

Localised and Metastatic Renal Cell Carcinoma Aspects of Treatment

AKADEMISK AVHANDLING

Som för avläggande av medicine doktorsexamen vid Sahlgrenska akademien vid Göteborgs universitet kommer att offentligens försvaras i hörsalen
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av
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Avhandlingen baseras på följande delarbeten:

- I. Nephron-sparing Surgery for Renal Cell Carcinoma. Long-term Results**
S Lundstam, O Jonsson, D Lyrdal, R Peecker, S Pettersson
Scand J Urol Nephrol. 2003;37(4) 299-304
- II. Evaluation of sorafenib treatment in metastatic renal cell carcinoma with 2-flouro-2-deoxyglucose positron emission tomography and computed tomography**
D Lyrdal, M Boijesen, M Suurkula, S Lundstam, U Stierner
Nucl Med Commun. 2009 Jul;30(7):519-24
- III. Metastatic Renal Cell Carcinoma Treated with Peg-interferon alfa-2b**
D Lyrdal, U Stierner, S Lundstam
Acta Oncol. 2009;48 (6):901-8
- IV. Ultrasound-guided Percutaneous Radiofrequency Ablation of Small Renal Tumours: Clinical Results and Radiological Evolution During Follow-up**
D Lyrdal, M Andersson, M Hellström, J Sternal, S Lundstam
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ABSTRACT

Localised and Metastatic Renal Cell Carcinoma. Aspects of Treatment.

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Aims:

Paper I To assess the long-term results in patients operated with NSS in situ for RCC, with special reference to their dependence on tumour grade and stage.

Paper II To investigate 18-FDG-PET/CT as an option to assess treatment effects in patients with MRCC treated with targeted therapy, as sorafenib.

Paper III To assess optimal dose, efficacy and the tolerability for long-term treatment, when treating MRCC patients with Peg-interferon alfa-2b.

Paper IV To disclose imaging characteristics, predictive factors for local recurrence and repeated treatment in small renal masses treated with RFA.

Patients and methods:

Paper I Records of 87 patients subjected to NSS performed between 1980 and 1999 were reviewed, survival rate was determined with reference to grade stage and multiplicity of renal cell carcinoma (RCC).

Paper II Fifty-two lesions (39 soft and 13 bone lesions) in ten patients with MRCC, were evaluated. The 18-FDG-PET/CT was performed prior to treatment (sorafenib (Nexavar® Bayer HealthCare Ltd) 400mg twice daily) and 1–2 months after treatment start-up. The soft lesions were also measured and analysed according to Response Evaluation Criteria in Solid Tumors (RECIST) on CT images.

Paper III Twenty-eight patients with MRCC were treated with Peginterferon (Pegintron® Schering-Plough) in escalating doses of 0.5 µg/kg subcutaneously (s.c) weekly until 2 µg/kg was reached or prohibited toxicity occurred. Lesions were evaluated according to RECIST and toxicity according to National Cancer Institute's common toxicity criteria (NCI-CTC).

Paper IV Forty-six tumours in 43 patients were consecutively assessed for possible predictive factors after RFA treatment. At follow-up with CT or magnetic resonance imaging (MRI) possible predictive factors were analysed.

Results and conclusion:

Paper I Cancer-specific survival in M0 patients, regardless of stage and grade was 80% and 75% at 5 and 10 years, respectively. Stage and grade had a significant impact on long-term survival. The technique can be recommended in imperative indication and in selected cases with patients with normal contra-lateral kidney.

Paper II The mean glucose uptake in soft lesions decreased to 71% (32-108%) and to 82% (53-101%) in bone lesions of initial value measured by FDG-PET. Evaluated with RECIST the soft lesions diameter decreased to 80% (57-94%) of initial value. FDG-PET appears to be valuable for evaluation as it is possible to assess both soft and skeletal lesions.

Paper III The maximum dose of Peginterferon 2 µg/kg was reached by 46% (n=13) of the patients. Mean dose during long-term treatment was 1.5µg/kg. Median survival in all patients was 19.5 months. Partial response (PR) was seen in 4/11 patients with only intrathoracic lesions. Most side effects were grade 1-2/4, only two patients stopped the treatment due to toxicity.

Paper IV Thirty-eight (83%) tumours were completely ablated after the first treatment and 42 (91%) after repeated treatment. Nine patients (21%) showed local recurrence on follow-up, six of those were reablated, mean time to recurrence was 24 months. Maximum tumour diameter and volume were significantly larger and mean necrosis index lower in tumours with incomplete ablation compared to those completely ablated initially. Ultrasound-guided percutaneous RFA is a feasible and repeatable minimal invasive technique under development, for treatment of small renal tumours in selected patients.

Keywords:

renal cell carcinoma; nephron-sparing surgery; [¹⁸F]-2-flouro-2-deoxyglucose; positron emission tomography; metastatic renal cell carcinoma, Peg-interferon alfa-2b; radiofrequency; ablation; percutaneous; ultrasound

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