, which includes the Prince of Wales Hospital, Royal Hospital for Women, Sydney Children's Hospital, and Prince of Wales Private Hospital. Data collection occurred from September 2023 to August 2024. The questions focused on the blood products administered and whether the clinician agreed that they had followed the ROTEM algorithms and the protamine and TXA guidelines.

The ROTEM results were used to calculate recommended cryoprecipitate doses based on FIBTEM and patient weight. These were compared to actual doses given, considering compliance as ±50% of the recommendation. We also analysed the cryoprecipitate dose ratio between administered and recommended. Platelet transfusion was evaluated against platelet count and EXTEM A5

Results: There were 59 data entry points for our audit. Cardiothoracic compromised 70% of the data, 20% were in intensive care, and 10% general theatre and obstetrics.

Regarding ROTEM algorithm cryoprecipitate dosages, overall only 42/59 (71%) participants were compliant, and while most participants 49/59 (83%) agreed that they were compliant to our ROTEM algorithm, only 39 (80%) actually were. Non compliance varied from overdose to omission of cryoprecipitate

There was only one patient meeting platelet count criterion, and no cases meeting ROTEM EXTEM platelet transfusion criterion, but 27/59 (46%) patients received platelets. For protamine in cardiac patients, 35/41 (85%) cases were compliant, and for TXA, 38/41 (93%) cases.

Summary / Conclusions: The voluntary nature of this survey might have skewed the results to show better compliance, as participants may be more likely to follow the guidelines.

Deviation from guidelines in cryoprecipitate administration varied from overdosing to non administration despite FIBTEM criterion. The latter cases reported bleeding cessation prior to product administration and may represent a ROTEM performed in anticipation of bleeding before separation from cardiopulmonary bypass. These patients could be excluded from future analyses.

The potential overtransfusion of platelets is of concern. Contemporary ROTEM testing cannot detect platelet function disorders, so clinicians often use intuition

and experience to decide on platelet transfusions.

Our audit has identified two critical areas in blood transfusion practices on our campus:

Firstly, there was there was overestination by of clinicians of their compliance , presenting an opportunity to enhance compliance with additional education on the ROTEM algorithm

and secondly increased use of Multiplate technology may lead to more rational platelet transfusion decisions .