



TREATMENTS FOR ADVANCED RENAL CELL CARCINOMA



Around **400 people** are diagnosed with **kidney cancer every year**. This condition affects 2 times more men than women.¹

One in four patients¹ have cancer that has spread outside of the kidney to other parts of the body, which is known as **advanced kidney cancer**.

There are different types of kidney cancer depending on which cells are affected. **Renal cell carcinoma (RCC)** is the most common type.

How is advanced RCC treated?

Treatment **options** depend on the patient's condition and the number of risk factors that they have. Local doctors usually recommend **targeted therapy** either on its own or with **immunotherapy** as **initial** treatment for patients with advanced RCC.

For patients whose cancer has **come back** or worsened after previous treatments, doctors usually recommend targeted therapy or immunotherapy **alone**.

Local treatment options include:

Immunotherapy

Surgery

Chemotherapy

Radiotherapy

Targeted therapy

Also known as **immuno-oncology (IO)** drugs, immunotherapy helps the immune system **find** and kill cancer cells.

There are **4** immunotherapies approved for use in Singapore for patients with **advanced** RCC.



Avelumab



Ipilimumab



Nivolumab



Pembrolizumab

Targeted therapy are drugs that **block** specific proteins that help the cancer **grow**. These drugs slow or **stop** the growth of cancer cells.

There are **5** targeted therapies commonly used to treat patients who have **advanced** RCC. These drugs are known as **tyrosine kinase inhibitors (TKIs)**.



Axitinib



Cabozantinib



Lenvatinib



Pazopanib



Sunitinib

Legend: Tablets Capsules Slow drip into a vein

Published studies show that these 9 drugs are **effective** treatments for RCC.

They have **different** side effects from each other.

▶ For patients with **newly diagnosed** RCC, IO/TKI combinations (**avelumab with axitinib, nivolumab with cabozantinib, and pembrolizumab with axitinib or lenvatinib**), and **nivolumab with ipilimumab** are likely to be **more effective** than TKIs alone in **extending** the length of time patients with advanced RCC can live without their cancer getting worse.

▶ For patients whose cancer has **come back** after previous treatments, **axitinib, cabozantinib** and **nivolumab** are **effective** treatment options.



ACE reviewed all available clinical evidence and received clinical advice from doctors for each treatment. ACE also negotiated prices with the companies.^{2,3}

Axitinib, cabozantinib, pazopanib and nivolumab used on their own and combination treatments **avelumab with axitinib** and **nivolumab with ipilimumab** were the best value for money (most cost-effective) at the prices proposed by the companies.



Cash or MediSave needed **every month** after subsidy and MediShield Life for a **middle-income patient** receiving **outpatient** treatment at **public hospitals***:

Axitinib	\$100 to \$200	Subsidised ✓ MediShield Life: \$1000 ✓
Cabozantinib	\$100 to \$200	Subsidised ✓ MediShield Life: \$1800 ✓
Pazopanib	\$100 to \$200	Subsidised ✓ MediShield Life: \$1600 ✓
Nivolumab	\$100 to \$800[#]	Subsidised ✓ MediShield Life: \$1800 ✓
Nivolumab + ipilimumab	\$200 to \$800[^]	Subsidised ✓ MediShield Life: \$5200 ✓
Avelumab + axitinib	\$200 to \$900[#]	Subsidised ✓ MediShield Life: \$3000 ✓
Pembrolizumab + axitinib	\$2,500 to \$6,500[^]	Subsidised ✗ MediShield Life: \$3000 ✓
Cabozantinib + nivolumab	\$3,500 to \$8,000[#]	Subsidised ✗ MediShield Life: \$3000 ✓
Pembrolizumab + lenvatinib	\$3,500 to \$8,000[^]	Subsidised ✗ MediShield Life: \$3000 ✓
Sunitinib	\$7,500 to \$8,000	Subsidised ✗ MediShield Life: \$1600 ✓



Axitinib alone or in combination with avelumab; cabozantinib; nivolumab alone or in combination with ipilimumab; and pazopanib were **recommended** for government funding⁴ because they are **effective** and provide good value for money for treating RCC.

Sunitinib, and the IO/TKI combinations cabozantinib with nivolumab, and pembrolizumab with axitinib or lenvatinib were **not recommended** for subsidy because their benefits do not justify their costs at the prices offered by the companies. MediShield Life is **available** to help with some of the cost of these treatments.

Discuss with your **doctor** which treatment is suitable for you. You can also speak to a **medical social worker** if you need further financial assistance for any of these treatments.

* Expenses will differ according to the amount of medicine that each patient needs and does not include other costs for doctor consultations, medical tests etc. MediSave withdrawal is capped at \$600 per month for these treatments. For Singaporeans who are eligible for subsidy, treatment costs will be subsidised by 40% to 75%. For subsidised drugs, expenses have been calculated using prices proposed by the companies including patient assistance programmes. For non-subsidised drugs, prices at public healthcare institutions at the time of subsidy review were used. # Avelumab and nivolumab are given once every 2 weeks, so patients will require 2 treatments per month for most months and up to 3 treatments per month occasionally. ^ For these treatments, ipilimumab, nivolumab and pembrolizumab are given once every 3 weeks, so patients will require 1 treatment per month for most months and up to 2 treatments per month for some months.

Sources:

1. Health Promotion Board National Registry of Diseases Office. Singapore Cancer Registry 50th Anniversary Monograph 1968 – 2017.
2. ACE Technology Guidance Plain English Summary, *Treatments for advanced renal cell carcinoma*. 31 Aug 2022.
3. ACE Technology Guidance, *Cabozantinib in combination with nivolumab for previously untreated advanced renal cell cancer*. 1 Aug 2023
4. Ministry of Health, Singapore. Cancer Drug List.



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