High Titre Anti-A/B Testing of the Group O Platelet Donors

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Presentation Overview

• Importance of High Titre Anti-A/B testing

• Current testing method used in the Blood Service Red Cell Serology (RCS) laboratories

• Frequency of High Titre Anti-A/B testing in WA
Importance of High Titre Anti-A/B testing

• Performed to determine which group O apheresis single donor platelet (SPD) units may be most suitable to transfuse to group A or B patients

• Clinically significant acute haemolysis is rare but potentially severe complication of ABO mismatched platelet transfusion
  ▪ SDP most commonly implicated in these reactions
  ▪ High titre of Anti-A found in plasma of group O donors & large plasma volume of SDP
  ▪ Passive transfer of Anti-A and Anti-B binds to antigens on recipient’s cells and triggers haemolysis
Importance of High Titre Anti-A/B testing

• Risk of causing haemolysis increases when:
  ▪ Large cumulative volume of incompatible plasma is transfused over time
  ▪ High titre anti-A and anti-B or both are present in plasma
  ▪ Recipient is a small child or infant and have small blood volume

• First-line of prevention is transfusion of ABO identical platelets
  ▪ Inventories are not robust enough to allow for this practice for all patients

• Blood service endeavours to provide ABO identical components
  ▪ Occasions when non-identical components can be supplied
    – E.g. HLA matched apheresis platelets
High Titre Anti-A/B testing in the Blood service

• No ideal test to identify the risk of group O components

• In January 2009 a nationally standardised High titre anti-A/B testing method introduced in all Blood Service Red Cell Serology laboratories
  - Plasma dilution:
    - 1 in 50 for saline (IgM) and 1 in 250 for IAT (IgG)
  - Values considered to be critical are titres of:
    - >1:64 to 1:100 for IgM and >1:256 to 1:400 for IgG (Van Sanguinis 2005)
High Titre Anti-A/B testing in the Blood Service

• Passively transfused IgM anti-A and anti-B are:
  ▪ Readily neutralised by recipient’s circulating A and B substances
  ▪ Not the most dangerous Immunoglobulin class

• Passively transfused IgG anti-A and anti-B are:
  ▪ Not as readily neutralised
  ▪ Impose a great risk of causing ABO haemolytic reaction
Frequency of High Titre Anti-A/B testing in WA

- Done routinely on all group O apheresis single donor platelets
- Approximately 30% have high levels of anti-A and anti-B
- Only issued for group O patients
Product Labelling

PLATELETS 2of2
Apheresis Leucocyte Depleted

Rh D POSITIVE

Platelet count: >200 x10^9 per pack
Store at +20C to +24C
Volume: 178 ml
Low Anti-A/B
Irradiated

Rh D POSITIVE

A2 A30 B13 B44 C5 C6 HPA-1ab HPA-3aa
HPA-5aa HPA-15ab

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Questions?
References

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