

Post-operative Blood Salvage with Cell Washing Reduces Stored Blood Transfusion for Patients Having Joint Replacement Surgery

Robert L. Thurer MD, Elijah White, Mark A. Popovsky MD, Haemonetics Corporation

Background

Despite efforts to minimize surgical blood loss and accept perioperative anemia, many patients having joint replacement surgery still receive stored blood transfusions. Decreasing the transfusion of both predonated autologous and allogeneic blood is desirable to mitigate the risks of immune modulation, the “storage lesion”, and other known risks of transfusion as well as reducing costs. However, many clinicians consider the amount of post-operative bleeding to be insufficient to warrant post-operative blood salvage. *We examined the impact of postoperative blood salvage with cell washing on the use of stored red cell transfusions for patients having joint replacement surgery at four hospitals.*

Results

82% of study patients received an average of 280 ml (1.17 unit equivalent) of autologous washed salvaged red cells during the study period. 240 ml of washed salvaged blood (mean Hct > 70%) was considered equivalent to one unit of stored red cells.

Poster abstract
presented at SABM 2010

	Baseline Period	Study Period	% Reduction
Stored blood transfusion (% of patients)	27.3	14.2	48
Mean number of units transfused to patients receiving a transfusion	2.11	2.11	0
Stored units / patient	0.58	0.30	48
Unit equivalents of salvaged blood transfusion per patient	0	1.17	

OrthoPAT®

Orthopedic Perioperative Autotransfusion System

Salvages RBC lost during and after orthopedic surgery

Concentrates and washes RBC to a hematocrit of 70% to 80%

RBC recovery between 75% and 98%

High-quality RBC product

Albumin removal	93.9%–99.6%
Free Hgb removal	89.6%–98.8%
Heparin removal	96.9%–100%



Methods

A post-operative blood salvage system with cell washing (OrthoPAT® Perioperative Autotransfusion System, Haemonetics, USA) was employed for 134 consecutive patients having either total knee replacement (79 patients) or total hip replacement (55 patients) between April and December 2009 at four community hospitals. Their rates of predonated autologous and allogeneic blood transfusion were compared to previously collected baseline data (full year, 2008) for the same procedures by the same surgeons.

Conclusion

The implementation of post-operative blood salvage with cell washing (OrthoPAT®) resulted in the recovery of more than one unit of red cells per patient and reduced stored blood use by 48%. Post-operative salvage should be considered a first-line transfusion strategy in joint replacement surgery.