5-year renal function outcomes after SABR for primary renal cell carcinoma: A report from the International Radiosurgery Oncology Consortium of the Kidney (IROCK)

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INTRODUCTION

- The incidence of renal cell carcinoma (RCC) continues to increase particularly in older adults
- Patients with prior radical nephrectomy are at risk for metachronous contralateral renal tumors, new/progressive CKD, ESRD and renal relevant comorbidities
- **OBJECTIVE:** To compare long-term renal function outcomes following SABR in the solitary vs bilateral kidneys

METHODS

- Multi-institutional analysis of 12 international centers of individual-patient data

IROCK centres invited to submit data to analysis hub (London) → Inclusion: ✓ RCC histology ✓ Serial enlargement ✓ Follow-up ≥ 2 years → Exclusion: X Previous Abdo RT X M1 X Upper-tract UC → Individual patient data pooled for statistical analysis

n = 190

Median Follow-Up 5.0 years (IQR 3.4-6.8)

VS

n = 56 **n = 134**

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RESULTS

Baseline Characteristics

Median Age
69.3 vs 76.3 years

Performance Status
96.4% vs 84.0%

Median Dx to SABR
44.8 vs 3.3 months

Clear Cell
98.0% vs 79.6%

Median Size
3.7 vs 4.0 cm

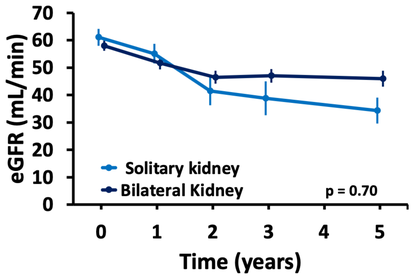
Median Total Dose
25.0 vs 35.0 Gy

Number of Fractions
1 vs 3 fractions

BED_{10}
87.5 vs 87.5 Gy

Solitary Kidney vs Bilateral Kidneys
Other baseline characteristics were not significantly different

eGFR



Multivariable Logistic Model

eGFR Decline
(≥ 15 mL/min at 1-year)

Tumor Size
(OR 1.57; 95% CI:1.14-2.16)
p = 0.006

Baseline eGFR
(OR 1.30; 95% CI 1.02-1.66)
p = 0.034

Solitary vs Bilateral
(OR 1.22; 95% CI 0.45-3.34)
p = 0.693

Baseline eGFR
(mean +/- SD)

Solitary Kidney	Bilateral Kidneys
61.1 ± 23.2 mL/min	58.0 ± 22.3 mL/min

p=0.324

eGFR Change at 5 yr
(mean +/- SD)

Solitary Kidney	Bilateral Kidneys
-14.5 ± 7.6 mL/min	-13.3 ± 15.9 mL/min

p=0.665

Dialysis

Solitary Kidney	Bilateral Kidneys
3.6%	3.7%

p > 0.99

CONCLUSIONS

- SABR appears safe and effective in patients with a solitary kidney
- Long-term renal function decline is moderate with a low rate of dialysis