The Relationship Between Wheezing Patterns During Early Childhood and Six Year Asthma Diagnosis in a High Risk Birth Cohort

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Rationale: In normal populations, at least four wheezing phenotypes have been defined in the first 6 years of life. We evaluated if similar phenotypes were also present in a population of children at high risk of developing asthma and allergies and what relationship they had to asthma diagnosed at age 6 years.

Methods: Asthma was diagnosed cross-sectionally at age 6 as follows: physician diagnosis, frequent albuterol or asthma-controller medication use, a step-up plan during illness, or prednisone use for an asthma exacerbation. Wheezing phenotypes in the first 6 years of life were categorized as follows: transient (at least one episode of wheezing in years 0-3 only); late onset (at least one episode of wheezing in years 3-6 only); persistent (at least one episode of wheezing in both of these time periods).

Results: Of 255 children evaluated, 72 (28%) had asthma. Wheezing phenotype characterization (n=259) revealed 109 (42.1%) never wheezed, 51 (19.7%) were transient wheezers, 13 (5.0%) were late onset wheezers, and 86 (33%) were persistent wheezers. None of the never wheezers or transient wheezers developed asthma. In contrast, 9 (69%) late onset and 63 (75%) persistent wheezers went on to develop asthma at age 6 years.

Conclusions: Even in a high risk population, the presence of transient wheezing or no wheezing in early life is rarely associated with the development of asthma. Further, although the majority of persistent wheezers develop asthma, at least 25% do not indicating a disconnect between wheezing history phenotypes and asthma diagnoses in early childhood.

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