

### **Portal and Arterial Flushing with HTK and Tacrolimus Can Attenuate the Incidence of Early Liver Allograft Dysfunction**

Aliaksei Shcherba, Sergey Korotkov, Denis Efimov, Andrei Minou, Olha Lebedz, Alla Karytka, Dzmitry Fedaruk, Eugeny Santotsky, Aleksandr Dzyadzko, Oleh Rummo  
Belarusian Republic Center for Organ and Tissue Transplantation, The 9<sup>th</sup> Minsk Clinical Hospital, Minsk, Belarus

#### **ABSTRACT**

It was shown that Tacrolimus (TAC) can suppress inflammation and immune response involved in liver ischemic reperfusion injury (IRI) (Kristo I., *Transpl Int.* 2011).

**The aim:** We hypothesize that back-table arterial and portal liver perfusion with TAC can influence the incidence and severity of EAD. A prospective randomized study was conducted (ClinicalTrials.gov Identifier: NCT01887171).

**Materials and methods:** Including criteria: 1st liver transplantation from DBD donor with sequential portal-arterial reperfusion. At back-table portal vein and hepatic artery were perfused each by 500 ml of HTK solution containing 20 ng/ml TAC during 10-15 min followed by portal flushing with 200 ml 5% solution of Albumin containing 20 ng/ml TAC and by resting of liver in effluent. No Tac was added in the control group. Primary Outcome: EAD (Olthoff KM, et al. *Liver Transpl.* 2010) and severe EAD (P.R. Salvalaggio, et al. *Transpl. Proceedings*, 2012).

**Results:** No difference was found between groups (main vs. control) in terms of MELD (16 vs. 16), steatosis (10 vs. 10%), ballooning (45 vs. 40%) of liver grafts, recipient's age (50 vs. 50y), warm ischemia time (50 vs. 50 min) and total ischemia time (482.5 vs. 485.0 min). Median donor age was higher in the main group (44.5 vs. 39.0y). The overall rate of EAD was 27.9%. EAD rate was significantly lower in the main group (6/43 vs. 18/43; p=0.003). The rate of moderate-to-severe EAD was lower in the main group (1/43 vs. 10/43; p=0.009). The median level of AST and ALT 24 h after reperfusion were significantly lower in the intervention group (1004 vs. 1596; p=0.03 and 449 vs. 759; p=0.057).

**Conclusion:** Portal and arterial back-table liver perfusion by HTK solution with Tacrolimus may contribute to lower EAD incidence and severity.

**Key words:** liver transplantation, early allograft dysfunction, tacrolimus, immunosuppression, arterial and portal flushing