MACHINE PERFUSION VERSUS COLD STORAGE PRESERVATION IN NON-HEART-BEATING KIDNEY DONATION AND TRANSPLANTATION: FIRST RESULTS OF A MULTICENTRE TRIAL IN EUROTRANSPLANT

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Body: Delayed Graft Function (DGF)>Kidney Transplantation (KTx) causes morbidity&cost, &negatively affects graft function/survival. Kidney grafts from Non-Heart-Beating-Donors (NHBD) exposed to warm+cold ischemia are particularly vulnerable to DGF. Compared to Cold Storage (CS), hypothermic Machine Perfusion (MP) may provide better preservation for NHBD kidneys, but evidence is limited in quality&numbers.

Aim: To compare efficacy of MP*vs*CS for preserving NHBD kidneys.

Methods: In an international/prospective/randomized/controlled trial we enrolled kidney pairs of 82 consecutive NHBD. All NHBDs were Maastricht-category-3 (awaiting cardiac arrest/planned therapy withdrawal). One kidney was randomly assigned to MP&the contralateral kidney to CS. Kidneys were allocated using standard allocation. At time of offer, preservation method (MP*vs*CS) and perfusion parameters were not revealed. 3-month data of all 164 recipients were analyzed.

Results: Donor age (y) was 43 (17-67). Baseline demographics were comparable between MP*vs*CS: Recipient age (y)49(24-73)*vs*52 (24-77),p=0.81; preTx dialysis duration(days)1542(366-6402)*vs*1448(132-3904),p=0.48; first/reTx 34/48*vs*34/48,p=0.56; %PRA(0-5/6-84/85+)71/11/0 *vs* 71/10/1,p=0.73; %0 HLA A,B,DR mismatches was 2.4*vs*3.7,p=0.5. Cold Ischemia Time (CIT) (h) was 15(4.3-28.9) for MP*vs*15.9 (8.6-46.6) for CS,p=0.7. DGF-incidence was 53.7% in MP*vs*69.5% in CS recipients, p=0.027. DGF duration (days) was 9(1-48) in MP*vs*13(2-43) in CS,p=0.04. DGF<7days occurred in 12/32(27%) in MP*vs*6/51(10.5%) in CS,p=0.028. Creatinine clearance(ml/min) at d7,d14,1mth,3mth in MP*vs*CS was 13*vs*9,p=0.009; 23*vs*13,p=0.001; 46*vs*38,p=0.078; 57*vs*49,p=0.19, resp. PNF rate was identical after MP&CS(2.4%). Acute rejection rate was 7.3% in MP*vs*12.2% in CS kidneys,p=0.22. Graft loss (<3mth) was identical after MP&CS(3.6%). Patient survival was 98.7%(MP)*vs*100%(CS). Logistic regression analysis showed that MP(p=0.035; Odds ratio 0.476)&CIT(p=0.009; Odds ratio 1.118) independently influenced DGF.

Conclusion: This study demonstrates -for the first time- that MP of NHBD kidneys reduces *incidence*, *duration&severity* of DGF and ameliorates graft function after KTx. 1-year results will be presented.