Scottish National Blood Transfusion Service
Policy Record
Ref: NATP CLIN 009 02
Cat: Clinical

Title:

SNBTS POLICY FOR THE ISSUE OF RhD POSITIVE BLOOD COMPONENTS TO RhD NEGATIVE INDIVIDUALS

Statement:

The purpose of this policy is to provide guidance on the process required to supply appropriate blood component support to patients.

Full details of the recommendations for issuing RhD positive blood components to RhD negative patients are given overleaf.

Note: This policy is only implemented when required to do so. Normally, RhD negative components will be given to RhD negative individuals.

Key changes from previous revision

Section 1.5 re-ordered and rephrased to permit transfusion of O negative red cells to non-O patients to prevent time expiry as part of good stock management

Section 2.1.3 and 2.2 recommend considering changing to RhD positive red cells after 6 units of red cells (instead of 8 units) in RhD negative adult men and women over 50 years old

Policy Agreement	CGSC: 04.09.2018	BBWG 19.7.2018 PSOG 2.8.2018
Supersedes Policy Ref:	NATP CLIN 009 01	
Date Of Implementation:	1st November 2018	

INTRODUCTION

1.1. It is the general policy of SNBTS clinical laboratories to provide RhD negative cellular blood components to RhD negative recipients.

1.2. The RhD antigen is highly immunogenic. Whilst as many as 90% of RhD negative individuals have been reported to form anti-D after transfusion of one unit of RhD positive red cells this is from a study of *deliberate* sensitisation in healthy individuals. In clinical situations sensitisation rates may be considerably lower.

1.3. Alloimmunisation may put a RhD negative female of childbearing potential at risk of haemolytic disease of the fetus and newborn (HDFN) due to anti-D in subsequent pregnancies. It is a priority to protect this group from alloimmunisation.

1.4. Alloimmunisation also may cause delay to subsequent red cell transfusion

1.5. The requirement to give RhD negative red cells to RhD negative recipients must be balanced with the need to conserve this scarce resource. This is to be achieved by:

- Ensuring that there are appropriate stock control measures that deliver equity of care
- Targeting the use of RhD negative units to where they are most needed.
- Avoiding wastage from time expiry and minimising wastage from cold-chain deviation
- Issuing RhD negative red cell components **which are close to expiry** to RhD positive patients in order to preserve stocks of fresh RhD negative and RhD positive components

1.6. This policy details the clinical circumstances where the transfusion of RhD negative blood components are required and where it is acceptable to transfuse RhD positive red cells and other RhD positive blood components to RhD negative or RhD unknown recipients.

1.7. This policy indicates when anti-D immunoglobulin (Ig) should be used if a RhD negative female is knowingly or inadvertently transfused with RhD positive blood components.

2. INDICATIONS

2.1 The indications for use of RhD negative red cells are split into 3 groups: mandatory, recommended and acceptable:

2.1.1 Mandatory Indications

- RhD negative patients with immune anti-D
- RhD negative females with child-bearing potential (aged 50 or under)
    - K- negative red cells should also be selected for this patient group
- Emergency use for females with child-bearing potential (aged 50 or under) where the blood group is unknown (ref NATP CLIN 09 008).

2.1.2 Recommended Indications

- RhD negative patients who will receive repeated transfusions, or are likely to become transfusion-dependent, for example patients with haemoglobinopathies, myelodysplasia, aplastic anaemia or oesophageal varices.
- RhD negative male patients <18 years

2.1.3 Acceptable Indications

- RhD negative males or females aged over 50 years old, with no anti-D, where less than or equal to 6 units of RhD negative red cells are transfused.
- In an emergency situation, O RhD negative red cells should be given while the patient's blood group is being established. Blood grouping should be carried out as quickly as possible to minimise the empirical use of O RhD negative red cells, and this should be limited where ever possible to **no more than two units** in most instances. Once the patient's blood group has been determined, a switch to group specific red cells should be made (NATP CLIN 09 008).
- Patients who require further investigation to confirm their RhD status (e.g. suspected RhD variants) should receive RhD negative components until investigations are complete.
- To provide appropriate phenotype group O units
    - Pedipack red cells to infants up to 1 year old
    - Concentrated red cells where non-O phenotyped units are not available.

2.2 SELECTION OF RED CELLS IN MASSIVE TRANSFUSION

In order to conserve RhD negative blood stock, ABO compatible RhD positive red cells should be used in large volume blood replacement (i.e 6 units of red cells) and male patients in whom no anti-D is detectable and in females with no childbearing potential.

2.3 SELECTION OF RED CELLS DURING BLOOD SHORTAGE

When RhD negative red cells are in extremely short supply or unavailable, it is acceptable to use ABO compatible RhD positive red cells for males and RhD negative female patients with no child-bearing potential (aged over 50 years),

provided the patient does not have a history of anti-D alloimmunisation, and no anti-D is detected on pre-transfusion testing.

2.4 ANTI-D ALLOIMMUNISATION

If RhD positive red cells are given to a female of childbearing potential, the clinicians responsible for the care of the patient should consider giving anti-D Ig (and exchange transfusion where appropriate) in order to reduce the risk of RhD alloimmunisation. The current protocol is outlined in 2014 BSH guidelines for the use of prophylactic anti-D immunoglobulin.

3. PLATELET TRANSFUSION

3.1 Anti-D prophylaxis must be considered when an RhD negative female with child bearing potential receives RhD positive platelets. BSH guidelines for the use of prophylactic anti-D[1] recommend that a dose of 500 IU will cover the transfusion of five RhD positive adult therapeutic doses over a six week period. In patients with a platelet count below 30 x 10^9/L, anti-D Ig should be given subcutaneously to avoid haematoma formation.

3.2 It is not necessary to give anti-D Ig to RhD negative men or women without childbearing potential who receive RhD positive platelets.

3.3 The detection of immune anti-D by IAT on the alloantibody screen is not a contraindication to issuing RhD positive platelet concentrates. The titre of anti-D may be boosted.

4. FFP, CRYOPRECIPITATE AND OTHER PLASMA COMPONENTS

4.1 FFP (standard, MB treated and Octaplas) and cryoprecipitate (standard or MB treated) is selected without regard for the RhD type of the donation or the RhD type of the recipient.

5. REFERENCES

1. BSH guideline for the use of anti-D immunoglobulin for the prevention of haemolytic disease of the fetus and newborn. Qureshi, H., Massey, E., Kirwan, D., Davies, T., Robson, S., White, J., Jones, J. and Allard, S. (2014), Transfusion Med, 24: 8–20.