

# Researchers identify target to help protect kidney patients' heart health

December 13 2012

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Blocking the receptor for proteins that constrict blood vessels reduces markers of heart-related problems in patients with chronic kidney disease (CKD), according to a study appearing in an upcoming issue of the *Journal of the American Society of Nephrology (JASN)*. The findings might be used to improve the health of patients with CKD, who most often die from cardiovascular disease.

Patients with CKD have an increased risk of developing [heart problems](#), in part because kidney disease can cause their arteries to stiffen. This is thought to occur due to an impaired availability of a vasodilator—nitric oxide (NO)—in the blood. The protein endothelin-1 is a vasoconstrictor and opposes the actions of NO, suggesting that drugs that block its effects may help protect CKD patients' [heart health](#). One such drug is called sitaxentan, which blocks endothelin-1's receptor (called the ETA receptor).

Neeraj Dhaun, MD, PhD (University of Edinburgh, in Scotland) and his colleagues conducted a randomized, double-blind study in 27 patients with CKD to compare the effects of sitaxentan, nifedipine (a blood vessel relaxant), and placebo on [kidney function](#), blood pressure, arterial stiffness, and various heart-related markers.

## **Among the major findings after six weeks of treatment:**

- Placebo and nifedipine did not affect three markers of heart-

related problems: blood levels of uric acid; blood levels of asymmetric dimethylarginine (ADMA), a blocker of NO production; and urine levels of endothelin-1.

- Sitaxentan treatment led to statistically significant reductions in all three of these markers.
- Sitaxentan reduced proteinuria (an excess excretion of protein in the urine) to a significantly greater extent than nifedipine. Proteinuria is an indicator of [kidney dysfunction](#).
- Nifedipine and sitaxentan both reduced blood pressure to a similar extent.

"The current study shows, for the first time, that ETA receptor antagonism selectively lowers novel [cardiovascular risk factors](#) in patients with kidney disease independent of blood pressure. These effects were seen in patients already receiving optimal treatment," said Dr. Dhaun. "These findings suggest a potential role for ETA receptor antagonism in conferring additional longer-term cardiovascular and renal benefits in patients with kidney disease," he added.

**More information:** The article, entitled "Endothelin-A Receptor Antagonism Modifies Cardiovascular Risk Factors in CKD," will appear online: [doi: 10.1681/2012040355](https://doi.org/10.1681/2012040355)

Provided by American Society of Nephrology

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