NZBS POLICY ON THE USE OF FRESH BLOOD

SCOPE

This Policy relates to NZBS Manufacturing sites and all Hospital Blood Banks in New Zealand.

DEFINITIONS

The term ‘Fresh Blood’ refers to any transfusion of red cell components that involves the selection of red cell units on the basis of age. The use of Fresh Blood should be restricted to those recipients for whom there is a valid clinical indication.

BACKGROUND

A survey of blood banks in New Zealand revealed widely differing policies on the use of ‘fresh’ blood for different patient groups, with definitions of ‘fresh’ blood ranging from <5 days to <14 days from collection. Moreover, the stated indications for use of such blood also vary considerably and include patients labelled as “renal”, “haematology”, “leukaemia”, “bone marrow transplant”, “transfusion-dependent”, “severe sepsis”, “massive transfusion”, “thalassaemia” and others.

Review of the international literature shows considerable information on the ‘blood storage lesion’. This includes a loss of 2.3 DPG activity early in storage and reduced membrane deformability, loss of ATP and generation of immuno-modulatory substances leading to Transfusion Related Immune Modulation (TRIM). The clinical consequences of the storage lesion are both uncertain and controversial. Moreover there is some evidence that prestorage leucodepletion of red cells might reduce significantly the immunomodulatory components of the storage lesion.

The clinical consequences of the blood storage lesion in critically ill patients is particularly contentious. There is a need for well constructed clinical trials to address the question of whether these patients should receive fresher red cell components.

The practice of reserving ‘fresh’ RBC units for certain groups of patients can lead to problems with inventory management in blood banks, leading to distortion of supply patterns and wastage. Moreover, this practice is not supported by international guidelines.

POLICY

NZBS Manufacturing Centres are responsible for supply of blood components to hospital blood banks. NZBS will adopt a ‘first in first out’ policy in relation to supply of red cell components. NZBS will normally aim to provide red cell components supplied to hospital blood banks that are less than 15 days old. In practice many components will be fresher than this. The only exceptions to this policy will be:

a) Red cell components destined for intra-uterine transfusion. Only units less than 5 days old should be used for this purpose.

b) Red cells for exchange transfusion in neonates. Only units less than 5 days old should be used for this purpose.

c) Red cells for use in neonatal settings. NZBS will continue to provide split red cell units for this purpose.
d) Irradiated red cell components. Only units less than 14 days old will be selected for irradiation. The shelf life of the component shall then be 14 days from the date of irradiation.

e) Red cells components, including whole blood, for use in recipients undergoing cardiopulmonary bypass surgery. Red cell units less than 14 days old will normally be provided for adult patients for transfusion during the peri-operative period. On request red cell units less than 10 days old will be provided for those patients with renal impairment. Red cell products for use in paediatric bypass procedures will normally be less than 5 days old and where possible whole blood used for priming of the bypass circuit less than 2 days old.

Hospital Blood Banks shall be responsible for managing clinical demand from within the routine supplies provided by the NZBS.

f) Standard red cell components should be used for all patients including renal patients, haematology patients and patients on regular transfusion regimes with the exception of those identified in (a) to (e) above.

g) In the absence of clear evidence as to benefit, NZBS does not recommend that attempts should be made to supply fresher red cell components to critically ill patients nor to patients requiring massive transfusion. Local policies may apply where strong clinical support for access to fresher red cells for this set of patients exists. Such local policies will not however influence the standard issuing policies applied by NZBS Manufacturing Centres.

h) It remains possible for individual clinicians to discuss specific clinical situations with an NZBS Transfusion Specialist where they believe the use of ‘fresh’ blood to be indicated. Except in these exceptional circumstances, RBC should be issued from Blood Banks on a ‘first-in-first-out’ basis.

This policy will be reviewed in the future if compelling new evidence becomes available from clinical trials addressing this issue.