follow-up period (group A), and 13 had recurrent wheezing (group B). There was no significant difference in birth weight, male-to-female ratio (1:1), or age at hospitalization (group A: 6.3 ± 5.3 months; group B: 4.2 ± 3.3 months) between groups. There was a trend for children in group A to have been breastfed more than those in group B (83% vs 46%; P = .18). Similarly, children in group A tended to have higher birth weight than those in group B (3303 ± 647 vs 2864 ± 486 g; P = .15). Children in group A (non-wheezeers) had significantly higher sCD14 levels on hospital admission than those in group B (wheezeers) (14521 ± 1773 vs 11243 ± 3264 pg/mL; P < .05). sCD14 levels correlated with age at hospitalization (P < .01). The sCD14 level was >11,000 pg/mL in 5 of 6 (83%) children in group A and 6 of 13 (46%) children in group B. This level was chosen as it was able to be the best predictor for subsequent recurrent wheezing.

Conclusions. In infants hospitalized for RSV bronchiolitis, high serum sCD14 levels correlate with protection from subsequent recurrent wheezing and may modulate the influence of RSV development of lower airway disease.

Reviewers’ Comments. Membrane-bound CD14 on monocytes and macrophages binds lipopolysaccharide (LPS) and transfers it from LPS-binding protein to Toll-like receptors (TLRs). CD14/TLR activation by LPS enhances interleukin 12 and interleukin 18 synthesis, Th1 differentiation, and inhibition of the atopic phenotype. It is not clear from this study if increased sCD14 levels are the result of a differential responsiveness to RSV in group A or if sCD14 levels predated acquisition of the RSV infection. Nonetheless, this study adds another layer to our understanding of the early role of innate immune responsiveness and the subsequent risk of development of atopic disease.

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THE INTRODUCTION OF SOLIDS IN RELATION TO ASTHMA AND ECZEMA


Purpose of the Study. Some feeding guidelines recommend delayed introduction of solids for the prevention of asthma and allergy. This study sought to explore whether late introduction of solids is protective against the development of asthma, eczema, and atopy.

Study Population. A total of 642 unselected children recruited before birth and followed to the age of 5.5 years.

Methods. A questionnaire was administered yearly. Food exposure was derived from the first-year questionnaire: “When did you start feeding your son/daughter the following foods?: fruits, vegetables, infant rice, cereal products, meat, fish, milk products, egg.” Median age at which each solid food was introduced and length of time the infant was breastfed were determined. Wheezing was defined as wheezing in the absence of a cold or infection in the preceding 12 months, and eczema was defined as a positive response to “has a doctor ever told you that your son/daughter has eczema?” Skin-prick tests to grass, cats, and dust mites were performed at age 5.5 years, and atopy was defined as at least 1 positive skin test. Clinical outcomes were compared for early (before the median age) or late (after the median age) introduction of foods and how long the infants were breastfed.

Results. No effect of the early or late introduction of solid foods in relation to any of the outcomes was observed. No association between exclusive breastfeeding at the age of 8 weeks and any of the outcomes was found.

Conclusion. The results do not support the recommendations given by present feeding guidelines, which state that a delayed introduction of solids is protective against the development of asthma and allergy.

Reviewer’s Comments. Published feeding guidelines on the delayed introduction of solid foods to prevent allergy state that “conclusive studies are not yet available to permit definitive recommendations.” Nonetheless, recommendations are made regarding delaying the introduction of certain foods until certain ages. Some meta-analyses have favored breastfeeding for prevention of eczema (and other atopic diseases), but individual studies on both sides continue to be published. This study suggests that delayed introduction of solid foods does not prevent asthma, eczema, or atopy. The most obvious type of allergy that such a delay might prevent is allergy to the food itself, but this “prevention” is somewhat self-fulfilling, because you cannot become allergic to a food to which you have not been exposed. This is complicated further by exposure to foods in breast milk. Additionally, many toddlers who become allergic to foods, particularly milk and egg, routinely outgrow the allergy. Although this study is helpful in examining the relationship (or lack thereof) between the introduction of solid foods and asthma, eczema, and atopy, we need more research to tell us if delayed introduction of solid foods will prevent or merely delay the development of food allergy.

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EFFECTS OF BREAST-FEEDING OF THE DEVELOPMENT OF ATOPIC DERMATITIS DURING THE FIRST 3 YEARS OF LIFE—RESULTS FROM THE GINI-BIRTH COHORT STUDY


Purpose of the Study. Most studies have shown a protective effect of breastfeeding on atopic disease, but some have shown an increased risk. This study examined the impact of exclusive breastfeeding for the first 4 months of infancy on the prevalence of atopic dermatitis (AD) during the first 3 years of life.

Study Population. A large birth cohort of healthy term neonates in Germany enrolled between 1995 and 1998 for a study designed to investigate risk factors for and course and prevention of allergic disease.

Methods. Group I (interventional) consisted of infants with a family history of allergy who were either exclusively breastfed for the first 4 months or were not breastfed or supplemented (by randomization) with hydrolyzed formula (study formula) or conventional cow’s milk formula. Group II (noninterventional) consisted of infants whose parents did not wish to participate in the intervention trial or who did not have a family history of allergy. Both groups received a yearly self-administered questionnaire on health, nutrition, and living conditions. Parents in group I also received dietary recommendations to avoid allergenic food and participated in structured interviews at the study centers.

