

8

Leucocyte depleted blood components

In recent years there has been increasing usage of leucocyte depleted cellular blood components. Some countries in the developed world (e.g. United Kingdom, France, Sweden, Canada) have recommended universal prestorage leucocyte depletion of cellular concentrates. Also, the Blood Products Advisory Committee of the FDA in the USA has resolved that the cost benefit ratio associated with leucocyte depletion is sufficiently great to justify universal leucocyte depletion of all cellular components. These policy decisions have been taken despite the fact that not all controlled randomised trials have conclusively demonstrated clinical benefits. Leucocyte depletion is also very costly; in South Africa universal leucocyte depletion of red cell concentrates would cost more than 100 million Rand based on 2001 filter costs.

In South Africa the following guidelines are thus recommended.

1 DEFINITION

- i. Leucocyte depleted components designated as such must contain fewer than 5×10^6 leucocytes per red cell unit or adult therapeutic dose of platelets. Fewer than 5×10^8 leucocytes per red cell unit is considered adequate to prevent febrile non haemolytic transfusion reactions (FNHTR).
- ii. To achieve leucocyte counts less than 5×10^6 leucocyte depletion should be carried out under controlled conditions, preferably within 48 hours after the collection of the donated unit. This prevents the accumulation of cytokines and leucocyte fragments, which occurs with storage. Ideally this involves blood bank or blood transfusion centre preparation of the component.
- iii. Removing the buffy coat from the red cell concentrates and utilising these to prepare random donor platelets results in a red cell concentrate and a platelet unit that are relatively leucocyte depleted but not to the extent that is required for most indications for leucocyte depletion.

2 INDICATIONS FOR LEUCOCYTE DEPLETED COMPONENTS

- i. If recurrent FNHTR's occur after red cell transfusion despite the use of buffy coat depleted red cell concentrates or bedside filtered concentrates, leucocyte depleted red cell concentrates processed at the transfusion service should be used.
- ii. The prevention of FNHTR's associated with platelet transfusions can largely be brought about by the use of buffy coat platelet preparations. If reactions occur despite their use, leucocyte depleted concentrates are recommended. Bedside filtration is not recommended for FNHTR's associated with platelet transfusions.
- iii. Platelets prepared from single donors using most current apheresis machines are leucocyte depleted as part of the process. In general any patient requiring prolonged platelet support should probably receive single donor platelets.
- iv. Patients with severe aplastic anaemia who are potential stem cell transplant recipients should receive leucocyte depleted components from the beginning of the transfusion support.
- v. Leucocyte depletion of blood components is an effective alternative to the use of CMV seronegative blood components for the prevention of transfusion transmitted CMV infection to at risk patients.
- vi. Foetal/neonatal transfusions: Leucocyte depleted blood components should be used for intra-uterine transfusions and are recommended for all infants under 1 year of age.