

Crossmatch Transfusion Ratio in Maternity

Dr L Rainey, ST2 O&G SHSCT; Dr K Loane, Consultant O&G SHSCT; Dr M Bridgham Consultant

Haematologist SHSCT

Background

Crossmatch Transfusion (CT) ratio refers to the number of units of blood cross matched for a patient divided by the number of units transfused. **A CT ration under 2.5 is considered to be effective blood use.**

There had been a general observation from trust laboratory staff that the CT ratio has been relatively high in the Maternity Unit. A small retrospective audit was undertaken to investigate further.

Aims

1. To discover the indications for cross match requests in Maternity.
2. To evaluate whether they appear to be well founded requests both obstetrically and haematologically.
3. To establish if any learning or changes in practice are required.

Methods

To obtain all cross match requests and transfusion records for one month (April 2021) for maternity patients on both DHH and CAH sites and to assess each request form against the standard. We collected information on recorded reason for request as well as time and date of request, staff making the request and location request being made from. We used NIECR, induction/CS diary or patient records to get further information if required.

Results

There was a total of 19 requests for crossmatch during April 2021 across both sites, 13 in CAH and 6 in DHH.(Table 1) 68% of requests were sent from CAH site and 32% from DHH site.

Indication for cross match request	Number of cases	Number of cases receiving transfusion
Post Partum Haemorrhage	7	4
Anaemia pre elective Caesarean section	5	1
Placenta praevia/accreta	2	0
Symptomatic anaemia post delivery	2	0
Emergency Caesarean section	1	0
Anaemia prior to normal vaginal delivery	1	0
Miscellaneous	1	0

Table 1. Indications for crossmatch and number of these women receiving transfusion.

Results

94.7% requests stated a reason for the crossmatch request. The most frequent indication was for Post Partum Haemorrhage (36%). In this group, 57% of PPH did receive transfusion. The next most frequent request came from planned caesarean section cases who were anaemic pre operatively (26%). Hb was 105 or less in all cases so all were deemed reasonable requests. However, only 20% of these women received transfusion. Two women who had crossmatch requested postnatally for symptomatic anaemia did not receive transfusion.

Overall 50 units were requested and only 9 transfused (18%) . The CT ratio was **5.5** during the time period of this audit (ratio of < 2.5 considered to indicate efficient blood usage. (Table 2)

Request form details	Results
Day of the week of the request	89% Monday to Friday 11% Saturday 0% Sunday
Time of day of the request	37% 08:00-17:00 26% 17:00-08:00 37% no time stated
Location where the request has been made	31.58% from Daisy Hill 68.42% from Craigavon Area hospital 79% delivery suite 21% had no location stated
Level of staff signing the request form	53% staff midwives 5% midwifery sister 26% obstetric doctors 11% anaesthetics 5% not noted as phonecall request
How many units were requested	50 units
How many units were transfused	9 units

Table 2. Details of crossmatch requests

Conclusion

Although CT ratio is high (5.5), all clinical indications were deemed appropriate. The rapidly changing clinical circumstances in obstetric haemorrhage should be taken into consideration when judging CT ratio in maternity against a standard throughout the hospital. We should not discourage cross match requests from staff who are attending an emergencies as the rapidly changing situation may result in blood not being available when required. The best way to reduce CT ratio is to optimise haemoglobin prior to delivery.

Recommendations

- Optimising antenatal haemoglobin levels to reduce crossmatch requests for low preoperative haemoglobin – Antenatal Anaemia risk assessment.
- An agreed pre-operative haemoglobin to trigger crossmatch request.
- Anaemic postnatal patients should be given written information prior to requesting cross match.
- Introduction of the blue box, where blood can be available at the patients bedside and not wasted if it is not used is a welcome development for high risk elective cases.