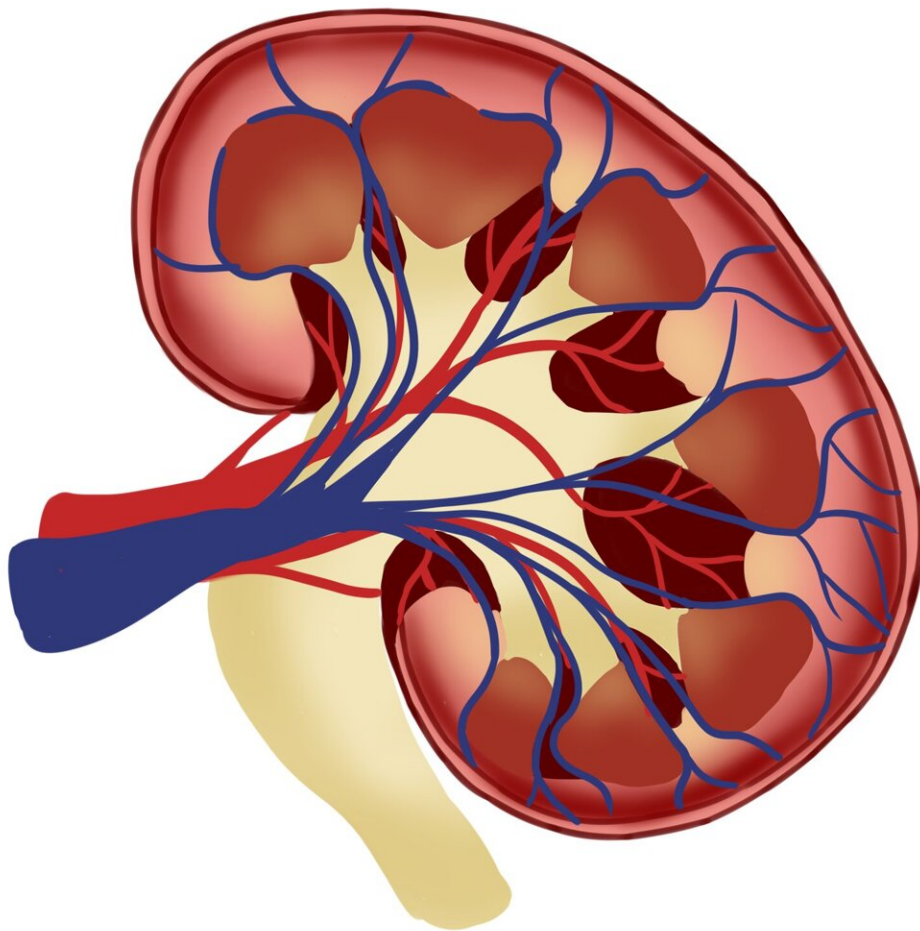


For some small kidney cancers, freezing is more effective than heat treatment

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For patients with early-stage renal cell carcinomas (RCCs) that measure between 3 and 4 centimeters, a procedure that destroys the cancer by freezing—called cryoablation—yields a lower-risk of cancer-related death compared to heat-based thermal ablation, reports a preliminary study in the *Journal of Urology*.

"In contrast, for [patients](#) with RCCs smaller than 3 centimeters, either cold-based or heat-based therapy is just as effective in reducing cancer-specific mortality," comments lead author Gabriele Sorce, MD, of IRCCS San Raffaele Scientific Institute, Milan. "The findings may help us to better tailor the choice of ablation technique for patients with small RCCs."

Lower risk of cancer death with cryoablation versus heating

Renal cell carcinoma is the most common type of kidney cancer. For patients with early-stage RCCs smaller than 4 cm, an increasingly popular treatment option is destroying the cancer by freezing it or heating it. For these clinical stage T1a RCCs, this cancer-destroying procedure, called ablation, can provide high survival rates without the need for more extensive kidney surgery.

However, the outcomes of ablation appear "less favorable" for a subset of patients with [clinical stage](#) T1a RCCs: those whose tumors are between 3 and 4 cm in size. Current European guidelines recommend [cryoablation](#) over heat-based [thermal ablation](#) for this cancers measuring 3 to 4 cm, while U.S. guidelines state that either treatment can be used. Both sets of guidelines state that either freezing or heating can be used for T1a RCCs measuring 3 cm or smaller.

To clarify the issue, an international research group analyzed patients

with stage T1a RCCs treated with freezing or heating between 2004 and 2018. Patients were drawn from the US National Cancer Institute's Surveillance, Epidemiology, and End Results (SEER) Program. The study focused on two matched groups of patients with cancers measuring between 3 and 4 cm: 757 treated with cryoablation and 388 treated with heat-based thermal ablation.

Median age at treatment was 71 years. Follow-up data on cancer-specific mortality—the risk of death from kidney cancer, excluding other causes of death—were available for 422 patients treated with freezing and 238 treated with heating.

Eight years after treatment, estimated cancer-specific mortality among patients with RCCs measuring 3 to 4 cm was 8.5% for patients treated with cryoablation versus 12.9% for those undergoing heat-based thermal ablation. With both treatments, about 40% of patients died from causes other than cancer.

Implications for treatment decisions in 'small, potentially curable' kidney cancers

After adjustment for non-cancer-related death and other characteristics, patients undergoing heat-based thermal ablation for RCCs between 3 and 4 cm were twice as likely to die of [kidney cancer](#). In contrast, for patients with cancers smaller than 3 cm, estimated cancer-specific mortality was similar between groups: 6.8% after cryoablation and 6.1% after heat-based thermal ablation.

The study is one of the first to directly compare clinical outcomes for freezing versus heating in patients with stage T1a RCCs measuring between 3 and 4 cm. The results suggest that heat-based thermal ablation has "a highly statistically significant and clinically meaningful"

disadvantage in terms of the long-term risk of death from kidney [cancer](#), compared to cryoablation.

"Conversely, in patients with tumor size 3 centimeters or smaller, either [ablation](#) technique is equally valid," says Dr. Sorce. "We believe our findings have important implications for clinical decision making and informed consent for patients with these small, potentially curable kidney cancers."

More information: Gabriele Sorce et al, Cancer-specific Mortality After Cryoablation vs Heat-based Thermal Ablation in T1a Renal Cell Carcinoma, *Journal of Urology* (2022). [DOI: 10.1097/JU.0000000000002984](#)

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