

Differential renal function in the prediction of recovery in adult obstructed kidneys after pyeloplasty

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Aim: Pyeloplasty is a widely accepted method for the treatment of ureteropelvic junction obstruction (UPJO). Surgery has long been thought to affect postoperative renal function. However, controversies still exist on the functional studies that can be used to indicate which renal units will benefit from surgery. In this study, the correlation between differential renal function (DRF) and other preoperative parameters was examined to determine which parameter more accurately predicts recovery of renal function in adult obstructed kidneys. **Materials & Methods:** In this study, the authors evaluated 32 patients with UPJO. In all patients, standart diuretic Tc-99m DTPA renal scans were performed preoperatively and 6 months after surgery. Patients were divided into two groups according to the preoperative DRF ($\geq 30\%$, $n = 22$, group I and $< 30\%$, $n = 10$, group II). Second type classification was made according to the postoperative DRF improvement as improved (group A, $n = 13$) and not improved (group B, $n = 19$). These groups were then compared regard to variables which were defined as symptoms, age at operation and ultrasonographic findings. We also evaluated whether preoperative parenchymal function is important to predict improvement in drainage half-time ($T_{1/2}$). **Results:** While preoperative drainage half-time was 39.6 ± 15.9 minutes, postoperative half-time decreased to 16.9 ± 6.8 minutes ($p < 0.001$). The mean DRF did not improved significantly after surgery compared with preoperative values ($32.03 \pm 9.42\%$ versus $36.16 \pm 9.60\%$). When comparing the patients with preoperative DRF $\geq 30\%$ (group I, DRF $38 \pm 0.8\%$) to those who had an initial DRF below 30% (group II, DRF $22.8 \pm 5.2\%$), postoperative DRF was 41.22 ± 5.72 in group I and 25.00 ± 6.22 in group II. The difference was significant ($p < 0.01$). The patients in group I and II showed improvement in 50% and 20%, respectively. Age, clinical presentation and ultrasonographic findings did not affect functional outcome after pyeloplasty. We could not find any correlation between preoperative DRF and the degree of improvement in $T_{1/2}$. **Conclusion:** Renal function improves after pyeloplasty with regard to the initial level of split renal function in adult obstructed kidneys. Improvement may not be observed especially in patients with DRF less than 30%.

Key words: ureteropelvic junction obstruction, renal function, pyeloplasty