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Journal club

Environmental micro-organisms and childhood asthma: the more the merrier?

Epidemiological studies have shown that children who grow up on traditional farms are protected from atopic conditions, including asthma. However, how this protection arises is not clearly understood. It has been postulated that immunological responses to an increased microbial exposure in early childhood is important. This study investigates, specifically, whether it is the *variety* of microbial exposure that is protective.

Two cross-sectional studies are described (PARSIFAL n=489 and GABRIELA n=444) in which the prevalence of asthma and atopy in children who live on farms are compared with a control group. Samples of dust were collected from children's bedrooms and analysed for bacteria and fungi. Results showed that the farm-dwelling children were exposed to a greater diversity of micro-organisms, even in an indoor environment. Furthermore, the prevalence of asthma was inversely related to the greater diversity of microbial exposure, independent of whether the children lived on a farm or not. Neither study showed a significant inverse correlation with atopy.

The finding that microbial diversity protects children against asthma is an important but potentially misleading one. The study discusses the dangers of accepting this hypothesis, as the number of receptors that trigger the innate immune system are limited and easily saturated. The study was only able to identify families of species of microbes, but it has taken the first step towards finding individual micro-organisms that may contribute to the protection that farms confer to their inhabitants and therefore a potential live vaccine against asthma.

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