Detection of Antibodies in Eluates of Immunoabsorption (IA) Causing Humoral Rejection in Patients after Solid Organ Transplantation

Barz D.1, Dragun D.2, Busch M.3, Pauli T.4, Steinke T.4, Rummler S.1
1University Hospital Jena, Institute of Transfusion Medicine, Jena, Germany, 2Charité Campus Virchow Klinikum - Universitätsmedizin Berlin, Medical Clinic, Nephrology and Intensive Care Medicine, Berlin, Germany, 3University Hospital Jena, Medical Clinic, Nephrology, Jena, Germany, 4University Hospital Jena, Clinic of Cardiac and Thoracic Surgery, Jena, Germany

Patients on the waiting list are periodically screened only for the presence of HLA-antibodies and a positive crossmatch is a contraindication to transplantation. Non-HLA antibodies were not tested before and after transplantation.

**Material and methods:** We studied 16 patients, who were treated with 97 immunoabsorptions (median 3 to 13 treatments, 1.3 l plasma volume exchanged) after humoral rejection (11 kidney Tx and 5 heart Tx). Antibodies in the 69 eluates were tested using 1. the complement-dependent lymphocytotoxicity (LCT), 2. the solid-phase enzyme-linked immunosorbent assay (ELISA) and 3. Luminex technology. We investigated antibodies against HLA-I/-II, non-HLA Glykoprotein (GP) IIb/IIIa, Ib/IX, Ia/IIa, AT1/2-receptor and ETAR-receptor. We parallely investigated the antibody titer in the patient sera before and after IAs.

**Results:** The antibody titer against HLA-antigens was 1:4 to 1:256, the antibodies against GP IIb/IIIa 1:1 to 1:32, GP Ib/IX negative to 1:32, GP Ia/IIa 1:1 to 1:16. We detected in 73 % (44/60) antibodies against AT1/2-receptor and in 78,3 % (47/60) antibodies against ETAR-receptor. By the course of decreasing the antibody titer we can show the effectivity of the elimination of bound antibodies on the transplant. We could not find antibodies against GP IIb/IIIa, GPIb/IX, GP Ia/IIa; HLA-DQ and DP (one case) in the sera before and after IAs. By using LCT before IA HLA-antibodies were detected in sera with 32% vs. 53 % in eluate and 50% vs. 100% by using ELISA and Luminex. In more than 50% of the examined probes we could not find HLA-antibodies in sera before IA. Patients with antibodies against AT1/2-and ETAR-receptors (38%) and other non-HLA-AB showed periodically rejection in comparison to HLA-AB.

**Conclusion:** In the antibody mediated humoral rejection the AB are bound on the transplant (HLA and non-HLA). The main problem is to detect these AB in the sera before and after IA. The sensitivity of the LCT in this situation is too low.

**Assigned speakers:**
Dagmar Barz, University Hospital Jena, Jena, Germany