



Soy allergy in infants and children with IgE-associated cow's milk allergy

Zeiger RS, Sampson HA, Bock SA, et al.
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Introduction

Cow's milk allergy affects about 2.5% of children <3 years of age.^{1,2} Infants with cow milk allergy who are not breastfed must find an alternative nutrition source—typically either a soy protein-based formula or an extensively hydrolyzed protein hydrolysate ('hypoallergenic') formula, with soy formula being a more affordable and palatable choice.

Study Purpose

This study sought to determine the prevalence of soy allergy in children with IgE-associated cow milk allergy.

Study Design

In this study, children ages 3-41 months with documented IgE-associated cow milk allergy (n=93) were given an initial screening for concomitant soy allergy. Soy allergy was confirmed by a positive double-blind, placebo-controlled food challenge to soy, a positive response to soy in an open challenge under the direction of a physician, or history of more than one anaphylactic reaction to an isolated ingestion of soy.

The children that were considered tolerant to soy at entry (n=81) followed a feeding regimen that excluded all cow milk products, and recommended soy protein-based formula for one year. Participants were followed up with visits at two months and one year after entry, as well as phone contact at six months, in order to determine dietary intake, tolerance to soy formula, and anthropomorphic data.

IgE-associated cow milk allergy is one of two types of cow milk allergy defined immunologically (IgE-associated or non IgE-associated). Symptoms of the IgE-associated allergy typically manifest themselves within three hours of exposure to cow milk and may include gastrointestinal, dermatologic, and respiratory/circulatory events.

Study Results

Twelve of the 93 participants in this study were diagnosed with soy allergy at entry. Eleven of these twelve subjects were recruited from one center that was a tertiary specialty referral center for multiple food allergic children and may have caused a recruitment bias in the study. Of the 81 children who passed the initial screening for soy allergy, three dropped out (for reasons unrelated to soy allergy) and one successfully completed the study but had biopsy-confirmed eosinophilic esophagitis. Soy allergy was probable but was not definitively confirmed.

In the remaining 77 children, soy formula was well-tolerated, and the children showed significant improvements in growth (as measured by weight and height) during the course of the year ($P<0.05$).

Discussion

These findings suggest that a soy protein-based formula is a reasonable alternative for infants and children with IgE-associated cow milk allergy. It is both more palatable and less expensive than the alternative extensively hydrolyzed protein hydrolysate (EPH) or 'hypoallergenic' formulas. Additionally, about 30% of the soy allergic children also had a history of intolerance to EPH.

This study provides support for its conclusions based on its large cohort size, inclusion of only patients with IgE-associated cow milk allergy, precise documentation of cow milk and soy allergy, and the intensive one-year prospective follow-up to determine development of soy allergy.

Study Conclusions

Soy allergy occurred in only a small minority of children with IgE-associated cow milk allergy. Only 14% of the initial 93 children with IgE-associated cow milk allergy were also shown to be allergic to soy.

References

1. Host A, Halken S. A prospective study of cow milk allergy in Danish infants during the first 3 years of life. Clinical course in relation to clinical and immunological type of hypersensitivity reaction. *Allergy*. 1990;45(8):587-596.
2. Jakobsson I, Lindberg T. A prospective study of cow's milk protein intolerance in Swedish infants. *Acta Paediatr Scand*. 1979;68:853-859.

Key Point:

This large cohort study included only IgE-associated cow milk allergic subjects with precise documentation of cow milk allergy and soy allergy. Only 14% of the infants with identified IgE-associated cow-milk allergy developed allergy to soy, suggesting that a soy-protein-based formula is a reasonable choice for children with IgE-associated cow milk allergy.