Study finds vitamin D supplement decreases wheezing for black preterm infants

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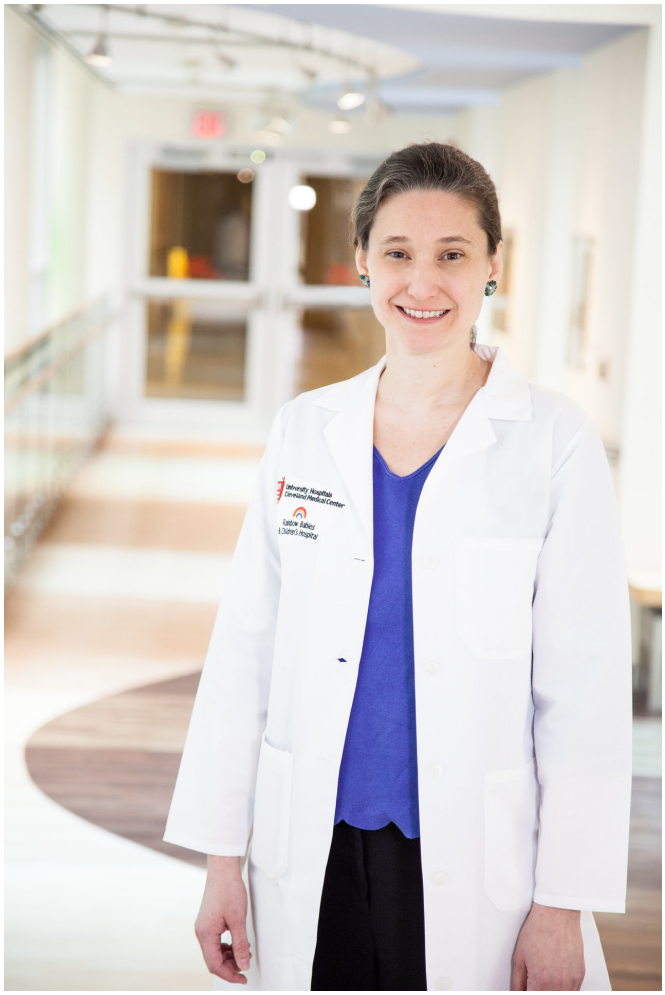

The study's principal investigator, Anna Maria Hibbs, MD, MSCE, FAAP, Eliza Henry Barnes Chair in Neonatology at UH Rainbow. Credit: University Hospitals

African American infants born prematurely are at higher risk for recurrent wheezing. This condition can cause the baby discomfort and is a risk factor for developing asthma later in life. There are no widely-accepted therapies to prevent prematurity-associated wheezing.

In a first-of-its-kind study published in the *Journal of the American Medical Association (JAMA)*, an University Hospitals Rainbow Babies & Children's Hospital (UH Rainbow) physician researcher found African American preterm infants experienced a significant decrease in recurrent wheezing with sustained supplementation of vitamin D. Among infants born at 28-36 weeks gestation, a daily dose of vitamin D through six months of age decreased recurrent wheezing by more than 10 percent.

Prior to conducting the study, it was unclear which vitamin D supplementation strategy would be superior. According to the study's principal investigator, Anna Maria Hibbs, MD, MSCE, FAAP, Eliza Henry Barnes Chair in Neonatology at UH Rainbow, continuing vitamin D supplementation with 400IU/day until 6 months of age corrected for prematurity may decrease their chance of recurrent wheezing.

"Parents need to know African American preterm infants are at high risk of wheezing in infancy," says Dr. Hibbs, who is also associate professor of pediatrics at Case Western Reserve University School of Medicine. "I hope this study can highlight the burden of wheezing illness experienced by premature babies and the importance of targeting interventions that can lessen this burden."

The randomized clinical trial included 300 black infants born preterm between January 2013 and January 2016 at four sites in the United States. Infants were enrolled in the study prior to discharge from the neonatal intensive care unit or newborn nursery, and received open-label multivitamin until they were consuming 200 IU per day of cholecalciferol or vitamin D from formula or fortifiers added to breastmilk. Once they were receiving at least 200 IU/day from their diet, they received either 400 IU of vitamin D per day or placebo until six

months of age, adjusted for prematurity. In both groups, exclusively breast-fed infants were provided with a multivitamin containing 400 IU/day. One-hundred fifty three infants received the daily dose of vitamin D, and 147 were randomized in the placebo group.

Among the 300 study participants, 277 completed the trial. Recurrent wheezing was experienced by 31.1 percent of infants in the sustained vitamin D supplementation group, and 41.8 percent of infants in the diet-limited supplementation group. Both strategies were similar in terms of bone health. The study, funded by the National Heart, Lung and Blood Institute and the Office of Dietary Supplements, enrolled infants at UH Rainbow, MetroHealth, Medical University of South Carolina, and Montefiore Medical Center.

"Vitamin D is an attractive treatment option because it is easy to administer, and is relatively inexpensive. Parents can be in control of this intervention," says Dr. Hibbs. "Further research is needed to identify and optimize interventions that can reduce the wheezing burden, and help us understand any health benefits that may continue as the infants grow up."

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