Contrary to the usual association, stroke risk increases with low systolic blood pressure in patients with early chronic kidney disease (CKD), according to a report in the Journal of the American Society of Nephrology for March.

However, high blood pressure still raises the risk more, resulting in a J-shaped risk curve for CKD patients, the report indicates.

“Our study confirmed that individuals with CKD and elevated blood pressure are at increased risk of stroke,” lead author Dr. Daniel E. Weiner, from Tufts-New England Medical Center in Boston, said in a statement. “Further, we found that individuals with the lowest systolic blood pressures and moderate kidney disease are also at risk of stroke -- even compared to CKD patients with slightly higher blood pressure.”

Previous research has suggested that a higher systolic blood pressure may protect against stroke in hemodialysis patients. The goal of the present study was to determine if this relationship also exists in patients with earlier forms of CKD.

To do this, Dr. Weiner’s team analyzed two community-based, longitudinal data sets: the Atherosclerosis Risk in Communities Study (ARIC) and the Cardiovascular Health Study (CHS). Any patient with an estimated glomerular filtration rate <60 mL/min per 1.73 m² was considered to have CKD.

Of the 20,358 subjects studied, 1549 (7.6%) had CKD, the researchers note. During a median follow-up period of 111 months, 1029 (5.1%) subjects experienced a stroke.

CKD and elevated systolic blood pressure (>129 mm Hg) were both independent predictors of stroke, raising the risk by 22% and 18% (per 10-mm Hg rise), respectively. A low systolic blood pressure (<120 mmHg) increased the risk 2.5-fold relative to a normal pressure (120 to 129 mmHg).

“This research points out how little we truly know about the best way to treat individuals with CKD,” Dr. Weiner stated. “Most likely, low blood pressure identifies individuals with weak hearts or with stiff blood vessels that are unable to compensate to increase blood flow when needed or individuals who have a high pre-existing burden of vascular disease.”