

Renal SABR in Patients with a Solitary Kidney: An Individual-patient Pooled Analysis from the International Radiosurgery Oncology Consortium for Kidney (IROCK)



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Disclosure for Dr. Correa

I have no conflicts of interest to disclose

Background

- SABR is an emerging treatment for renal cell carcinoma (RCC)
 - Overcomes resistance of RCC to standard-fractionation radiotherapy¹
- Solitary kidney RCC represents a challenging management scenario:
 - Patients at high risk for renal dysfunction (prior nephrectomy)²
 - Current management options are invasive (surgical or percutaneous)³ and have limitations (size, location)⁴
- SABR is a non-invasive, outpatient treatment requiring 1 or few visits
- **Objective:** To investigate SABR as a definitive treatment option in patients with solitary kidney RCC

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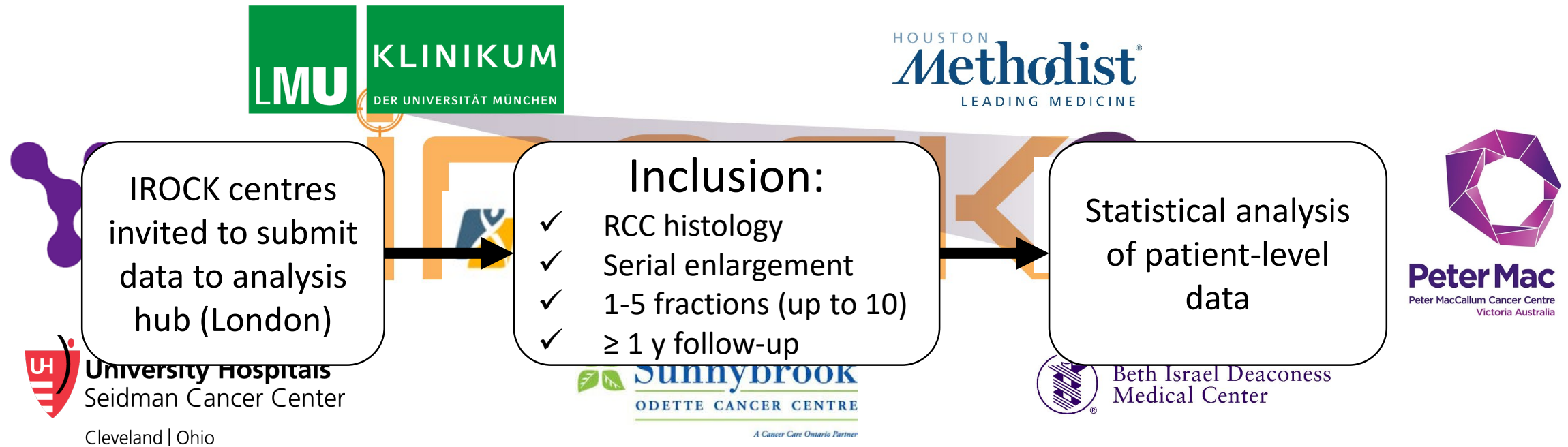
3. Campbell *et al.* J Urol. 2017;198:520-9.

2. Huang *et al.* Lancet Oncology. 2006;7:735-40.

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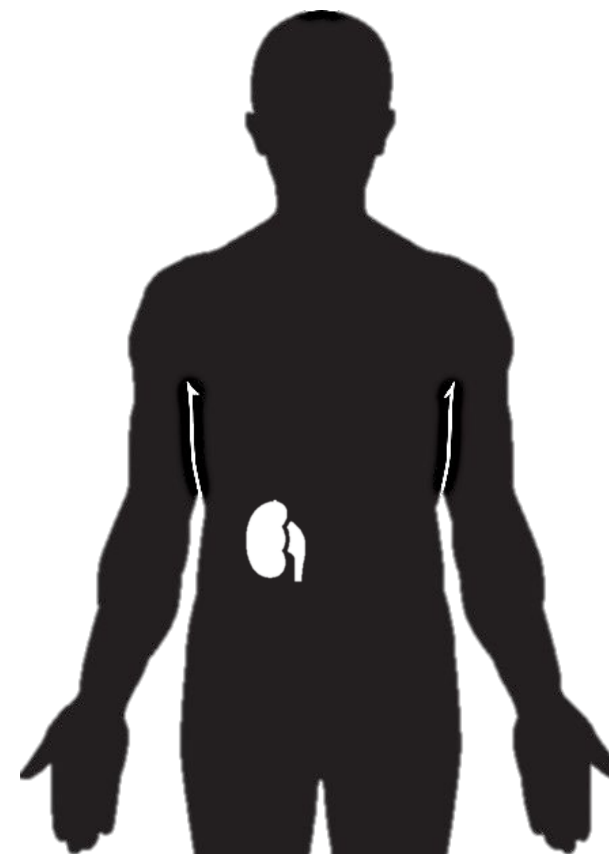
Method

