

Understanding the Asthma Epidemic: Can Twin Studies Help?

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Despite more than a decade of research into the causes of the asthma epidemic, we are no closer to understanding it. As with other chronic diseases in which genetics and environment both clearly play a role, twin studies can be useful to address some of the challenges faced by epidemiologists that study allergic diseases, and asthma in particular. Among these are the lack of a specific phenotypic definition, the absence of simple means by which population-based incident cases can be identified, and the absence of methods for collection of objective risk predictors from remote sites. In this special issue of *Understanding the Asthma Epidemic: Can Twin Studies Help?*, four groups address these limitations and provide new insights into the complex causes of allergic disease.

Twins have been reported to experience lower rates of asthma hospitalization than singletons (Strachan et al., 2000), and the question of generalizability from twin studies is an important consideration addressed by Thomsen et al. The extent to which asthma, allergy and rhinitis share common risk factors is pertinent to the characterization of the asthma phenotype, and is addressed by Forгани et al., Williamsen et al. and

Thomsen et al. On the other hand, as made evident by van Beijsterveldt and colleagues' studies of environmental exposures (van Beijsterveldt et al.), initiation of surveillance for twin cases in infancy and early childhood can be enormously helpful in understanding the early natural history of disease. Finally, Cozen et al. describe a mechanism by which allergens and other environmental determinants can be collected from remote sites and sent by post. This can be of particular interest to twin investigators because sample sizes necessarily require the study of twins from large, widely dispersed populations.

As the technological capacity for the measurement of both genetic and environmental characteristics expands, questions of phenotype definition, study design and control of confounding effects will be further refined, permitting twin investigators to continue making a unique contribution to our understanding of asthma etiology.

Reference

Strachan, D. P., Moran, S. E., McInnery, K., & Smalls, M. (2000). Reduced risk of hospital admission for childhood asthma among Scottish twins record linkage study. *British Medical Journal*, 321, 732–733.

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