

Microwave thermal ablation versus open partial nephrectomy in treatment small renal tumors between patients over 70 years old

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Introduction & Objectives: Microwave thermal ablation (MWT) is one of the way to treat kidney cancer. But its safety and oncological efficacy are still controversial for patients older than 70 years. In our study we retrospectively divided older than 70 years old patients in to two groups, for one group microwave thermal ablation (MWT) was performed, for another – open kidney resection (OPN). Data was retrospectively collected from January of year 2013.

Materials & Methods: A total number of 33 patients with exophytic, single small renal masses were treated with either OPN (n=18) or MWT (n=15). All patients had histologically proven T1a kidney cancer. OPN was performed for patients who did not want to have MWT or in those cases where the collecting system, renal calyx, and great vessels were free from the tumor margins less than 1 cm.

Results: In MWT group median patients age was $75,3 \pm 1,2$, in OPN group - $72,6 \pm 0,72$, $p=0,05$. Glomerular filtration rate (GFR) before surgery were higher in OPN group $63,13 \pm 4,9 \mu\text{mol/l}$, vs. $55,59 \pm 3,9 \mu\text{mol/l}$ in MWT group, $p=0,123$. Three days after surgery GFR stayed more or less stable ($61,41 \pm 5,10 \mu\text{mol/l}$ vs. $54,52 \pm 4,3 \mu\text{mol/l}$), $p=0,30$. Primary hemoglobin were lower in MWT group if to compare with OPN group ($126,5 \pm 5,2 \text{ g/l}$ vs. $132,1 \pm 4,3 \text{ g/l}$), $p=0,41$. However, after the surgery lower hemoglobin was detected in OPN group ($125,0 \pm 4,9 \text{ g/l}$ vs. $120,89 \pm 4,2$), $p=0,53$. The duration of procedure in MWT group were shorter if to compare with OPN group ($26,1 \pm 0,9 \text{ min}$ vs. $70,39 \pm 4,31 \text{ min}$), $p=0,000002$. Hospitalization was shorter in MWT group ($0,33 \pm 1,2 \text{ days}$ vs. $2,86 \pm 0,23 \text{ days}$), $p=0,000001$. Local recurrence was numerically higher in MWT (2/33 vs. 0/33, $p = 0.107$)

Conclusions: Operation time, estimated blood loss and the mean number of hospital days was significantly lower in the MWT group than in the OPN group. Oncologic data did not statistically significant differ between two groups. Creatinine clearance levels did not significantly differ before and after surgery in both groups.