

EDITORIAL

Cows' milk allergy

A majority of mothers in the developed world have chosen to replace the nutritive material that had evolved for the species by milk naturally intended for a quadruped. It is remarkable that infants totally nourished by cows' milk cannot usually be distinguished, either in growth or in biochemical profile, from those who have been exclusively breast fed in the first months of life. Certainly there are less overt benefits that can be demonstrated. Breast fed infants have significantly less gastro-intestinal infection than those given formulae and they also obtain a degree of protection against respiratory disease [1]. The extent to which breast feeding offers protection against the development of allergic disease remains a matter of debate even though the subject has been investigated almost to the point of tedium. Sauls pointed out that direct comparisons between breast and bottle fed infants are likely to be flawed as there are so many confounding variables between groups of mothers in the western world who choose the two methods of feeding [2]. However, whole population studies have not been able to demonstrate less allergy in breast fed infants even when all confounding factors are included in the analysis [3]. Nevertheless, there is evidence that exclusive breast feeding may diminish, or at least postpone, manifestations of allergy in high-risk infants [4,5].

It is fortunate for *Homo sapiens* that the young of the species have accepted cows' milk so well. A relatively small number are allergic to cows' milk, presenting most often in the first two years of life. The prevalence of cows' milk allergy has been variously estimated at between 0.3% and 7.5% depending on method of ascertainment [6,7]. An even greater percentage of formula fed infants are switched to a soy formula or a supposedly 'hypoallergenic' hydrolysate because their symptoms are considered to be due to allergy or intolerance of cows' milk [8].

Hill *et al.* in Melbourne have been studying cows' milk allergy (CMA) for almost two decades and have contributed significantly to the understanding of this form of food allergy [9,10]. They have produced a satisfactory classification of CMA that accords with clinical experience. Three groups of infants may be identified and their CMA confirmed by challenge. Group 1, posing the least diagnostic problem, has an immediate reaction after ingesting cows' milk, often in very small volume. They may present with gastro-intestinal or generalized anaphylactic reaction and have positive skin prick (SPT) and specific IgE as measured by radio-allergosorbent tests (RAST). An intermediate, Group 2, tend to react up to 20 hr after ingesting larger volumes of milk. This group does not have a raised IgE level. The third group are late

reactors with symptoms affecting the skin, respiratory or gastro-intestinal systems. Some individuals in this group do have raised IgE antibodies.

In this issue Hill *et al.* investigate the immunological changes in a group of 98 Group 1 and Group 3 infants with CMA followed for 2 years [11]. They were unable to detect any significant difference between total IgE, serum IgE or IgG antibodies to whole cows' milk or its proteins between the 15 immediate reactors who developed tolerance and the 54 whose allergy persisted. Similarly among the late reactors no difference could be demonstrated between the 17 who became tolerant and the 12 in whom disease persisted. A significant change in SPT reactivity was detected among the immediate reactors who became tolerant of milk. Whereas eight of 15 had SPT exceeding twice the area of the histamine standard at outset only one retained this degree of cutaneous reactivity at the final assessment.

This work is important to the clinician in several ways. It clarifies an important spectrum of disorders of infancy that has not been well described in current paediatric literature in spite of pertinent contributions from several investigators [12,13]. Although Hill points out that he is reporting a selected series it is likely that paediatricians will recognize the three groups from their own practice. They will confirm that CMA, although initially dramatic in presentation, is often followed by tolerance. Skin prick testing is demonstrated to be a useful diagnostic tool in some forms of CMA. Where a strongly positive SPT or high specific IgE persisted after age 2 years CMA was likely to persist. No significant differences could be found in levels of IgG antibodies to milk or milk proteins at the initial or final assessments suggesting these antibodies do not have a major role in CMA.

Bahna has estimated that in the United States about 90 000 new infants a year suffer from CMA [14]. In the United Kingdom at least 20% of infants are thought to have been given an alternative formula as they are believed to be allergic or intolerant of cows' milk. Can or should anything be done to reduce these figures? It has proved difficult to disentangle the many variables influencing the outcome of modes of nutrition. Although selected high risk infants may demonstrate less allergy when exclusively breast fed such benefit has not been shown in longitudinal whole population studies. Possibly sufficient passage of foreign food antigen takes place via breast milk for sensitization to take place [15]. Several studies have now shown that dietary restriction during lactation leads to a lower prevalence of food-related atopy [16–18]. Chandra extends the restriction of mater-

nal diet back into the latter part of pregnancy although there is little evidence from studies of cord IgE to suggest that intrauterine sensitization commonly occurs. This opinion may need to be revised if the studies from Kondi *et al.* which show an enhanced cord blood lymphocyte response to food antigens in infants who subsequently developed allergic disorders, are confirmed [19]. Preliminary data from Warner *et al.* also shows that T-cells in cord blood can show a high proliferative response to beta-lactoglobulin and ovalbumin indicating intra-uterine priming [20]. A recent approach to allergy prevention combined either dietary restriction in lactating mothers, or the use of a hydrolysed soya and beef collagen feed (Aptamil HA, Milupa), with acaricidal treatment to the environment of a group of high-risk infants [21]. Asthma, eczema and food intolerance all occurred more frequently in a control group of high risk infants not subjected to the avoidance measures although the food related group did not reach statistical significance. Zeiger has demonstrated that maternal and infant food allergen avoidance produces a reduction of gastro-intestinal and dermatological allergy in the first year but that the prevalence of atopy converges on that seen in a control group by the age of four [16]. However, as much food allergy is confined to the first year or two of life such preventive measures may be worthwhile. The disadvantages of cows' milk as an allergen are becoming clearer. These, together with the observation that as many as 40% of infants receiving cows' milk suffer blood loss from the gastrointestinal tract, lead one once more to conclude that breast is best [22]. However one makes a judgement the alternatives are not as good.

References

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