**Effect of Partial Nephrectomy on Blood Pressure in Patients with Solitary Kidneys**

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Objective:

Determine the effect of partial nephrectomies on blood pressure in patients who have solitary kidney up to five years post-operatively.

Abstract:

**Introduction:**

The effect of partial nephrectomy (PN) on blood pressure (BP) in the short and long term post-operatively is not well characterized. During PN, hilar dissection, clamping, and parenchymal resection could alter the renin-angiotensin-aldosterone system. A previous study found no significant effect of partial nephrectomy on blood pressure, but this study was conducted in patients with a functional contralateral kidney that could compensate. The goal of our study was to investigate short and long-term changes in BP post-operatively in PN patients with solitary kidney.

**Materials and Methods:**

We performed a review of patients with solitary kidney undergoing PN at our institution between 1999 and 2015. We excluded patients who did not have at-least 2 BP readings within one year before surgery. We defined baseline BP as average of all BP readings within one year prior to surgery. We collected all BP measurements recorded at our institution for each patient up to five years post-operatively. Operative parameters such as surgical approach, ischemia time, percentage of kidney excised, and clamp used were collected. The outcomes for this study was change in blood pressure at 30-d and 1 year post-operatively. This was tested using a paired t test.

**Results:**

A total of 437 patients with solitary kidneys underwent PN at our institution. 161 patients were excluded because of insufficient BP readings. Among the remaining 276 patients, the median age was 62.7 (IQR 54.5-69.7). The median baseline systolic BP was 137 mmHg (IQR 129-146). At 30-days after surgery, there was a significant decrease in the systolic pressure (-3.7 mmHg, 95% CI: –5.2 to –2.1, p < .0001) and diastolic pressure (-4.9 mmHg, 95% CI: -5.7 to -4.1, p < .0001). At 1-year post-op, there was no significant difference compared to baseline systolic pressure (-2.0 mmHg, 95% CI: -4.7 to 0.70, p = 0.14).

**Conclusions:**

In our study we observed a modest decrease in BP post-operatively at 30-days, followed by return to baseline at 1-year. Our results suggest that post-operative changes in BP are not clinically significant in patients undergoing PN.