TITLE: THE USE OF AUTOLOGOUS BLOOD DONATION FOR LIVE-DONOR RIGHT HEPATECTOMY

AUTHORS: Stuart A. McCluskey^{1,2} MD PhD, Keyvan Karkouti^{1,2} MD MSc, Ahmed Hamdy¹ MD, Huan Zhang² MD, David Grant³ MD, Mark Cattrall³ MD.

AFFILIATION: Perioperative Blood Conservation Program¹ and Departments of Anesthesia & Pain Management², and Multiorgan Transplant Program³, Toronto General Hospital, University Health Network, University of Toronto, 200 Elizabeth Street, M5G 2C4, Toronto, Ontario.

INTRODUCTION: As a result of the disparity in the number of patients awaiting transplantation in relation to the available organs, nearly 10% of liver transplants in North America are from live-donors and the prospect for this number is increasing. The rate of an allogeneic blood transfusion for a live-donor hepatectomy varies from 10 to 30%. While all agree that every effort should be made to avoid a blood transfusion for live-donors, a blood conservation strategy has yet to be established. The objective of this retrospective study was to review the use of preoperative autologous blood donation (PABD) to determine its utility for live-donor hepatectomy for adult-to-adult transplantations.

METHODS: Following REB approval, the charts of all patients who underwent right hepatectomy for adult-to-adult transplantation (April 2000 to October 2004) were reviewed for patient demographics, preoperative and postoperative laboratory results (CBC, INR, PTT), length of hospital stay, anesthetic, post operative analgesia management and transfusion outcomes. Characteristics of the two groups were compared for continuous (*t*-test) and categorical (χ^2 test) variables.

RESULTS: Patients participating in the PABD program (PABD Group) were similar in the age, gender, height and weight to those patients who did not donate blood (No PABD Group). Thirty patients in our cohort participated in a PABD program; of these patients 20 donated one unit while 10 patients donated 2 units of whole blood. The pre-operative and nadir hemoglobin (Hg) concentrations were significantly lower in those patients participating in a PABD program ($p < 0.0001$; Table 1). Of the 40 units of autologous blood collected, 27 (68%) were transfused back to the donor in the perioperative period. Despite autologous blood donation, 8 patients received a total of 16 units of allogeneic RBC: 3 of 65 patients in the No PABD Group (4.5%) and 5 of 30 patients in the PABD Group (16.6%)($p = 0.049$).

CONCLUSIONS: Patients undergoing right hepatectomy for donation are not benefiting from the use of preoperative autologous blood donation. Unless the effectiveness of autologous blood donation can be improved, its use should be reconsidered in this population.

Table 1: Perioperative Hemoglobin Concentrations

	Patients (n)	Pre Operative Hg (g/L)	Nadir Hg (g/L)	Discharge Hg (g/L)
No PABD	65	142 $\pm$ 14	101 $\pm$ 16	108 $\pm$ 15
PABD	30 (32%)	128 $\pm$ 16* *	87 $\pm$ 15* *	103 $\pm$ 13