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Blood transfusion in orthotopic liver transplantation: six-year experience

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Patients undergoing orthotopic liver transplantation (OLT) are susceptible to massive blood loss and require transfusion. Possible reasons for increased transfusion demands include platelet abnormalities, thrombocytopenia secondary to hypersplenism, clotting factor deficiencies, fibrinolysis, increased surgical blood loss associated with portal hypertension and previous surgical procedures, and hypothermia. The purpose of this study was to review trends in blood product usage during our first 6 years of experience performing OLT.

Key words: Liver transplantation – Blood transfusion

Methods

A retrospective review was undertaken of 544 complete data sets generated during 558 procedures in 487 patients between 21 December 1984 and 30 June 1991. Veno-venous bypass was used routinely. A Haemonetics Cell Saver was used beginning in 1987 when not contraindicated by tumor or infection. Frequent thromboelastography and occasional coagulation profiles were obtained. Red blood cells were transfused to maintain a hematocrit of 25–30%. Fresh frozen plasma (FFP), cyroprecipitate (Cryo), and platelets (Plat) were transfused as indicated to maintain hemostasis. Crystalloid and colloid were administered to maintain hemodynamic stability when blood products were not appropriate.

Patients were grouped by academic year. Mean ± standard error of the mean are reported for BPRBC (banked packed red blood cells), CS (cell saver), TRC (total red cells = BPRBC + CS), FFP, Plat, and Cryo. Data were analyzed using *t*-tests with Bonferroni multiple comparisons and the Kruskall-Wallis one-way analysis of variance. P values < 0.05 were considered significant. Annual intraoperative blood product usage for OLT and total annual institutional blood product usage were analyzed.

Results

When 1989–1991 are compared to earlier years there is a significant decrease in the administration of BPRBC, FFP, Plat, and Cryo (Fig. 1). The percentage of TRC given as CS units increased from 14.5% in 1986 to 34% during 1990–1991. There was no significant difference in TRC over time. Current annual intraoperative blood product administration during OLT, based on 139 cases, represents 9.1% of the total 46406 units of blood products consumed by the institution.

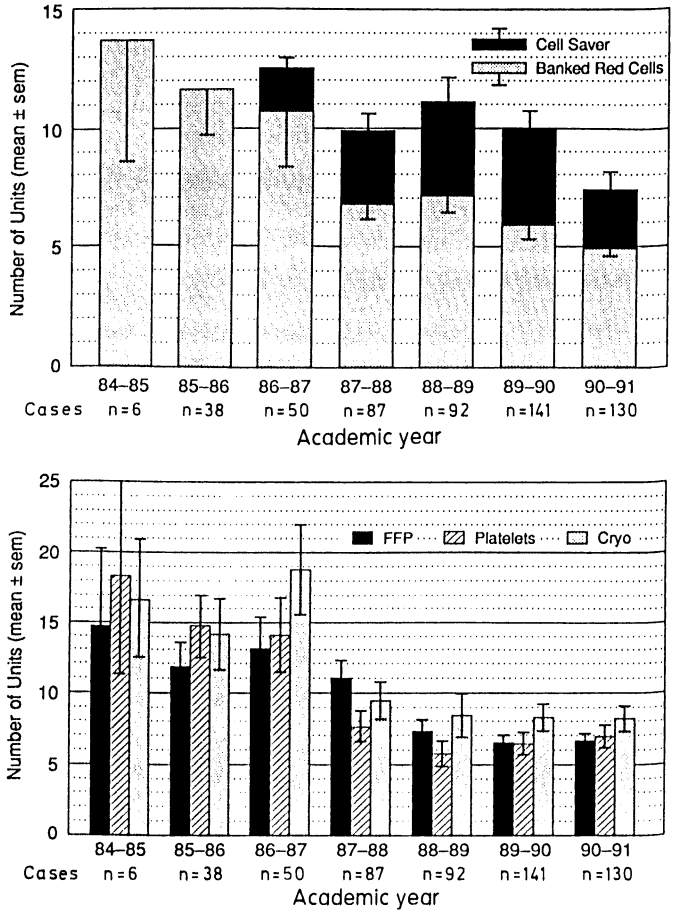

Fig. 1. Blood product usage during OLT

Discussion

Possible reasons for decreased blood product usage with time include improvements in the management of coagulopathies and refinements in surgical technique. OLT does not place excessive demands on blood bank resources.

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