- **Study Design:** Multi-center retrospective analysis of individual-patient data
 - 9 participating centers worldwide, under IROCK



Results: Baseline Characteristics

Characteristic	Solitary Kidney (n=81)
Patient Demographics	
Male – n(%)	56 (69.1)
Age at SABR – mean ± SD	67.3 ± 11.7
Good Performance Status (ECOG 0-1 or KPS ≥ 70) – n(%)	79 (97.5)
Baseline Renal Function	
Pre-SABR eGFR (mL/min) – mean ± SD	64.6 ± 21.7
Tumor Characteristics	
Max. Dimension (mm) – mean ± SD	35.0 ± 11.5
BED ₁₀ (Gy) – median (range)	87.5 (33.6-124.8)



¹Chi-square test, Fisher's exact test, two-sample T-test or Wilcoxon rank sum test, as appropriate.

Results: Renal Function

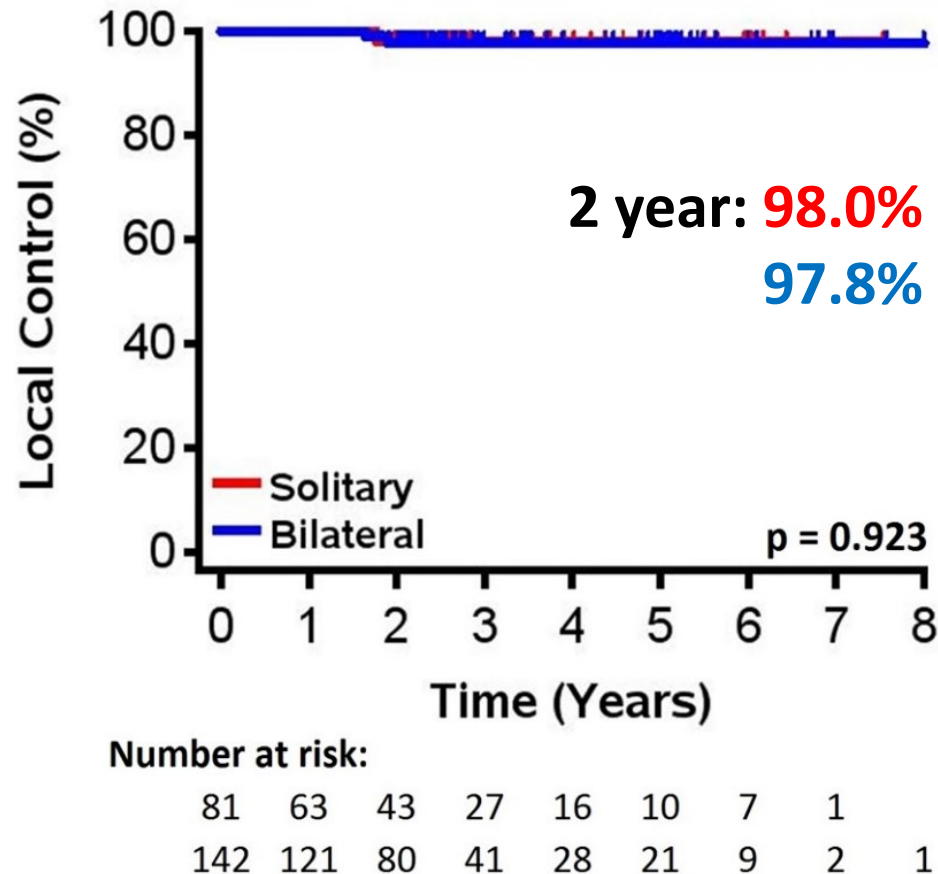
Post-SABR Renal Function

Outcome	Solitary	Bilateral	p-value
Δ in Renal Function (eGFR in mL/min)	-5.8 ± 10.8	-5.3 ± 14.3	0.984
Dialysis (pts)	0	6	0.089

Univariable Logistic Regression for eGFR Decrease ≥ 15 mL/min– Solitary Cohort Only

Variable	Odds Ratio (95% C.I.)	p-value
Tumour diameter ≥ 4.0 cm	4.21 (1.16 – 15.31)	0.029

Results: Oncological Outcomes



- Median Follow-Up: 2.6 years
- Local Recurrence:
Solitary (n = 1) vs. **Bilateral** (n = 2)
- Cancer-Specific Survival:
98.2% vs. **94.3%** (p = 0.047)
- Overall Survival:
81.5% vs. **82.4%** (p = 0.356)

Conclusions

1. SABR provides excellent local control with acceptable impact on renal function in patients with solitary kidney RCC
2. Outcomes comparable to SABR-treated patients with two kidneys
 - Acknowledging important differences in baseline characteristics
3. SABR is an attractive treatment option for patients with solitary kidney RCC facing a challenging management scenario
4. Referral for kidney SABR is worthy of consideration for solitary kidney patients with limited options
5. SABR vs. Surgery or Thermal Ablation? Future comparative-effectiveness studies