

ON THE HORIZON

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Wind Patterns, Agriculture, and Kawasaki Disease

*Martin T. Stein, MD reviewing Rodó X et al. Proc Natl Acad Sci U S A 2014 May 19.**An ill wind from northeastern China seems to be blowing an etiologic agent into Japan.*

Kawasaki disease (KD) is a vasculitis of medium-sized vessels with a predilection for the coronary arteries. Twenty-five percent of children with KD who are not treated with intravenous immunoglobulin and aspirin develop coronary artery aneurysms. Seasonal peaks in some geographic areas suggest it is transmitted by some vector. However, the etiology has remained elusive.

An interdisciplinary group of researchers started with the observation that the timing of KD outbreaks in Japan coincides with certain wind patterns from Asia. Computer models were developed to simulate air currents and airborne particle transport for all days since 1977, when the incidence of KD cases in Japan was high. The modeling revealed increased cases of KD in several areas in Japan only on days when winds originated from a region in northeastern China, the country's main cereal grain-growing region. The next step was to collect aerosol samples at altitudes between 2 and 3 km above Japan on days during the KD season when air currents originated only from northeastern China. Analysis of air samples identified *Candida* species as the dominant airborne fungus.

The authors conclude that their study suggests an airborne toxin or antigen associated with grain-based agriculture is transported by the winds and causes immune reactions that produce KD in genetically susceptible children.

COMMENT

This is a remarkable hypothesis that suggests a unique form of pathogenesis. However, the study only documents an association between wind patterns from China and KD in Japan. Although the authors may have discovered the etiology of a pediatric disease that has remained obscure for more than 40 years, more research is required to move this beyond an association.

EDITOR DISCLOSURES AT TIME OF PUBLICATION**Disclosures for Martin T. Stein, MD at time of publication**

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