Allergic disease improve after removal from an environment with a large allergen burden. This study furthers our knowledge regarding allergen exposure in day care centers. The relationship between allergen burden and development of allergic disease was not looked at in this study.

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PREDICTION AND PREVENTION

ALLERGY DEVELOPMENT AND THE INTESTINAL MICROFLORA DURING THE FIRST YEAR OF LIFE


Purpose of the Study. Numerous studies have demonstrated that the prevalence of atopic diseases is lower in the Central and Eastern European countries as compared with Western European countries. The intestinal microflora is a likely source for the induction of immune deviation in infancy. The purpose of this study was to prospectively relate the intestinal microflora to allergy development in 2 countries differing with respect to the prevalence of atopic disease.

Study Population. A cohort of 24 infants in Estonia and 20 infants in Sweden followed prospectively through the first 2 years of life.

Methods. Stool samples were obtained at 5 to 6 days and at 1, 3, 6, and 12 months, and 13 groups of aerobic and anaerobic microorganisms were cultivated through use of standard methods. Allergic status was defined as presence of atopic dermatitis and/or at least 1 positive skin test result. Skin prick testing was performed at 3 and 6 months to fresh egg white and cow’s milk. At 1 and 2 years of age, skin testing to dust mites, cat, dog, cockroach, bird, and timothy were conducted.

Findings and Results. By the age 2 years, 9 Estonian and 9 Swedish infants developed atopic dermatitis and/or positive prick skin test result. In comparison with healthy infants, infants who developed allergy were less often colonized with enterococci during the first month of life (72% vs 96%; P < .05) and with bifidobacteria during the first year of life (17%–39% vs 42%–69%; P < .05). Furthermore, allergic infants had higher counts of clostridia at 3 months (median value: 10.3 vs 7.2 log10; P < .05). The prevalence of colonization with Staphylococcus aureus was also higher at 6 months (61% vs 23%; P < .05), whereas the counts of Bacteroides were lower at 12 months (9.9 vs 10.6 log10; P < .05).

Conclusions. Differences in composition of the gut flora between infants who will and infants who will not develop allergy are demonstrable before the development of any clinical manifestations of atopy. Because the observations were made in countries with different standards of living, these findings could indicate a role for the intestinal microflora in the development of and protection from allergy.

Reviewer’s Comments. According to the “hygiene hypothesis,” atopy results from the imbalance between TH1 and TH2 type immune responses. Microbial stimulation is associated with induction of interleukin (II)-12 and TH1-type responses. Therefore, an early and more extensive colonization with aerobic bacteria in healthy infants could conceivably protect from development of atopy. Additional studies are needed to elucidate the prophylactic potential of supplementation with probiotic microorganisms such as Lactobacillus or Bifidobacterium sp.
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