Milk hydrolysis products may retain their allergenic reactivity

Background: Milk allergy is one of the most common allergies in small children. Extensively hydrolyzed milk formulas are therefore an important source of nutrients for infants being predisposed for allergy and not being breastfed and to infants with cows milk allergy. The aim of this study was to investigate some extensively hydrolyzed milk whey products for their ability to retain sensitizing and reacting activity in a Brown Norway (BN) rat model.

Method: BN rats were immunized i.p. three times without the use of adjuvant with 200 µg of either PBS (control), intact β-lactoglobulin (BLG), enzyme hydrolyzed BLG or the enzyme hydrolysis product PEPTIGEN IF-3080 from Arla, Denmark. There was no intact BLG left in the two hydrolysates. Sera from BN rats were analyzed for specific IgG and IgE.

Result: The study showed that while intact BLG had a significant sensitizing capacity, both hydrolyzed BLG and PEPTIGEN had no sensitizing capacity. However, antibodies from all rats immunized with the intact BLG could still react with both hydrolyzed BLG and PEPTIGEN in a manner that was statistically significant.

Conclusion: The extensively hydrolyzed milk whey products investigated in this study showed no sensitizing capacity, but could bind to antibodies raised in rats immunized with intact BLG. The results in this study resemble observations seen in humans where infants sensitized to cow’s milk may react to extensively hydrolyzed infant formulas. These observations should lead to the development of new standards for extensively hydrolyzed infant formulas based on peptide sizes rather than degree of hydrolysis (DH).

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