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SKIN SODIUM CONTENT LINKED TO HEART PROBLEMS IN PATIENTS WITH KIDNEY DISEASE

Highlight

- Elevated sodium content in the skin correlates closely with left ventricular hypertrophy in patients with chronic kidney disease.

Heart disease is a leading cause of death in individuals with chronic kidney disease.

Washington, DC (February 2, 2017) — New research may provide insights concerning the cause of changes in the heart's structure that often occur in patients with chronic kidney disease (CKD). The findings, which appear in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN), suggest that treatments targeting skin sodium may help protect CKD patients' heart health.

Individuals with CKD are at elevated risk of developing heart problems and dying from cardiovascular causes. At least in part, these increased risks are related to a high prevalence and severity of left ventricular hypertrophy (LVH), an enlargement and thickening of the walls of the heart's left ventricle. The cause of LVH in patients with CKD is unclear, although some studies suggest that excess sodium intake may play a role.

Recent research indicates that tissues such as skin and muscle may store sodium. Markus Schneider, MD (University of Erlangen-Nuremberg, in Germany) and his colleagues wondered whether sodium deposition in these newly identified sodium stores is related to the degree of LVH in CKD patients. Using a technique called ²³Na-magnetic resonance imaging, the team measured skin sodium content at the level of the calf in 99 patients with mild to moderate CKD. The researchers also assessed total body water levels, 24-hour blood pressure, and left ventricular mass.

Skin sodium content, but not total body water, correlated with systolic blood pressure. Moreover, skin sodium content correlated more strongly than total body water did with left ventricular mass. Results from additional analyses suggested that skin sodium is a strong explanatory variable of left ventricular mass independent of blood pressure or total body water.

“We believe that skin sodium reflects deposition of excess sodium,” said Dr. Schneider. “Our finding of a strong relationship between skin sodium and changes in the structure of the heart suggests that interventions that reduce skin sodium content—for example dietary sodium restriction or medications that lead to increased sodium excretion—may have beneficial effects on the heart in patients with kidney disease.”

Study co-authors include; Ulrike Raff, MD; Christoph Kopp, MD; Johannes Scheppach, MD; Sebastian Toncar, MD; Christoph Wanner, MD; Georg Schlieper, MD; Turgay Saritas, MD; Jürgen Floege, MD; Matthias Schmid, MD; Anna Birukov; Anke Dahlmann, MD; Peter Linz, PhD; Rolf Janka, MD; Michael Uder, MD; Roland Schmieder, MD; Jens Titze, MD; and Kai-Uwe Eckardt, MD. The study is a substudy of the German Chronic Kidney Disease (GCKD) study.

Disclosures: The study was supported by Fresenius Medical Care, Bad Homburg, Germany, the Bundesministerium für Bildung und Forschung, Germany, and the Kuratorium für Hemodialyse und Nierentransplantation e.V. – Stiftung Präventivmedizin, Germany.

The article, entitled “Skin Sodium Is Closely Related to Left Ventricular Hypertrophy in Chronic Kidney Disease,” will appear online at <http://jasn.asnjournals.org/> on February 2, 2017, doi: 10.1681/ASN.2016060662.

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Journal of the American Society of Nephrology, suggest that treatments targeting skin sodium may help protect kidney disease patients' heart health.

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