

**Objective:** The aim of this work is to evaluate the effect of warm ischemia on renal function.

**Methods:** Within a multicentric study, the data about tumor-affected solitary kidney were obtained from 9 urological centers in the Czech Republic. Patients were divided into groups according to the WIT (warm ischemia time). In each group the mean preoperative serum creatinine was determined, as well as on 3rd and 7th postoperative day and the lowest GF postoperatively. In each group the mean R.E.N.A.L. nephrometric score was determined.

**Results:** The study comprises data totally of 97 patients. The open approach was chosen in 78 cases, in 16 cases laparoscopic approach was chosen. The robotic surgery was performed in 3 patients. PN with zero ischemia was performed in 29 patients (30%).

**Conclusion:** Our findings confirm that non-clamping partial nephrectomy in a solitary kidney minimizes renal injury. For the non-clamping partial nephrectomy can be mainly indicated smaller exophytically tumors without deep parenchymal invasion.

Unfortunately, most of PN should be performed with vascular clamping, allowing precise closure of collecting system, vascular and parenchymal defect, especially for larger tumors with deep parenchymal invasion.

According to our observation that WIT of 15 minutes for a kidney is safe. Clamping of hilar structures within 15 minutes is in most cases sufficient to perform kidney resection.

WIT over 20 minutes is according to our results risk, with ischemic damage of the renal parenchyma and often with the need of postoperative hemodialysis.

For stratification of patients, an estimation of the difficulty of resection and for improvement of comparability between different groups of patients is recommended to practice standard implementation of classification systems – a nephrometric score.

For patients with expectation of WIT longer than 25-30 minutes resection of kidney hypothermia using ice should be considered.