Children with severe asthma experience premature loss of lung function during adolescence

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Severe asthma in early childhood may lead to premature loss of lung function during adolescence and more serious disease during adulthood, researchers at Emory University School of Medicine report. Early identification and treatment of children with severe asthma is important to help stem asthma progression.

In an article available online in the January issue of the Journal of Allergy and Clinical Immunology, Anne M. Fitzpatrick, PhD, and W. Gerald Teague, MD, and colleagues report on their study of how airflow limitation changes throughout childhood and how this affects disease severity later in life. Fitzpatrick is an assistant professor of pediatrics in Emory University School of Medicine. Teague, who was formerly at Emory, currently is at the University of Virginia School of Medicine.

"Severe asthma in children is a challenging disorder," says Fitzpatrick. "It is important for physicians to identify those children with severe asthma who are at risk for lung function decline. With early identification, physicians can customize treatment plans and educate families on lifestyle changes that may help children with severe asthma breathe easier as they grow older."

Severe asthma in children is characterized by serious respiratory complications despite treatment with high doses of inhaled corticosteroids (ICS). Although there are similarities between children

and adults with severe asthma, recent research has shown that the limitation of airflow is not as significant in children as in adults. This raises questions about the course of severe asthma in childhood and the critical developmental time frame during which loss of lung function occurs.

The authors used data from children with mild-to-moderate and severe asthma who were enrolled in a long-term National Heart, Lung, and Blood Institute Severe Asthma Research Program. The children were ages 8-11 years at the first evaluation and 11-14 years at the follow-up visit. Comparing measurements of symptoms, medication use and lung function, the researchers analyzed changes in the children's respiratory health over an average three-year period.

The authors found that children with severe asthma reported a higher frequency of daily symptoms and hospitalization during the previous year despite higher doses of ICS and controller medication, and that they had significantly lower lung function when compared to children with mild-to-moderate asthma. Additionally, they noted that daily asthma symptoms such as coughing and wheezing and sensitization to aeroallergens during the initial evaluation were strong predictors of declines in lung function of more than one percent per year.

The authors conclude that children with severe asthma have a premature loss of lung function during the adolescent years that is associated with an increased frequency of wheezing and asthma symptoms and greater allergic sensitization during childhood. Further studies are needed to determine whether the loss of lung function is due to a slower rate of lung growth or to progressive changes in the lung tissues, and to explore the mechanisms that control the responses of severely asthmatic children to ICS treatment.

More information: