

CORRESPONDENCE

Kawasaki disease, childhood allergy and the hygiene hypothesis

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Editor,

We read with interest the recent cross-sectional sibling study from Liew et al. (1), which reported Kawasaki disease as a possible risk factor for subsequent allergic diseases, particularly for allergic rhinitis. Kawasaki disease is characterized by increased inflammation, and the authors conclude that their findings are contrary to the 'hygiene hypothesis', in which a relative lack of early-life exposure to microbial components leads to relative Th2 skewing and increased allergic diseases (2). They also conclude that Kawasaki disease increases the risk of allergy, although their data describe an association between two clinical phenotypes, rather than causality.

We suggest that their findings are in keeping with a lack of microbial experience and that both allergic disease and Kawasaki disease may share common early-life determinants. The recent epidemiology of Kawasaki disease, with marked increases in incidence, especially in rapidly industrializing countries (3), is similar to that reported for allergic disease (4, 5). Kawasaki disease may also reflect a relative lack of early-life microbial exposure; there is a strikingly low incidence of Kawasaki disease in Indigenous Australians (6), who have markedly increased early-life bacterial colonization (7) and a higher incidence of infectious diseases compared to non-Indigenous children (8). Allergic and autoimmune diseases are relatively infrequent in this population (9). It has been suggested that in individuals genetically susceptible to Kawasaki disease, this lack of early-life microbial experience results in impaired or delayed immune maturation that may

predispose to an abnormal response to normally harmless commensal flora (10).

Second, Kawasaki disease is followed by a prolonged period of antigen-specific 'split' T-cell anergy that may either reflect an inherent (i.e. pre-Kawasaki disease) immune defect or an immunologic consequence of Kawasaki disease itself (11). This subtle immune defect may also predispose to increased allergy risk.

Therefore, heritable immunogenetic factors, early-life immunologic experience prior to Kawasaki disease, and the consequent immune dysfunction may all contribute to the differential risk of other immune-related conditions, including allergy. Common immunologic determinants are increasingly suggested to underlie a number of autoimmune and inflammatory diseases (12); Kawasaki disease might warrant inclusion on this growing list of putatively-related conditions.

David Burgner¹, Kim Carter², Rebecca Webster³
& Taco W. Kuijpers⁴

¹Murdoch Childrens Research Institute, The Royal Children's Hospital, Parkville, Victoria, Australia; ²Telethon Institute for Child Health Research, Perth, Western Australia, Australia; ³Centre for Genetic Epidemiology and Biostatistics, University of Western Australia, Perth, Australia; ⁴Department of Pediatric Hematology, Immunology and Infectious Diseases, Amsterdam, Emma Children's Hospital, Academic Medical Center (AMC), The Netherlands
E-mail: david.burgner@mcri.edu.au

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