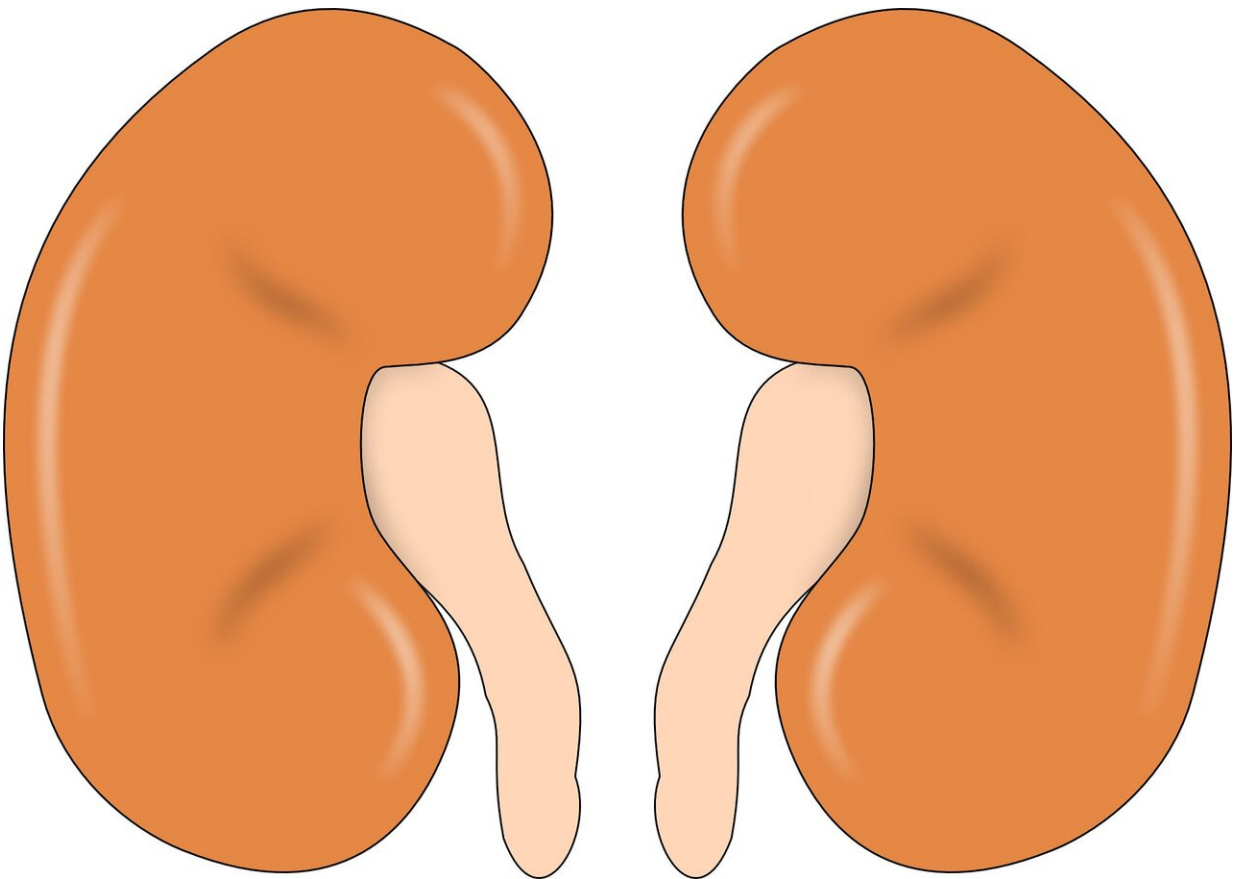


# Study examines heart and kidney outcomes of adults with nephrotic syndrome

June 19 2021

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A form of kidney disease called primary nephrotic syndrome is characterized by high urinary excretion of protein, low protein in the

blood, high cholesterol, and swelling in the arms and legs. Patients may face a range of negative health outcomes, but the extent of these effects are unknown. In a study appearing in an upcoming issue of *JASN*, investigators evaluated kidney, cardiovascular, and mortality outcomes in adults with primary nephrotic syndrome.

Alan S. Go, MD (Kaiser Permanente Northern California Division of Research) and his colleagues examined data from a large, integrated healthcare delivery system to identify adults with primary nephrotic syndrome over a 16-year period. The researchers compared 907 patients' long-term kidney and [cardiovascular outcomes](#) with those from 89,593 adults without [kidney disease](#).

Over a median follow-up of 4.5 years, adults with primary nephrotic syndrome had a 19.63-times higher risk of developing [kidney failure](#), a 2.58-times higher risk of acute coronary syndrome, a 3.01-times higher risk of heart failure, a 1.80-times higher risk of ischemic stroke, a 2.56-times higher risk of venous thromboembolism, and a 1.34-times higher risk of death compared with controls.

Primary nephrotic syndrome can result from diseases called minimal change disease, focal segmental glomerulosclerosis, or membranous nephropathy. In this study, focal segmental glomerulosclerosis was associated with the highest risk of kidney failure, followed by membranous nephropathy and minimal change disease, but there were no significant differences in the risks of cardiovascular complications or death by cause of primary nephrotic syndrome.

"Our study highlights the high risk of kidney failure and the underappreciated excess risks of different arterial and venous cardiovascular complications linked to primary nephrotic syndrome due to focal segmental glomerulosclerosis, membranous nephropathy, or minimal change disease. Additional information is needed on the most

effective ways to lower the risks of both kidney and cardiovascular complications in patients," said Dr. Go. "Our study also points to the need for patients with primary nephrotic syndrome to be identified as early as possible so that they can begin to implement lifestyle changes—such as moving toward a [healthy diet](#), stopping smoking, getting more exercise—and to be evaluated for preventive therapies that can reduce their risk for both cardiovascular disease and [kidney](#) failure."

**More information:** Alan Go et al, Primary Nephrotic Syndrome and Risks of End-Stage Kidney Disease, Cardiovascular Events, and Death: The Kaiser Permanente Nephrotic Syndrome Study, *Journal of the American Society of Nephrology* (2021). [DOI: 10.1681/ASN.2020111583](#)

Provided by American Society of Nephrology

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