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JOURNAL ROUND-UP

Farming, childhood allergy, and unpasteurised milk

A review of; "Which aspects of the farming lifestyle explain the inverse association with childhood allergy." Perkin MR, Strachan DP. J *Allergy Clin Immunol* 2006;117:1374-81.

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The relationship between being raised on a farm and reduced risk of developing allergic problems has been known about for a decade or so, but progress in identifying a possible causal mechanism has been slow.[1,2] In this important paper, Perkin and Strachan report the findings from the first UK study to investigate this relationship, and they suggest that one possible mechanism may be through greater consumption of farm or unpasteurised milk.

There has been a dramatic increase in the prevalence of allergic disorders in many economically developed countries in recent decades, and this has coincided with, amongst other things, a marked increase in pasteurised milk consumption in many parts of the world.[3] For example, raw unpasteurised milk was banned from sale in Scotland in 1983 on public health grounds and can now only be sold by farmers in England and Wales with labels clearly warning of the associated risks.[4] The key difference between pasteurised and unpasteurised milk is that the latter contains a variety of gram negative bacteria and also lactobacilli, both of which may influence maturation of the developing immune system by promoting a shift away from the Th2 bias (known to exist at birth and which is important to the development of atopic allergic disorders) towards a more balanced Th1/Th2 profile.[5]

Perkins and Strachan report that unpasteurised milk consumption was associated with significantly less eczema symptoms in primary school children, a substantially reduced risk of atopy and total IgE levels, and a corresponding higher production of whole blood IFN-γ. These effects were found to be independent of farming status and associated with relatively infrequent consumption of unpasteurised milk, although a clear dose-dependent relationship could not be demonstrated.

Key strengths of this study are its elegant two-stage design, and the careful attempts to control for confounding factors and to minimise bias through measurement of a range of other risk factors and objective markers of allergy, all of which are crucial to the interpretation of observational studies of this sort. Its main limitation, which the authors openly acknowledge, is that causality cannot be inferred, because reverse causation (which in this case would have meant families with allergic disorders switching to unpasteurised milk consumption) could be a plausible mechanism explaining the relationship.

This work now needs to be taken forward in a prospective birth cohort study comparing infants who are fed farm or unpasteurised milk with infants fed pasteurised milk, and with a sufficiently long period of follow-up to allow time for the development of a broad range of allergic conditions that manifest in infancy and childhood. If these findings are confirmed with a more rigorous study design, we may have a relatively easily modifiable risk factor for preventing sensitisation, development of eczema, and possibly other allergic conditions.

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