RENAL RESISTANCE DURING MACHINE PERFUSION IS A RISK FACTOR FOR DELAYED GRAFT FUNCTION AND POORER GRAFT SURVIVAL

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Body: Renal Resistances (RR) during Machine-Perfusion (MP) are used to discard kidneys likely to fail post-Tx but threshold RR (above which kidneys are discarded) have been determined empirically.

Aims: We studied the prognostic value of RR on Delayed-Graft-Function (DGF), Primary-Non-Function (PNF), graft-survival.

Methods: An international/prospective trial (*NEJM-2009*) including kidney pairs of 336 consecutive Heart-Beating (HB)&Non-Heart-Beating (NHB)donors shows that MP leads to less DGF&prolonged graft-survival *vs* Cold Storage (CS). In this trial, recipient centres were blinded to preservation-method (MP/CS) and to MP parameters. Surgeon decision to accept/discard kidneys was solely based on traditional donor data. In MP arm, the RR(mmHg/mL/min-Real Time) on LifePort® Kidney-Transporter was recorded (30'/1h/2h/4h/MP end). Univariate/multivariate analyses were done to determine impact of RR on DGF/PNF/graft-survival.

Results: Higher RR at different time-points resulted in higher %DGF(17.3%*vs*37.9% for RR:0.28 at MP end). RR was associated with increased Odds Ratio for DGF(OR 2.69;p=0.03 for RR:0.28 at MP end) independent of donor-type (HB*vs*NHB), -age, cold-ischemia-time, reTx *vs* first-Tx. Highest RR groups showed highest serum creatinine up to 3 months post-Tx. RR was linked to risk of 1year graft loss; in case of DGF, RR threshold of 0.28 at MP end resulted in a 17% poorer graft survival *vs* immediately functioning grafts. Only 7 MP kidneys developed PNF; no discriminative RR to discard PNF kidneys was found.

Conclusion: This study demonstrates (for the first time) the exact prognostic value of RR during MP. RR correlates with DGF&graft survival, not PNF. Many kidneys with elevated RR were probably erroneously discarded in the past. RR is an additional tool to increase the kidney pool. Pre-Tx knowledge of the risk of DGF may help clinicians to select recipients and/or adjust immunosuppression (nephron-sparing protocol in high risk grafts for DGF).

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