

## Prediction of Transplant Success with Serum Angiotensin-2 Levels Measured in the Donor

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**Introduction:** Prediction of transplant outcome using donor material such as blood or biopsies will prevent unnecessary discard of donor organs and is useful for post-operative treatment. Attempts to use pre-transplant biopsies in the US show moderate predictability. Recently we found in a small group of donors that Angiotensin levels are elevated in brain dead donors. In critical ill patients Angiotensin-2 was recently described to be a prognostic survival marker. Here we investigate if Angiotensins have a predictive value in renal transplantation.

**Methods:** From 297 deceased kidney donors included in an international prospective RCT (the Machine Preservation Trial), serum was analyzed for Angiotensin-1 (Ang-1) and Angiotensin-2 (Ang-2). All samples were measured by ELISA in duplicate. Donors were either heart-beating, or controlled non-heart-beating. We tested with logistic and Cox regression models whether Angiotensins were associated with delayed graft function (DGF), and graft survival (GS).

**Results:** Ang-2 concentration was significantly associated with GS: higher values in donor plasma were predictive of a lower risk of graft failure (HR=0.91, p<0.05). Other significant variables in the model were donor age (HR=1.05), number of mismatches (HR=1.25), and recipient age (HR=0.97). For neither Ang-1 levels nor the ratio Ang-1/Ang-2 any association with GS could be found. Angiotensin levels in donor serum were not associated with DGF.

**Conclusion:** This study for the first time shows that Angiotensin-2 concentration measured in donor serum samples prior to donation and transplantation is an independent predictor of graft survival.