Medical Risk Factors For Chronic Kidney Disease In Patients With Normal Baseline Kidney Function are Not Independent Predictors Of Worse Renal Function Outcomes Following Robotic Partial Nephrectomy

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Introduction and Objectives
Partial nephrectomy (PN) is offered to patients with small renal masses to preserve renal function and does not compromise cancer specific outcomes. Hypertension (HTN) and diabetes (DM) are the leading medical causes of chronic kidney disease (CKD) and many patients undergoing PN have these conditions. The present study therefore sought to assess the influence of DM or HTN on renal function outcomes following robot-assisted PN (RPN).

Methods
Using an IRB approved multi-institution kidney cancer database, subjects who underwent RPN for a clinical stage T1 renal mass with normal baseline kidney function (estimated glomerular filtration rate [eGFR] >60 mL/min/1.73m2) and follow-up of > 2 weeks were included in the analysis. Patients were categorized based on the presence of either HTN or DM (Group 1) or neither (Group 2) . Postoperative eGFR was categorized into 3-month intervals with maximum follow-up limited to 18 months. Renal function outcomes were compared using a mixed effects ANOVA model adjusting for age, body mass index (BMI) and RENAL nephrometry score. A Wilcoxon rank sum test was used to compare distribution of continuous variables and Chi-square test to compare the CKD upstaging between groups.

Results
We identified 324 patients with a baseline eGFR>60 mL/min/1.73m2 (198 with either DM or HTN, 126 with neither). There was no difference in baseline eGFR and median follow up between groups. Following RPN, there was no difference in eGFR, CKD upstaging or renal function recovery over time (figure 1). The rate of progression to CKD stage 3 did not differ between groups 1 and 2 (19% vs. 18%, p=0.84). In a similar analysis of 159 patients with an eGFR >90 mL/min/1.73m2 (92 with either DM or HTN, 67 with neither) no difference in baseline eGFR, length of follow up, eGFR following RPN, CKD upstaging or renal function recovery was found (figure 1). The rate of progression to CKD stage 2 or higher did not differ between groups (48% vs. 55%, p=0.34).

Conclusions
In patients with a normal baseline renal function (eGFR > 60 mL/min/1.73m2), the presence of DM or HTN are not independent predictors of worse renal function outcomes following RPN.

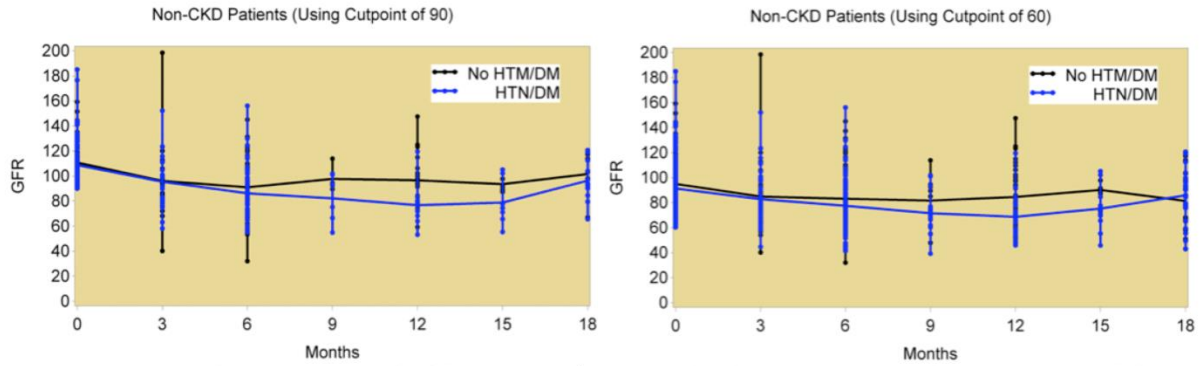

Figure 1. Renal function recovery profile following robot-assisted partial nephrectomy in patients with baseline eGFR >90 (left) and >60mL/min/1.73m² (right) with HTN/DM (blue line) or with neither (black line).