Cerebral blood flow changes in pediatric patients with CKD

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(HealthDay)—Pediatric patients with chronic kidney disease (CKD)

have higher global cerebral blood flow (CBF) and regional differences in CBF, according to a study published recently in *Radiology*.

Hua-Shan Liu, Ph.D., from Taipei Medical University in Taiwan, and colleagues conducted a prospective study involving 73 pediatric patients with CKD and 57 control subjects. A magnetic resonance imaging arterial spin labeling scheme was used to acquire CBF measurements. Traditional and computerized neurocognitive batteries were used for neurocognitive measurements. Group-level global and regional CBF differences were compared between patients with CKD and controls.

The researchers found that, compared with control subjects, patients with CKD showed higher global CBF (mean, 60.2±9 versus 56.5±8 mL/100 g/min) that was attributable to reduced hematocrit level. There was a correlation between white matter CBF with blood pressure ($r = 0.244$; $P = 0.039$), which was indicative of altered cerebrovascular autoregulation. Regions in the default mode network were included in regional CBF differences between patients and control subjects. Positive extrema in the precuneus showed a strong correlation with executive function in patients with CKD.

"Systemic effects of estimated glomerular filtration rate, hematocrit level, and blood pressure on CBF and alterations in regional CBF may reflect impaired brain function underlying neurocognitive symptoms in CKD," the authors write.

One author disclosed financial ties to learning and neurological treatment companies, as well as receiving money for expert testimony.

More information: Abstract/Full Text (subscription or payment may be required)