

Copeptin levels associated with renal and cardiac disease in type 1 diabetes patients

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Type 1 diabetes patients with elevated albumin in their urine had three times the risk of life-threatening kidney and cardiac disease as those with normal levels, according to researchers at the University of Colorado Anschutz Medical Campus.

The study, led by Dr. Petter Bjornstad, MD, of the Barbara Davis Center for Childhood Diabetes at the University of Colorado School of Medicine, looked at 38 males with type 1 diabetes and albumin in their urine and 38 diabetic males with normal albumin levels. The subjects were recruited across the country from the Type 1 Diabetes Exchange Biobank.

Albuminuria, or the presence of elevated albumin in the urine, is a marker for <u>kidney disease</u>.

Bjornstad found that the copeptin was more than three times higher in patients with albuminuria. Copeptin is secreted along with arginine vasopressin or AVP from the pituitary gland and elevated levels appear to predict risk of cardiovascular mortality.

AVP is a hormone that regulates urination, though chronically high levels may cause kidney and vascular damage. But measuring AVP is extremely difficult due to its small size and short half-life. So researchers use copeptin as a surrogate. It is more stable, derived from the same molecule as AVP and can be more easily measured.



In this study, published online today in the *Journal of Diabetes and its Complications*, researchers found that the men with type 1 diabetes and albuminuria had significantly greater concentrations of copeptin compared to diabetic males with normal albumin levels.

"High <u>levels</u> of copeptin were associated with greater odds of albuminuria and impaired <u>glomerular filtration rate</u> which measures <u>kidney function</u> and stages of kidney disease," Bjornstad said.

The findings, he said, could open the door to new ways of treating diabetic kidney disease and other illnesses. Specifically, a family of drugs called vaptans could be used to block excess vasopressin in these patients.

"We think that vaptans or therapies targeting vasopressin can delay or stop the development of diabetic kidney disease," Bjornstad said. "There are clinical trials undergoing with vaptans in <u>polycystic kidney disease</u>, but to our knowledge no one is looking at vaptans and <u>diabetic kidney</u> <u>disease</u> yet."

The study has important limitations. The sample size was small and its design prevents determination of causality. It also focused on men and may not apply to young people or women. But the findings support earlier research done by Bjornstad in the Coronary Artery Calcification in Type 1 Diabetes Study (CACTI.)

"We think these findings may have life-saving implications for those with diabetic kidney and heart disease," Bjornstad said.

Provided by CU Anschutz Medical Campus

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