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.

N68

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.

N69

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

in two patients who had metastatic tumors in the remaining kidney (one of them had been only previously removed due to RCC).

Conclusions: Taking this into account, we suggest, that the additional therapeutic effect of an in vivo immunization against damaged tumor cells antigens could be important. If the ablated changes are small, at the initial stages of the tumor development, the stimulated increase of the immune response of the organism could be important.

N70

Systemic inflammatory reactions in patients after radiofrequency ablation of renal cell carcinoma

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Introduction and Objectives: Advances in imaging have led to an increase in the use of minimally invasive technologies such as radiofrequency ablation (RFA) or cryoablation as a treatment of renal cell carcinoma (RCC). RFA is a thermal ablative technique that causes tumor destruction by heating and may be used as an alternative to a partial nephrectomy in peripherally located tumors not exceeding 4 cm in diameter. Most publications on RFA efficacy concentrate on the CT or MRI assessment of the local tumor destruction. In patients with liver tumors treated with RFA or cryoablation, together with the local tissue necrosis, a specific inflammatory response was also demonstrated. It has been shown that hepatic cryotherapy, but not RFA, rarely may cause cryoshock phenomenon with a high mortality rate which related to the release of toxic substances from the lesion and strong inflammatory reaction. The participation of the RFA in the specific inflammatory response induction has never been studied in patients with RCC. The evaluation of this response may lead to a better understanding of the thermoablation effect and improve its efficacy.

Material and Methods: Thirteen patients (6 men, 7 women) aged 50 to 86 (mean 67.4 years) with RCC underwent RFA. The tumors were diagnosed by contrast-enhanced CT and had radiological features in CT described by Bosniak as characteristic for renal cell carcinoma. Average tumor diameter was 36 mm (from 9 to 40 mm).The procedure was performed in the epidural anesthesia in the supine position under USG guidance. White blood cells count (WBC – neutrophiles, lymphocytes, monocytes), body temperature were measured at baseline and 24 hours after RFA. CRP (C-reactive protein) and LDH (Lactate dehydrogenase) were also measured in some patients. The t-Student test was used to compare them before and after thermoablation. A value for P less than 0.05 was considered significant.

Results: We observed increase in number of WBC up to 17.6% (7.67 G/l vs 9.03; $p < 0.01$) and proportion of neutrophiles up to 19.3% (59.99% vs 71.55; $p < 0.000001$) and decrease in proportion of lymphocytes up to 36.5% (29.61% vs 18.81; $p < 0.000001$). The proportion of monocytes was unchanged. The levels of LDH and CRP were significantly increased in four of five patients. None of the patients had a fever 24 hours after the procedure.

Conclusions: In our study RFA causes moderate inflammatory response without any complications. It may be related to the presence of necrotic tissue left in the ablated kidney. It is possible that during RFA, in situ heat fixation of the surrounding tissue may prevent the release of intracellular compounds that are responsible for the exaggerated inflammatory syndrome as observed after cryoablation.

N71

The frequency of clinical symptoms in kidney cancer cases

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Introduction and Objectives: The aim of this study was to identify frequency of clinical symptoms in kidney cancer cases.

Material and Methods: All patients who had undergone surgical treatment because of renal carcinoma (RCa) since Jan 1998 to Dec 2007 were included into this retrospective single institution study. Data on tumor size and histology were collected from pathological reports. There was collected most common clinical symptoms of kidney cancer: general complaints, hematuria, pain, asthenia and weight loss. All cases were divided into groups according tumor histology, size, patient's age and gender. Exclusion criteria for size and hystology calculation were benign tumor and known metastasis at the time of surgery. Statistical analysis was performed using descriptive statistic, Chi-Square parameter.

Results: 999 cases were included to this study. The median patient's age was 64±11.57 (range 18–91) years. 54.1% males and 45.9% females were operated. There was performed 78.8% nephrectomies, and 21.2% kidney resections. 14.7% of all surgical procedures was made laparoscopic. Patients has reported following symptoms: general complaints (59%), hematuria (17%), pain (44.8%), asthenia (8.9%), weight loss (3%). There was identified frequency rate of clinical signs for metastatic cancer 71.3% and cancer without known metastasis (57.5%) ($p = 0.006$). The frequency of hematuria was detected for metastatic cancer 27.8%, in cases without known metastasies 15.7% ($p = 0.002$). Frequency of hematuria for malignant tumors was 97.9%, and for benign 2.1% ($p = 0.004$). Frequency of clinical signs by histological groups were following: transitional cells ca. – 95%, clear cells ca. – 55.8%, papillar ca. – 67.3%, chromofobic ca. – 61.5%, other (non classified) ca. – 58% ($p = 0.003$). Frequency of hematuria is most identified in transitional cells ca. group 72.7%. ($p = 0{,}0005$). Frequency of clinical signs by tumor size were following: ≤4 cm. – 45.7%, 4–7 cm. – 62.9%, 7–10 cm. – 66.2%, ≥10.1 cm. – 76.3%. ($p = 0.0005$). There was no significant difference of clinical signs frequency by gender and age.

Conclusions: Clinical signs frequency is higher for metastatic cancer, than cancer without known metastasis. Frequency rate of hematuria is higher for malignant tumors, than for benign. Transitional cells carcinoma is most symptomatic histological group. Tumor size has significant influence for frequency rate of clinical symptoms.

N72

Tumor size influence on cancer specific and overall survival after surgical renal carcinoma treatment

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Introduction and Objectives: The aim of this study was to evaluate influence of tumor diameter on cancer specific and overall survival after surgery of renal carcinoma.

Material and Methods: All patients who had undergone surgical treatment because of renal carcinoma (RCa) since Jan 1998 to Dec 2004 were included into this retrospective single institution study. Data on tumor size, grade, stage and histology were collected from pathological reports. All tumors were divided into four groups according diameter: 1st group ≤4 cm; 2nd group 4–7 cm; 3rd group 7–10 cm and 4th group >10 cm. Exclusion criteria were benign tumor and known metastasis at the time of the surgery. Data about patient's death and reasons of the death were received from national cancer registry. Statistical analysis was performed using descriptive statistic, Kaplan-Meier and Cox regression.