was later treated surgically. Size of the tumor and its localization proved to singificantly influence the results. In tumors less than 30 mm in diameter good results were achieved in 89% and in tumors >30 mm in 62%. In cases with central localization of the tumor the good results were confirmed in 62% and in peripherial lesions in 89%. Minimal invasiveness of the procedure made it possible to safely repeat the treatment enabling improving the result further. Mean creatinine before was 1.31 mg/% (±0.51), and two week after was 1.43 mg% (±0.54).

Conclusions: In our opinion RFA of small RCC in single kidney is a valuable minimally invasive alternative to surgery. Particularly, in cases with some contraindications to the operation. Best results may be achieved in lesions smaller than 30 mm located peripherally. RFA is relatively easy and enables preservation of the functioning part of the kidney. It can be also repeated enabling to eradicate the tumor completely. Additional aspect, that has been a matter of debate recently, is that some of these small tumors may be of low malignant potential and any currently used aggressive techniques either open or laparoscopic, may be questionable, especially in old and otherwise-ill patient.

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Protective effect of caffeic acid phenethyl ester on cyclosporine A-induced nephrotoxicity in rats

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Introduction and Objectives: The purpose of the present study was to investigate the effects of caffeic acid phenethyl ester (CAPE) on cyclosporine A (CsA)-induced nephrotoxicity.

Material and Methods: Wistar-albino female rats, 250–300 g, were used in experiments. The animals were divided into four groups (n = 7). In control group rats were given 0.5 ml of normal saline s.c. daily for a period of 10 days. In CAPE group rats were treated with CAPE (10 μmol/kg/day) in 0.5 ml of normal saline i.p. daily for a period of 11 days. Rats in CsA group were injected with CsA s.c. in 0.5 ml of normal saline (15 mg/kg) once a day for 10 days. Finally in CsA+CAPE group rats were treated with CAPE (10 μmol/kg/day) in 0.5 ml of normal saline i.p. daily for a period of 11 days and rats were s.c. injected with CsA in 0.5 ml of normal saline (15 mg/kg) once a day for 10 days beginning from the second day of CAPE administration. After the last administration of the drug, all rats fasted about 12 hours, but had free access to water. At the end of the experiment blood was collected, serum were separated and used for various biochemical estimations. The renal tissue was excised immediately from the rats, washed with pre-chilled physical saline and used for further biochemical estimations. ANOVA test was performed and post hoc multiple comparisons were made using least-squares differences.

Results: The administration of CsA alone resulted in higher myeloperoxidase (MPO) activity, lipid peroxidation, superoxide dismutase (SOD) and catalase (CAT) than in the control. The enzyme activities except CAT in rats treated with CAPE alone were not changed. CAPE treatment prevented the increase in malondialdeyde (MDA) and increased CAT activity more, but did not affect the activities of MPO and SOD enzymes (Table 1).

Conclusions: We demonstrated an increase in lipid peroxidation and MPO, SOD and CAT activity in renal tissue of rats given CsA. Additionally lipid peroxidation-mediated renal injury was prevented partly by CAPE treatment. Our results collectively suggest that CAPE may be an available agent to protect the kidney from CsA induced damage via inhibition oflipid peroxidation.

Table 1. The levels of BUN, Creatine, MDA and the activities of MPO, SOD and CAT enzymes in serum in control, CAPE, CsA and CsA+CAPE groups

	MDA (nmol/g protein)	MPO (U/g protein)	SOD (U/mg protein)	CAT (k/mg protein)	BUN (mg/dL)	Creatine (mg/dL)
Control (n = 7)	8.61±0.61	0.091±0.009	0.284±0.034	0.278±0.028	15.42±1.42	0.40±0.03[a]
CAPE (n = 7)	10.11±0.68	0.112±0.008	0.353±0.037	0.335±0.005[a]	15.14±0.55	0.41±0.04
CsA (n = 7)	11.32±0.75[a]	0.126±0.005[a]	0.544±0.061[a]	0.361±0.017[a]	22.28±1.44[b]	0.52±0.03[e]
CsA+CAPE (n = 7)	8.74±0.49[d]	0.142±0.009[b]	0.687±0.078[b]	0.426±0.011[bc]	22.85±1.31[b]	0.42±0.04[c]

Results are presented as mean±SEM; [a] $p < 0.01$ compared with control group; [b] $p < 0.001$ compared with control group; [c] $p < 0.05$ compared with CsA group; [d] $p < 0.01$ compared with CsA group; [e] $p < 0.05$ compared with control group.

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Changes in peripheral blood mononuclear cells subpopulation after RFA in patients with renal cell carcinoma

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Introduction and Objectives: Renal Cell Carcinoma (RCC) accounts for 2–3% of adult neoplasms and about 90% of all primary renal tumors. The progress in a diagnostic technologies (USG, CT, MRI) has led to the increase in T1a tumors diagnosis. One of the most promising new treatment methods of RCC is based on high temperature created by radiofrequency current circulating around needle probe introduced into the tumor. Beside the direct destruction of the cancer tissue the treatment may induce immunologic reaction against tumor antigens released from destroyed tumor cell. The aim of this study was to evaluate the impact of RFA on the peripheral blood lymphocyte subpopulations in patients with RCC at different time points after the RFA procedure.

Material and Methods: Blood was tested before, and 2, 4 and 6 weeks after the RFA in nine patients with renal cell carcinoma for the proportions of $CD3^+$, $CD3^+HLA\text{-}DR^+$ (T-activated), $CD3^+CD4^+$ (T-helper), $CD3^+CD8^+$ (T-cytotoxic), $CD56^+CD16^+$ (Natural killer) cells. The blood was stained with fluorochrome-conjugated monoclonal antibodies and percentages of cells expressing various markers were determined by flow cytometry. The tumors were diagnosed by contrast-enhanced CT. In all cases lesions were located peripherally and maximum diameter was not longer than 4 cm. In four cases RFA was performed in a single kidney (in all cases the contralateral kidney had been previously removed due to the RCC). The main reason to use RFA in these patients was the presence of medical contraindications to surgical treatment due to numerous concomitant diseases (hypertension, chronic obstructive lung disease, neurological diseases).

Results: Our research is for the first time showing the changes in the proportions of major peripheral blood lymphocytes subpopulations (especially $CD4^+$ and $CD8^+$) in patients with RCC after thermoablation. In all the patients the changes were most pronounced two weeks after the RFA procedure. Interestingly, in 6 out of 9 patients the proportion of $HLA\text{-}DR^+$ T cells was increased over the whole follow-up period. The proportion of the $CD56^+CD16^+$ cell cells was decreased in most of the patients. The extreme values were noted for $CD8^+$ and $CD56^+16^+$ cells