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First Line Tyrosine Kinase Inhibitors (TKIs) in metastatic Renal Cell Cancer (mRCC)- A Regional Cancer Centre Experience

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Background

The therapeutic landscape of metastatic renal cell carcinoma (mRCC) has undergone a paradigm shift with the introduction of immune checkpoint inhibitors (ICI) alongside established tyrosine kinase inhibitors (TKIs), used in combination or as monotherapy. Despite robust clinical trial efficacy evidence, factors such as IMDC risk status, potential side-effect profile and comorbidities often impact treatment choice.

Objective

To evaluate the real-world efficacy and safety outcomes of first-line pazopanib and sunitinib.

Method

Retrospective service evaluation of all patients with mRCC managed at a regional cancer unit at James Cook University Hospital, who received first-line pazopanib or sunitinib monotherapy between November 2020 and October 2025.

Results: patient characteristics

- 93 patients evaluated; median age 65 years (range 21–81)
- Sex: 69.9% male, 30.1% female
- Histology: 90.3% clear cell, remainder non-clear cell
- Metastatic sites at diagnosis: lung 54.8%, bone 17.2%, liver 10.8%, brain 2.2%
- IMDC risk: good 53.8%, intermediate 40.9%, poor 5.4%
- First-line TKI: pazopanib 52.7%, sunitinib 47.3%
- Grade ≥3 toxicity in 8.6% of patients
- No significant association between sex or metastatic site and OS

Survival outcomes

Outcome	Median, months	95% CI
PFS, all patients	13.9	8.7–19.2
PFS, sunitinib	16.6	10.6–22.5
PFS, pazopanib	10.5	4.0–17.0
OS, all patients	67.5	16.4–118.7
OS, IMDC good	88.0	17.4–158.6
OS, IMDC intermediate	48.0	0.0–111.7
OS, IMDC poor	15.3	2.8–28.8

Log-rank test showed no statistically significant difference in PFS ($p = 0.54$) or OS ($p = 0.08$).

IMDC risk group distribution

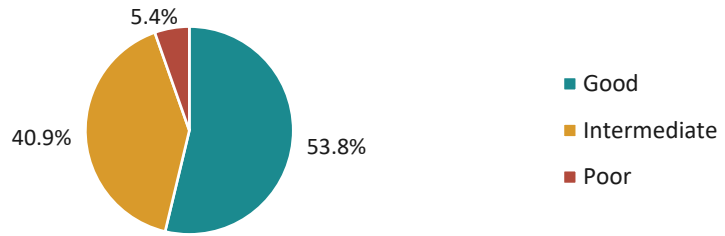
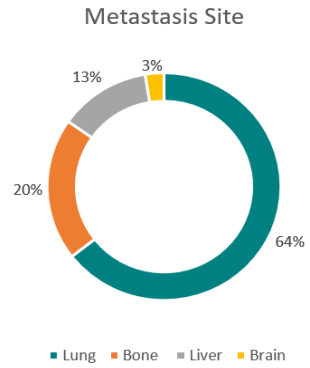


Figure 1. Distribution of IMDC risk categories (n = 93).

Metastasis site



Conclusion First-line TKI monotherapy provides durable outcomes in routine clinical practice and remains a valuable option for patients unable to receive immunotherapy. A larger sample size is required for more granular analyses.