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# Asthma risk increases when child had bronchiolitis

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Results of a study published in *PLOS ONE* show that asthma risk increased 17 times when children who had bronchiolitis in the first two years of life also had a common variation of the Plasminogen activator inhibitor-1 (PAI-1) gene. Similarly, children with this genetic variation were 12 times more likely to develop asthma after any lower respiratory tract infections requiring medical contact early in life (including those which were potentially less severe).

PAI-1 is an enzyme that increases production in the airways in response to viral illness, potentially causing damage. The study found that by itself the variant of PAI-1 gene that produces more of the enzyme was not associated with a higher asthma risk. The risk of asthma and worse lung function increased only with the combination of the genetic variant and a severe viral respiratory illness early in life.

"Our findings suggest that genetic influences on asthma might be more pronounced in the context of early life environmental exposures, especially viral respiratory infections," says Rajesh Kumar, MD, senior author and allergist at Ann & Robert H. Lurie Children's Hospital of Chicago, as well as Associate Professor of Pediatrics at Northwestern University Feinberg School of Medicine.

The study included 3,483 Latino children, 8-21 years of age, with and without asthma. The association of increased asthma risk in children with the genetic variant and early life lower respiratory tract infections was replicated in a smaller African-American population.

"These results could lead to studies moving towards the personalized prevention of asthma," says Kumar. "Further research is needed to see if we can intervene with genetically susceptible children prior to or during a lower respiratory tract infection to reduce their chances of developing asthma."

Provided by Ann & Robert H. Lurie Children's Hospital of Chicago