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Children with high blood pressure more likely to have learning disabilities

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Children who have hypertension are much more likely to have learning disabilities than children with normal blood pressure, according to a new University of Rochester Medical Center (URMC) study published this week in the journal, *Pediatrics*. In fact, when variables such as socio-economic levels are evened out, children with hypertension were four times more likely to have cognitive problems.

"This study also found that children with hypertension are more likely to have ADHD (attention deficit hyperactivity disorder)," said Heather R. Adams, Ph.D., an assistant professor of Neurology and Pediatrics at URMC, and an author of the study. "Although retrospective, this work adds to the growing evidence of an association between hypertension and cognitive function. With 4 percent of children now estimated to have hypertension, the need to understand this potential connection is incredibly important."

Among the study's 201 patients, all of whom had been referred to a pediatric hypertension clinic at URMC's Golisano Children's Hospital, 101 actually had hypertension, or sustained high blood pressure, determined by 24-hour ambulatory monitoring or monitoring by a school nurse or at home. Overall, 18 percent of the children had learning disabilities, well above the general population's rate of 5 percent. But the percentage among those without hypertension was closer to 9 percent, and among those with hypertension, the rate jumped to 28 percent. All of the children were between 10- and 18-years-old, and the children's learning disability and ADHD diagnoses were reported by parents.

This study is part of a series of hypertension studies by Golisano Children's Hospital researchers, led by Principal Investigator Marc Lande, M.D., a pediatric nephrologist, but it was the first that included children with ADHD. Previous studies excluded them because ADHD medications can increase blood pressure. Researchers included them this time because, although it is possible that some of the children's hypertension was caused by medications, it is also possible that the higher rate of ADHD among children with hypertension is a reflection of neurocognitive problems caused by hypertension. Twenty percent of the children with hypertension had ADHD whereas only 7 percent of those without hypertension had ADHD among the study participants. And even when ADHD was factored out of the analyses, there was still a higher rate of learning disabilities in the hypertensive, compared to the non-hypertensive group of children.

"With each study, we're getting closer to understanding the relationship between hypertension and cognitive function in children," Lande said. "And this study underscores the need for us to continue to tease out the potential risk children with hypertension have for learning difficulties at a time when learning is so important. It may be too early to definitively link hypertension and learning disabilities, but it isn't too early for us, as clinicians, to ensure our pediatric patients with hypertension are getting properly screened for cognitive issues."

Provided by University of Rochester Medical Center

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