Scottish National Blood Transfusion Service
Policy Record
Ref: NATP CLIN 10 003 04
Cat: Clinical

Title:

SNBTS POLICY FOR PLATELET SELECTION

Statement:

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

Full details of the recommendations for selection of suitable platelets for different categories of patient are given overleaf.

Policy Agreement:	CGSC: 14th January 2014 Board: N/A
Supersedes Policy Ref:	NATP CLIN 10 003 03
Date for Implementation of policy	24th February 2014

1. ABO COMPATIBILITY

The following is an extract from the recommendations made in the current BCSH Guidelines for the use of platelet transfusions (BJH 2003, 122, 10-23)

Platelet concentrates from donors of the identical ABO group as the patient are the components of choice and should be used ***as far as possible*** *(grade B recommendation, level III evidence).*

ABO non-identical platelet transfusions have been associated with poorer platelet count increments in some studies, but this is not usually clinically significant in terms of haemostatic effectiveness of the platelet transfusion. Administration of ABO non-identical platelets is acceptable transfusion practice (grade C recommendation, level IV evidence), in particular, when platelet concentrates are in short supply, or when HLA-matched platelets are required and the best match is not ABO compatible. The policy of using ABO non-identical platelet concentrates on some occasions may result in less wastage than a policy of exclusive use of ABO compatible platelets, and hospital blood banks may need to do this to manage their stocks of platelet concentrates most efficiently.

Group O platelets should only be used for group A, B and AB patients if they have been tested and labelled as negative for high-titre anti-A and anti-B (grade B recommendation, level III evidence). It should be noted that there is no generally agreed discriminatory test for high titre anti-A and anti-B, and there are no precise guidelines for laboratory testing. Hospital blood banks and clinical users of platelet concentrates should be aware of possible haemolysis due to the transfusion of group O platelet concentrates to patients of other ABO groups.

The transfusion of ABO non-identical platelet concentrates should be considered as a cause of unexplained platelet refractoriness (grade B recommendation, level III evidence).

2. ABO SELECTION OF PLATELETS

Table 1 summarises the SNBTS approach to selecting platelets based on the ABO group of both the recipient and the donation.

TABLE 1

SUMMARY OF ABO SELECTION

Patient's ABO Group	ABO Group of Platelets to be Transfused
O First Choice Second Choice Third Choice	 O A B
A First Choice Second Choice Third Choice	 A B O(low titre anti-A and anti-B)†
B First Choice Second Choice Third Choice	 B A O(low titre anti-A and anti-B)†
AB First Choice Second Choice Third Choice	 AB* A or B O(low titre anti-A and anti-B)†
Unknown First Choice Second Choice Third Choice	 A B O(low titre anti-A and anti-B)†

AB* - Group AB platelets are unlikely to be available

O† - In non-O patients, group O components which test negative for high titre anti-A and anti-B should be selected only as a last resort, i.e. when the clinical urgency results in there being insufficient time to source a platelet component with a more appropriate ABO group.

NB In section 12.11.2 of the Guidelines for the Blood transfusion Services in the United Kingdom 8th Edition 2013 it states:

"Components from group O donors with 'low titres' of anti-A, anti-B and/or anti-A,B can cause intravascular haemolysis in non-group O recipients if given in sufficiently large volumes."

It is important to recognise that, although testing for high-titre ABO antibodies in blood donors may reduce the risk of HTR in 'out of group transfusion', the risk of HTR is not entirely eliminated through this route. Group O platelets can cause HTR even when tested and labelled negative for high-titre haemolysins. They should only be used for non-group O patients (particularly paediatric patients) as a last resort."

Note: Ideally, ABO identical apheresis platelets should be given. However, if these are not available, ABO identical pooled platelets should be given in preference to ABO non-identical apheresis platelets which are listed as second or third choice in Table 1 above.

