CLINICAL EXPERIENCE WITH TRANSFUSION OF LEUKOCYTE-POOR PLATELET CONCENTRATES PREPARED BY FILTRATION WITH PROSTACYCLIN. M. van Nierop Kooy, H.C. van Poelgeest, T.J. Klammers, J.W.N. Akkermans. Departments of Haematology and Laboratory Medicine, University Hospital, P.O.Box 16250, 3500 CG, The Netherlands.

Repeated transfusions with platelets from randomly selected donors lead to HLA alloimmunization in about 50% of the patients. This is caused by lymphocytes that contaminate the platelet concentrates. Attempts to remove the leukocytes from the platelet concentrates by additional centrifugation steps lead to substantial loss of platelets.

We report here a new procedure for removal of almost all leukocytes with excellent platelet recoveries. Single donor concentrates are treated with 30 mg/ml prostacyclin in order to inactivate the platelets transiently. The concentrates are then passed through a cellulose acetate filter to remove the leukocytes. In 30 fresh concentrates this treatment reduced the contamination by leukocytes to less than 0.1 million per concentrate. Further in vitro studies have been performed on cellular components and reveal adequate in vitro quality for half-strength citrate stored blood held at room temperature for 7 days. These encouraging results suggest use of half-strength citrate may be a route to increasing factor VIII supply.

In vivo studies have also been performed on cellular components and reveal increased factor VIII and has no adverse effect on the in vitro qualities of red cells stored at a haematocrit of 60%.

In a clinical study, we are now performing autologous red cells or platelets during storage. To confirm the viability of these cells, we have previously shown that donation of blood into anticoagulants containing half the normal amount of citrate results in a dramatic improvement in the stability of coagulation factor VIII and has no adverse effect on the in vivo qualities of stored cellular components. Additional donor recruitment.

Further in vitro studies have been performed on cellular components and reveal adequate in vitro quality for half-strength citrate blood held at room temperature for 23 hours prior to component preparation.

In vivo studies on red cells and platelets stored in half-strength citrate.


We have previously shown that donation of blood into anticoagulants containing half the normal amount of citrate results in a dramatic improvement in the stability of coagulation factor VIII and has no adverse effect on the in vivo qualities of stored cellular components.

To confirm the viability of stored cellular components we are now performing autologous red cells or platelets during storage. To confirm the viability of these cells, we have previously shown that donation of blood into anticoagulants containing half the normal amount of citrate results in a dramatic improvement in the stability of coagulation factor VIII and has no adverse effect on the in vivo qualities of stored cellular components.