Study reveals potential of genetic testing to predict which children will grow out of asthma

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New research published Online First in ***The Lancet Respiratory Medicine***, suggests that genetic risk assessments could be used to predict which children with asthma are likely to grow out of the condition and which will continue having symptoms as they grow older.

Analysis of data from a 40-year longitudinal study revealed that children with asthma and higher risk scores comprising of multiple genetic variants linked to asthma were over a third (36%) more likely to develop life-long-persistent asthma than those with a lower genetic risk.

Approximately half of all children with asthma will grow out of it by the time they reach adolescence or adulthood. Currently, there are no tests that can predict which children will grow out of asthma and which will recover as they grow older.

Recent genome-wide association studies (GWAS) have identified several variants (single nucleotide polymorphisms, SNPs) which carry a small increased risk of asthma. The current study was designed to investigate whether these known genetic risks are related to the onset, persistence, and severity of asthma, and with disruptions to daily life (eg, absence from school and work and hospital admissions).

By constructing a genetic risk score based on 15 GWAS-identified variants and then testing associations between the scores and asthma phenotypes (physical manifestations)***** in 880 participants from a long-running birth cohort, the investigators established that boys and girls with higher risk scores had a greater likelihood of developing asthma over the 38 years of follow-up than those with a lower genetic risk, and developed asthma earlier in life.

Participants with asthma and a higher genetic risk were also more likely to develop atopic (allergic) asthma and impaired lung function (airway hyper-responsiveness and incompletely reversible airflow obstruction), and to miss school or work and to be hospitalised because of asthma than those with a lower genetic risk.

Importantly, the predictive value of the genotype score was independent of, and provided additional information to, family history.

"Although our study revealed that genetic risks can help to predict which childhood-onset asthma cases remit and which become life-course-persistent, genetic risk prediction for asthma is still in its infancy", explains Daniel Belsky from Duke University Medical Center in the USA who led the research. "As additional risk genes are discovered, the value of genetic assessments is likely to improve. But our predictions are not sufficiently sensitive or specific to support their immediate use in routine clinical practice."******

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Notes to Editors:
***Atopy, which is associated with a persistent and severe asthma; airway hyper-responsiveness, which provides indirect confirmation of active airway inflammation; and incompletely reversible airflow obstruction, which identifies harmful changes to the airways resulting from chronic asthma.**
****Quote direct from author and cannot be found in text of Article.**

For full Article and Comment see: http://press.thelancet.com/asthma.pdf

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