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Predictors of ablative success of RFA for small renal masses

T. Taily, T. Van den Broeck, S. Joniau

University Hospitals Leuven, Leuven, Belgium

Objectives: To evaluate the initial ablative success rates of RFA of small renal masses (SRM) in a single-center study and to assess predictive factors for ablative success.

Material & Methods: In total, 188 SRM's were treated with percutaneous RFA in 149 patients. We retrospectively analyzed the ablative success rates of RFA, defined as absence of residual enhancement at the lesion site at first postoperative cross-sectional contrast-enhanced imaging.

Variables taken into account were lesion size >30mm, location (upper/lower pole, interpolar), biopsy-proven RCC, one vs. >1 lesions ablated in the same session, Gervais classification, sex, BMI, type of RFA-guidance (US vs. CT).

Chi-square tests and multivariate logistic regression were used for the analyses. A p-value of <0.05 was considered statistically significant.

Results: Median age at RFA was 71 yrs. with a male to female ratio of 2/1. Initial ablative success rate was 91.0% (n=151/166). Seven out of fifteen patients with residual disease underwent salvage RFA (46.7%) at a median time of 6 months after initial RFA with a 100% success rate. The other 8 patients were followed-up closely. Lesion size >30 mm and female sex were inversely correlated with ablative success at univariate analysis; this was confirmed at multivariate analysis with Odds ratios of 18.1 (p<0.001) and 6.6 (p=0.016) respectively.

Conclusions: RFA is a valid option for treating small renal masses in poor surgical candidates with a high initial ablative success rate. Lesion size of >30 mm and female sex were correlated with a higher risk of residual disease in multivariate analysis.