3. Rh(D) COMPATIBILITY

The current BCSH Guidelines for the use of platelet transfusions also state that Rh(D) negative platelet concentrates should be given, where possible, to Rh(D) negative patients, particularly to women who have not reached the menopause (grade B recommendation, level III evidence).

If Rh(D) positive platelets are transfused to a Rh(D) negative women of childbearing potential, it is recommended that anti-D should be given (grade B recommendation, level III evidence). A dose of 250 i.u. anti-D should be sufficient to cover five adult therapeutic doses of Rh(D) positive platelets within a 6 week period, and it should be given subcutaneously in thrombocytopenic patients.

It is not necessary to administer anti-D to Rh(D) negative men or women without childbearing potential who have haematological disorders and receive platelet concentrates from donors who are Rh(D) positive.

SNBTS will comply with the above.

In an emergency in RhD negative patients (or patients of unknown RhD type), where platelets of an appropriate ABO group that are also RhD negative are not available in an acceptable time frame as dictated by the clinical situation then the risk of HTR from the use of group O platelets (that is also negative for high titre haemolysins) in non-O patients needs to be balanced against the risk of sensitisation to the RhD antigen:

- In patients with no child-bearing potential i.e. females 51yrs of age or older and males, the selection of an appropriate ABO grouped platelet component takes precedence over considerations relating to Rh(D) compatibility.

- If the patient is an RhD negative (or RhD type unknown) female of child-bearing potential, and platelets of an appropriate ABO group that are also RhD negative are not available in an acceptable time frame, then this should be discussed with the on call Medical Officer. If the unit of platelets used in such cases is RhD positive such female patients should be offered prophylactic anti-D to reduce their risk of sensitising to the RhD antigen which could have significant impact on their future potential to bear children.

4. CMV-SERONEGATIVE PLATELETS

Transfusion transmitted CMV infection may cause significant morbidity and mortality in some immunocompromised CMV-seronegative patients. The use of blood components from CMV-seronegative donors has been the standard method for the prevention of transmission of CMV by blood transfusion. In 2012 SaBTO

recommended that CMV-seronegative (and leucodepleted) platelets were indicated for pregnant women, intrauterine transfusions and neonatal transfusions (including exchange transfusions).

In respect of pregnant women, the objective is to manage the risk of congenital CMV infection in the foetus following primary maternal infection. Therefore, if pregnant women are transfused electively during pregnancy it is preferable that this is with CMV negative components. Most of these will be in mothers who have thalassaemia or sickle cell disease. The vast majority of obstetric transfusions occur at the time of birth and there is no requirement to use CMV negative components in this context.

In an emergency and where CMV seronegative blood components are not available, transfusion of a leucodepleted platelet component is an acceptable alternative.

5. HLA/HPA SELECTED OR MATCHED PLATELETS

HLA/HPA selected or matched platelets may be required to manage patients who are refractory to platelet transfusions. The investigation and management of these patients is described in SNBTS National Policy NATP CLIN 10 010 – "Management of Platelet Refractoriness". In this setting the use of group O platelets for non-O patients should be avoided as much as possible.

The current BCSH Guidelines for the use of platelet transfusions (2003) state that "the management of patients with HLA and/or HPA alloimmunization with no compatible donors may be very difficult. There is no evidence that alloimmunized patients benefit from incompatible platelet transfusions that do not produce an increase in the platelet count, and prophylactic platelet support should be discontinued. If bleeding occurs, platelet transfusions from random donors or the best-matched donors, despite being incompatible, may reduce the severity of haemorrhage, although larger doses of platelets may be required. Other management approaches for severe alloimmune refractoriness, such as the use of high-dose intravenous immunoglobulin, splenectomy and plasma exchange, have not been shown to be effective"

HPA selected platelets may also be required to treat patients with Neonatal Alloimmune Thrombocytopenia and those at risk of PTP or recurrence of PTP. In an emergency, and where HPA selected platelets are not immediately available, the transfusion of a random donor platelet component is an acceptable alternative.

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