

Damage to blood vessel lining may account for kidney failure patients' heart risks

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Individuals with kidney failure often develop heart problems, but it's not clear why. A study appearing in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN) provides evidence that their kidneys' inability to excrete waste products in the urine, which leads to build-up of these products in the blood, may damage the sugary lining of blood vessels and lead to heart troubles.

Carmen Vlahu (an MD/[PhD student](#) at the Academic Medical Center Amsterdam, in the Netherlands) and her colleagues wondered whether the "glycocalyx," a sugar layer coating the insides of blood vessels, is damaged in patients with kidney failure and is responsible for their increased risks of heart problems. To investigate, they used a newly developed imaging method to look at 40 patients' and 21 healthy individuals' blood vessels. They also measured participants' blood levels of glycocalyx constituents.

Compared with healthy individuals, kidney failure patients had lost some of the glycocalyx coating the insides of their blood vessels, and they had high levels of glycocalyx constituents in their blood, consistent with increased shedding of glycocalyx from [blood vessel walls](#).

"Impaired glycocalyx barrier properties, together with shedding of its constituents into the blood, probably contribute to the aggressive [vascular pathology](#) present in this group of patients," said Vlahu. "The state of endothelial glycocalyx and its circulating components could provide valuable tools to monitor vascular vulnerability, to detect early

stages of disease, to evaluate risk, and to judge the response of patients with [kidney disease](#) to treatment," she added.

More information: The article, entitled "Damage of the Endothelial Glycocalyx in Dialysis Patients," will appear online on October 18, 2012, [doi: 10.1681/ASN.2011121181](https://doi.org/10.1681/ASN.2011121181)

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