Results. Of the 5538 infants recruited at birth, 4194 (75.7%) completed the 3-year questionnaires. Of these, 3903 (93.1%) completed data on feeding regimen and physician-diagnosed AD. Fifty-two percent of these infants were breastfed exclusively and 522 (13.4%) were bottle-fed exclusively during the first 4 months of life. The overall prevalence of physician-diagnosed AD and intermittent itchy rash for at least 6 months was 20% and 9.1%, respec-
tively. There was no significant adverse association between exclusive breastfeeding and physician-diagnosed AD in infants with a family history of AD (odds ratio [OR]: 0.92), in those without a family history of AD (OR: 0.97), or in those with itchy rash (OR: 1.2 and 0.92, respectively). In group I, exclusive breastfeeding was protective for AD, compared with feeding with a conventional cow’s milk formula (OR: 0.64). If stratified by family history of AD, there was no difference in effect of breastfeeding on physician-diagnosed AD and itchy rash in group I. The difference in the NI group was not determined because of the small number of participants.

Conclusions. Exclusive breastfeeding for the first 4 months of infancy was not shown to increase the risk of developing AD in infants with or without a family history of AD.

Reviewer’s Comments. A number of studies have shown that breastfeeding could be a risk factor for atopic dermatitis and even suggest a detrimental effect of continuing to breastfeed infants with severe AD and food allergy. The role of breastfeeding in allergic diseases has been controversial, but the weight of the evidence in meta-analyses and in this study support a protective effect in regard to prevention.

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Michael S. Kaplan, MD
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THREE-YEAR OUTCOMES OF DIETARY FATTY ACID MODIFICATION AND HOUSE DUST MITE REDUCTION IN THE CHILDHOOD ASTHMA PREVENTION STUDY


Purpose of the Study. To measure the effects of dietary supplementation with ω-3 fatty acids and house d-e (HDM) allergen avoidance in children with a family history of asthma.

Study Population. Children at high risk for asthma, defined by having at least 1 parent or sibling with current asthma or frequent wheeze.

Methods. A total of 616 children at high risk for asthma were enrolled antenatally, and 526 children remained in the trial when they were 3 years old. HDM allergen avoidance involved the use of both physical and chemical methods for the reduction of allergen concentrations. Dietary intervention included supplementation of the infant’s/s child’s diet with tuna fish oil and use by the family of canola-based oils and spreads. Participants were randomized to 1 of the 4 study groups: placebo diet and active HDM controls, active diet supplements and active HDM controls, placebo diet and no HDM controls, and active diet supplements and no HDM controls. The outcomes were symptoms of allergic disease and HDM allergen sensitization at 3 years.

Results. There was a significant 10.0% (95% confidence interval [CI]: 3.7, 16.4) reduction in the prevalence of cough in atopics in the active-diet group (P = .003; number needed to treat: 10) but a negligible 1.1% (95% CI: −7.1, 9.5) reduction in cough among nonatopics children. There was a 7.2% (95% CI: 10.1, 14.3) reduction in sensitization to HDM in the active allergen-avoidance group (P = .05; number needed to treat: 14). No significant differences in wheeze were found with either intervention.

Conclusions. These results suggest that HDM allergen avoidance and dietary supplementation with foods rich in ω-3 fatty acids may have a role in preventing the development of allergic sensitization and airways disease in early childhood, which offers the prospect of reducing allergic disease in later life.

Reviewer’s Comments. Although the reported risk reduction in the active-intervention groups was modest, this study suggests that a relatively simple intervention may be used in public health to modulate the development of allergic sensitization and airways disease at an early age. Hopefully, a follow-up study will determine the long-term effect of combined dietary ω-3 fatty acid supplementation and environmental HDM allergen avoidance.

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EARLY INFANT MULTIVITAMIN SUPPLEMENTATION IS ASSOCIATED WITH INCREASED RISK FOR FOOD ALLERGY IN ASTHMA


Purpose of the Study. Dietary vitamins have immunomodulating effects in vitro, and individual vitamins have been shown to skew T cells toward either T-helper 1 or T-helper 2 phenotypic classes, suggesting that they may participate in inflammatory or allergic disease. The objective of the study was to determine if early vitamin supplementation during infancy affects the risk for asthma and allergic disease during early childhood.

Study Population. Cohort data were analyzed from the National Center for Health Statistics 1988 National Maternal-Infant Health Survey, which followed pregnant women and their newborns, and the 1991 longitudinal follow-up of the same patients, which measured health and disease outcomes. There were >8000 patients in this study.

Methods. Patients were stratified by race and breastfeeding status. Factors that are known to be associated with alteration of risk for asthma or food allergies were identified by using univariate logistic regression. Those factors were then analyzed in multivariate logistic-regression models. Early vitamin supplementation was defined as vitamin use within the first 6 months.

Results. The overall incidence of asthma was 10.5% and of food allergy was 4.9%. In univariate analysis, being male gender, having a smoker in the household, being in child care, being premature (<37 weeks’ gestation), being black, having no history of breastfeeding, and having lower income and lower education were associated with higher risk for asthma. Being in child care, having higher levels of education and income, and having a history of breastfeeding were associated with a higher risk for food allergies. In multivariate logistic analyses, a history of vitamin use within the first 6 months of life was associated with a higher risk for asthma in black infants (odds ratio [OR]: 1.27; 95% confidence interval [CI]: 1.04, 1.56). Early vitamin use was also associated with a higher risk for food allergies in the exclusively formula-fed population (OR: 1.63; 95% CI: 1.21, 2.20). Vitamin use at 3 years of age was associated with increased risk for food allergies but not asthma in both breastfed (OR: 1.62; 95% CI: 1.19, 2.21) and exclusively formula-fed (OR: 1.39; 95% CI: 1.03, 1.88) infants.

Conclusions. The conclusions of the authors were that early vitamin introduction is related to increased likelihood for asthma in black children and food allergies in exclusively formula-fed children.

Reviewer’s Comments. Although there are some laboratory data to support the potential for some vitamins to
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Pediatrics 2005;116;539
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