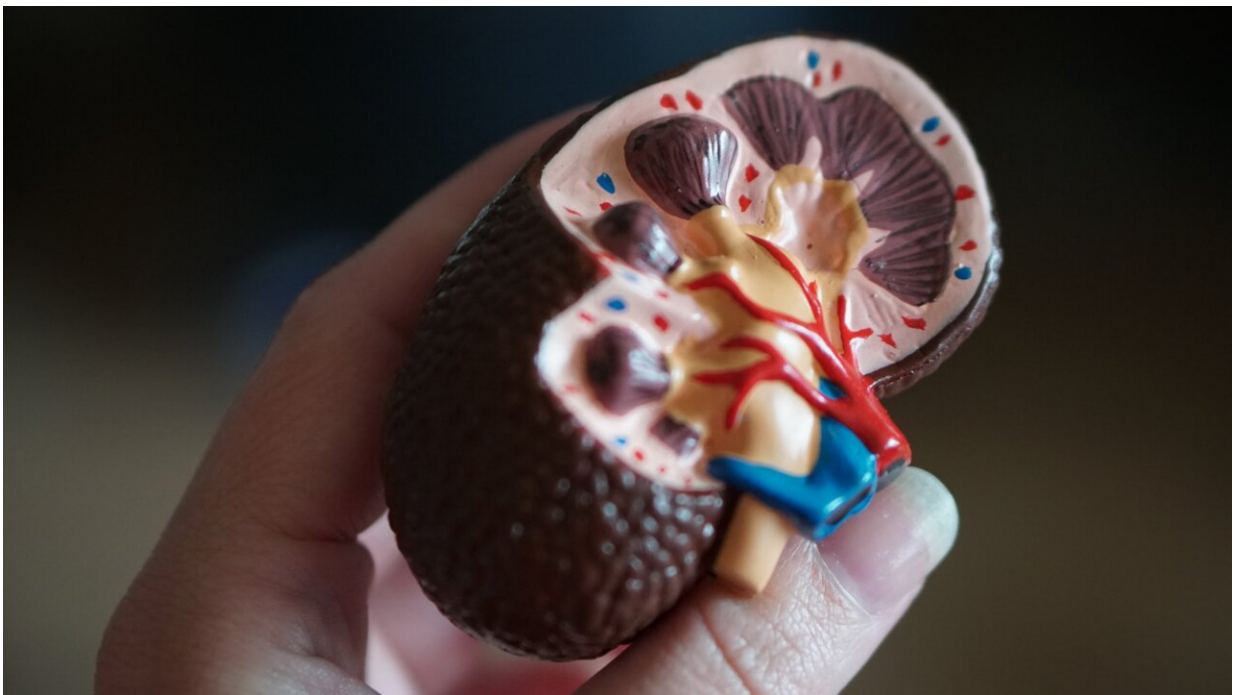


Study finds novel pathway, enzyme responsible for thrombosis in patients with chronic kidney disease

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Researchers have identified a potential new signaling pathway and enzyme that may help further the understanding of blood clot formation in chronic kidney disease patients and ultimately be targeted for therapeutic purposes.

Patients with chronic kidney disease (CKD) are at a higher risk of clotting (thrombosis) than patients with normal kidney function after vascular procedures. This complication predisposes them to potentially fatal events such as myocardial ischemia (heart failure). Over the past decade, researchers from Boston University School of Medicine (BUSM) have discovered metabolites (uremic solutes/toxins) in the blood of patients with CKD as potent drivers of thrombosis. Now in a new study, these same researchers have discovered an important mediator of thrombosis in these patients.

"We have shown for the first time that a specific enzymatic pathway is altered in CKD patients. This pathway is regulated by an enzyme called Indoleamine 2,3-dioxygenase (IDO), which converts tryptophan amino acid to kynurenine, a potent pro-thrombotic metabolite in CKD patients. IDO1 can now be targeted as a potential treatment option," explains corresponding author Vipul Chitalia, MD, Ph.D., associate professor of medicine at BUSM.

According to the researchers, the current FDA approved antithrombotic do not work efficiently in CKD patients as they fail to target CKD-specific pathways. Moreover, these agents predispose patients at the higher risk of bleeding. "Therefore, a safe and effective antithrombotic for CKD patients is imminent. Addressing this huge unmet clinical need, our study defines a [novel therapeutic target](#) for heightened risk of thrombosis in CKD patients," said Chitalia.

While IDO-1 inhibitors are in [clinical trials](#) for other conditions, the researchers hope that they can be repurposed to prevent thrombotic complications in CKD patients.

These findings appear online in the *Journal of the American Society of Nephrology*.

More information: Joshua A. Walker et al, Indoleamine 2,3-dioxygenase-1, a Novel Therapeutic Target for Post-Vascular Injury Thrombosis in CKD, *Journal of the American Society of Nephrology* (2021). [DOI: 10.1681/ASN.2020091310](https://doi.org/10.1681/ASN.2020091310)

Provided by Boston University School of Medicine

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