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**The comparative analysis of the changing immune response after laparoscopic radiofrequency ablation and resection of renal cancer**

S. Petrov, A. Nosov, E. Samarceva, I. Baldueva

*Petrov Research Institute of Oncology, Saint-Petersburg, Russia*

Nowadays, thermoablative techniques and particularly radiofrequency ablation (RFA) play a significant role in treatment of renal cancer on the early stages of disease. Recent results demonstrate that besides the direct destructive effect RFA could probably induce immune response against tumor antigens.

**Materials & Methods:** We have evaluated the changes in immune status of patients with renal cell carcinoma after laparoscopic radiofrequency ablation and resection. The study included 54 patients (30 men, 24 women), mean age  $60,4 \pm 8,5$  years. All patients had T1aN0M0 tumor stage. Patients of the 1 group (n=20) had underwent RFA. The selection criterion for this group was clear cell well-, or moderately-differentiated carcinoma not larger than 3 cm. The 2 group included 34 patients with mean tumor size less than 4 cm after laparoscopic resection. The immune status was evaluated by means of multicolor flow cytometry (BD FACS Calibur, USA) in all patients 1 day before surgery and afterwards on the 1, 7, 30 days. We have studied the changes in T- and B-cell immunity; the obtained data were compared with correspondent normal and initial values within and between the groups.

**Results:** The evaluation of immune status performed 1 day before the RFA revealed no significant changes compared to normal values ( $p > 0,05$ ). In postoperative period the values of some parameters showed no significant ( $p > 0,05$ ) changes throughout the observation period (CD3<sup>+</sup>CD19<sup>+</sup> (B-lymphocytes), CD3<sup>+</sup>CD16<sup>+</sup>56<sup>+</sup> (NK-cells), CD4<sup>+</sup>CD25<sup>bright</sup>CD127<sup>low</sup> (T- regulatory lymphocytes)). At the same time we have noticed significant ( $p < 0,05$ ) increase in number of CD3<sup>+</sup>CD19<sup>-</sup> (T-lymphocytes), the blood concentration of which has grown from  $1,18 \pm 0,3 \times 10^9 / l$  (before RFA) to  $1,9 \pm 0,3 \times 10^9 / l$  (30 days after RFA) mainly due to changes in number of CD3<sup>+</sup>CD4<sup>+</sup> (T-helpers), CD3<sup>+</sup>CD4<sup>+</sup>HLA-DR<sup>+</sup> (activated T-helpers) и CD3<sup>+</sup>CD8<sup>+</sup>HLA-DR<sup>+</sup> (activated cytotoxic T-helpers). Ultimately, we have revealed significant ( $p < 0,05$ ) increased index of immune regulation from  $1,66 \pm 0,6 \times 10^9 / l$  (before RFA) to  $2,95 \pm 0,15 \times 10^9 / l$  (30 days after RFA). The analysis of the immune status parameters obtained in the 2 group of patients revealed no significant changes versus normal and initial values throughout the study.

**Conclusion:** Besides the direct thermal impact on tumor cells RFA could trigger the formation of protective immune response. Initial changes of immune status could be observed already on the 1 day after RFA and are maximal 1 month later. These alterations can reflect the establishing of long-lasting antitumor immunological memory.