

High blood pressure easy to miss in children with kidney disease

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Spot blood pressure readings in children with chronic kidney disease often fail to detect hypertension - even during doctor's office visits — increasing a child's risk for serious heart problems, according to research from Johns Hopkins Children's Center and other institutions. A report of the findings appears online in the Journal of American Society of Nephrology.

Researchers compared [blood pressure](#) measurements obtained during regular doctor visits to readings obtained via a special device the children wore at home that automatically recorded their blood pressure every 20 minutes.

Of the 198 children in the study, nearly 40 percent had "masked" [hypertension](#), meaning their blood pressure was normal at the doctor's office, but spiked outside of it.

An even more disturbing finding: Children with masked hypertension were four times more likely to have a form of hypertension-related heart damage called left ventricular hypertrophy (LVH) than children with normal blood pressure, researchers report. LVH is a common consequence of untreated hypertension that results in a thickening of the left chamber of the heart and that over time can lead to heart failure and [heart rhythm disturbances](#).

"Taking blood pressure at the doctor's office clearly misses many cases of masked hypertension," says Susan Furth, M.D., Ph.D., a pediatric

nephrologist at Hopkins Children's and one of the study's principal investigators. "This means children with chronic kidney disease should have their blood pressure taken at home several times a day and regularly reported to their doctors." An overnight monitor, like the one used in the study, that automatically takes a child's blood pressure every 20 minutes is great, but some insurance companies won't pay for it, investigators say.

"Our findings are a sobering reminder of something we have long known: Blood pressure changes constantly throughout the day," says study lead author Mark Mitsnefes, M.D., M.S., from the Division of Nephrology and Hypertension at Cincinnati Children's. "We really can't rely on a single measurement as a valid indicator."

Investigators recommend that all children with chronic kidney disease get regular at-home readings of their blood pressure in addition to those taken during their visits to the doctor. Even though they used a different device in the study, researchers say many blood pressure monitors sold at drug stores are reliable but urge parents to talk to a doctor before choosing one.

Children who have repeated episodes of high blood pressure, researchers say, should also get a baseline echocardiogram, an ultrasound picture of the heart to evaluate heart muscle and function, and to get them every year thereafter.

This study was part of an ongoing NIH-funded research of chronic kidney disease in children, the largest to date, and involving more than 500 patients from 57 centers. Hopkins Children's is one of two clinical coordinating sites, along with the Children's Hospital at the University of Missouri-Kansas City. The Johns Hopkins Bloomberg School of Public Health is the study's data coordinating center.

Kidney disease in children tends to start and evolve silently. More than one-third (37 percent) of kidney transplant patients in 2001 were between the ages of 20 and 44, and the majority of them likely developed the disease in childhood, researchers say. Researchers estimate that 650,000 Americans will develop end-stage renal disease by 2010, costing the health care system \$28 billion a year.

Source: Johns Hopkins Medical Institutions

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