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Study examines role of biomarkers to evaluate kidney injury in cancer patients

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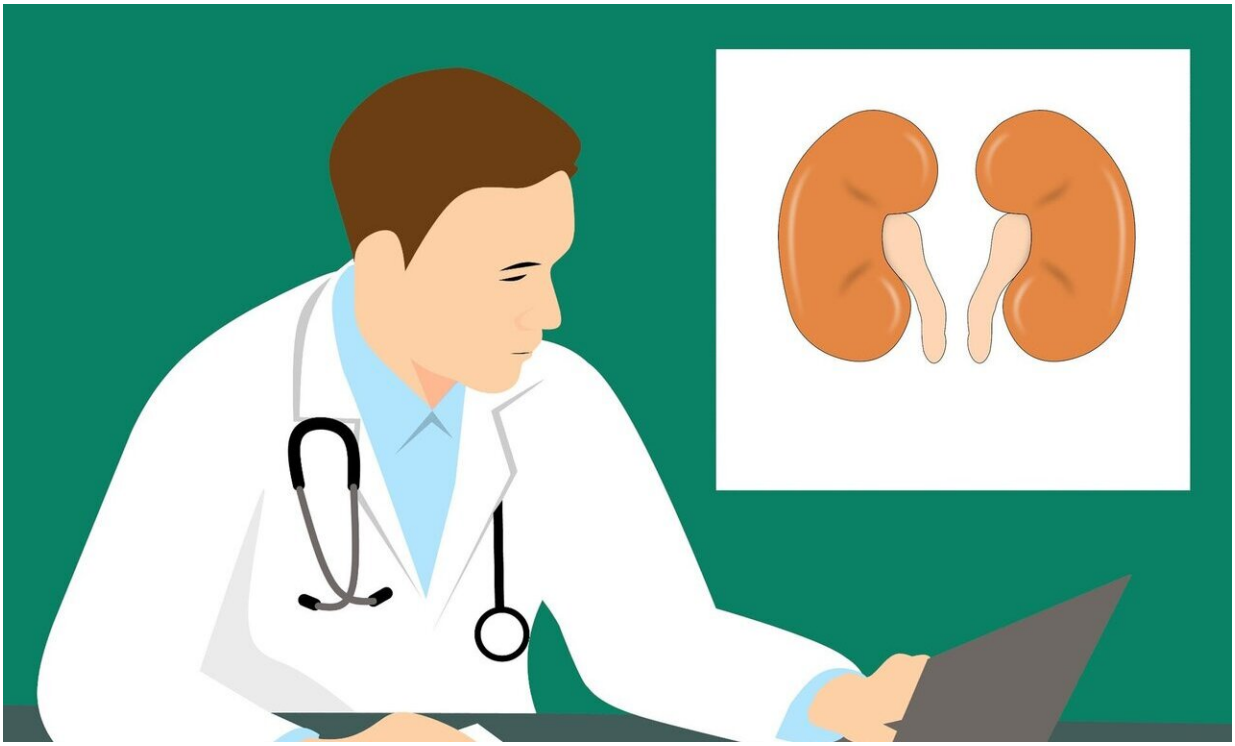

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A study by Mayo Clinic researchers published in *Kidney International Reports* finds that immune checkpoint inhibitors, may have negative consequences in some patients, including acute kidney inflammation, known as interstitial nephritis. Immune checkpoint inhibitors are used to treat cancer by stimulating the immune system to attack cancerous cells.

"Immune checkpoint inhibitors have improved the prognosis for patients with a wide range of malignancies including melanoma, non-small cell lung cancer and renal cancer," says Sandra Herrmann, M.D., a Mayo Clinic nephrologist and the study's senior author. "In some patients, this enhanced immune response may target kidney tissue, leading to acute kidney inflammation known as interstitial nephritis."

Dr. Herrmann says a kidney biopsy is the gold standard to diagnose this condition. However, a kidney biopsy is an invasive procedure that some patients may not be able to undergo because of the risk of bleeding.

"Our study provides important, first-time data for clinicians and patients on the use of biomarkers to routinely evaluate the cause of acute kidney injury in patients undergoing immune checkpoint inhibitor therapy for cancer," says Dr. Herrmann. "These biomarkers could assist with helping doctors discriminate treatment associated kidney injury from other causes and may also help aid clinical decision-making related to whether immune checkpoint inhibitor therapy should be continued if the injury found is not related to immunotherapy."

For this study, researchers followed patients who were seen at Mayo Clinic for acute kidney injury from 2014 to 2020. They found that blood markers of kidney function and inflammation, serum creatinine and C-reactive protein, respectively, as well as urine markers—urine retinol binding protein-to-urine creatinine ratio—were significantly higher in patients with acute kidney injury due to interstitial nephritis associated with immune checkpoint inhibitor therapy when compared to other patients treated with immunotherapy but with acute kidney injury due to other causes, such as acute tubular necrosis associated with other cancer therapies.

"Being able to tell if acute kidney injury in a cancer patient is due to a certain type of cancer therapy without the need for an invasive test is

extremely important," says Dr. Herrmann. "It simplifies the work-up for patients, makes the approach safer and quicker, and helps physicians better guide patients through their care."

Dr. Herrmann says that being able to attribute acute kidney failure to a cause other than immune checkpoint inhibitor therapy allows patients to continue with their cancer immunotherapy, which can be lifesaving. In addition, she says acute kidney failure has profound prognostic implications for patients and needs to be properly treated, so promptly identifying the cause is important.

More information: Busra Isik et al, Biomarkers, Clinical Features and Rechallenge for Immune Checkpoint Inhibitor Renal Immune-Related Adverse Events, *Kidney International Reports*, doi.org/10.1016/j.ekir.2021.01.013

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