defined as an enlarging or persistently enhancing treatment site on follow-up imaging; recurrence of tumor in the operated site was considered failure for LC.

Results:

A total of 131 SRM in 123 patients (91 male, 32 female) were treated from September 2000 to June 2008. Mean tumor size was 2.14 ± 0.86 cm (range 0.5 - 4 cm). Biopsies of 123 patients revealed clear cell RCC in 69 cases (56.1%), papillary RCC in 8 (6.53%), chromophobe RCC in 3 (2.4%), mucinous, tubular and spindle RCC in 1 (0.8%), oncocytoma in 27 (21.9%), angiomiolipoma in 5 (4.1 %), and xanthogranulomatous pyelonephritis in 1 (0.8%); non diagnostic (fibrotic/necrotic tissue) in 9 (7.3%).The overall mean follow-up was 46.04 ± 25.75 mo (median 41; range 12-96); 35.7%, 57.9% and 90.5% patients had a minimal follow-up of 5, 3 and 1 year respectively. In 44 patients with RCC and a minimal follow-up of 5 years (mean 61.3 ± 13.76), cancer specific survival was 100% and the overall survival was 93.2%. One patient died of metastatic lung cancer, one of metastatic pancreatic cancer and one of respiratory failure. Four patients (3.2%) developed a new renal neoplasm (defined as an enhancing renal mass) during the radiological follow-up. Two of these four patients developed the neoplasm in the omolateral kidney, but not in the site of cryoablation, and the other two patients developed the neoplasm in the controlateral kidney. No significant complications were recorded.

Conclusion:

LC for RCC is a safe and an effective oncological therapeutic option in patients with indication to NSS, when performed in a high volume oncologic renal surgery-dedicated center.

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RADICAL NEPHRECTOMY AND ELECTIVE NEPHRON-SPARING SURGERY LEAD TO EQUIVALENT ONCOLOGIC OUTCOMES IN ALL PT1 RENAL CARCINOMA: RESULTS OF THE SATURN STUDY

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Aim of the study:

To assess the oncological outcomes of elective nephron sparing surgery (NSS) as compared with radical nephrectomy (RN) in the treatment of all pT1 renal cancers.

Material and methods:

For the Surveillance And Treatment Update Renal Neoplasms (SATURN) project a computerized databank was generated collecting the data of 5463 patients surgically treated for renal cancer at 16 academic italian institutions between 1995 and 2007.

Within this databank, the present study enrolled the 3220 patients (2107 males, 1113 females; mean age 61.3 anni +/- 12.2 anni) affected by pT1a/pT1b pN0/Nx M0 (TNM 2002) renal cell carcinoma submitted to RN or elective NSS (imperative cases were excluded) assessing their clinical (age, gender, symptoms at diagnosis, clinical tumor diameter), surgical, pathology (pathologic tumor diameter, tumor necrosis, sarcomatoid differentiation, TNM 2002 staging, Fuhrman' grading) and follow-up (total follow-up time, disease free survival time, state of the patient at latest examination) data.

Results:

Overall, 1832 patients had a pT1a renal cancer, 820 (44.8%) submitted to RN and 1012 (55.2%) to NSS, and 1388 had a pT1b renal cancer, 1178 (84.9%) submitted to RN and 210 (15.1%) to NSS.

Statistical analysis showed that patients submitted to RN when compared with the ones treated by NSS, were older and affected by cancers more frequently symptomatic, larger in diameter, with a higher grading and with a longer follow-up time; moreover these patients had a higher rate of multifocality among pT1a cancers, a worse performance status and a higher rate of positive surgical margins among pT1b.

Survival was significantly correlated to the age at diagnosis, grading and, only for pT1b cancers, multifocality, but not to the type of surgery (RN or NSS), also when the cases were grouped according to age, grading and multifocality.

Conclusion:

NSS and RN lead to an equivalent oncologic outcome in patients with intracapsular renal carcinoma up to 7 cm, thus confirming the recent idea to broaden the indication to NSS. The multicentric source of the data and the retrospective nature of the study, besides the significant differences in the characteristics of the cases that were selected for NSS and RN, represent relevant biases that must be considered when analyzing the results. Probably the amount of evidence collected so far is the base upon which to design a randomized prospective study.

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IDENTIFICATION AND CHARACTERIZATION OF CELLS WITH STEM/PROGENITOR PROPERTIES IN NORMAL KIDNEY AND RENAL CELL CARCINOMA

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Aim of the study:

The identification of a resident renal stem cell may have clinical relevance in the field of cellular therapy and the definition of a cancer stem cell (CSC) may have a role for the proposal of new pathogenetic hypothesis, for detecting new markers and for the development of new therapies targeted to CSC. Nowadays data concerning stem cells in kidney or in Renal Cell Carcinoma (RCC) are incomplete and contradictory and the identity of any renal stem cell or CSC has not been readily forthcoming.

Since the markers used in literature for the identification of a stem cell population of the kidney and RCC are promiscuous and are not able to identify a purified stem cell population, we decided to use a functional approach already described for other tissues that is the "sphere forming assay".

Method and results:

The single cell suspension obtained after collagenase digestion of normal kidney and RCC tissues was cultured in suspension at low density, in a specific medium with mitogens, to form "nephrospheres" with a sphere forming efficiency (SFE=n°obtained spheres/n° plated cells) of about 0,7% for normal kidney and 0,9% for RCC. The spheres can be propagated for more than 10 passages in culture.

We performed a phenotypical characterization of the cells that compose the spheres by using immunofluorescence, FACS and Real Time PCR evaluating typical stem cell markers and renal markers. The cells that compose the