MILK AND DAIRY THREATS

A difference should be made between food allergy and food intolerance. The latest “may be defined as a reproducible adverse reaction to the ingestion of a food or to any of its components” by opposition to food allergy, which “may be defined as an adverse clinical reaction to a specific food component and that is immunologically mediated” [1].

“Adverse reactions to cow’s milk should be differentiated into immunologic (cow’s milk allergy) and non immunologic (cow’s milk intolerance)” [2]. “The most common cause of cow’s milk intolerance is lactase deficiency” [2], which leads to lactose intolerance. “It has high racial predilection, being highest in dark-skinned populations and lowest in northern Europeans” [2]. Besides, “allergic reactions to cow’s milk are driven by more than one immunological mechanism” [3], leading to the distinction between IgE and IgG allergies.

“The incidence and dominant allergic mechanisms change with age, with IgE-mediated reactions common in infancy and non-IgE-mediated reactions dominating in adults” [3]. These mostly imply IgG antibodies and delayed reactions. We must consider that “cow's milk allergy is a complex disorder” [3]. Indeed, “numerous milk proteins have been implicated in allergic responses and most of these have been shown to contain multiple allergenic epitopes” and “there is considerable heterogeneity amongst allergic individuals for the particular proteins and epitopes to which they react” [3]. Most abundant milk proteins are caseins and whey proteins called alpha-lactalbumin and beta-lactoglobulin.

Patients with cow’s milk allergy often have morphologic changes in their gut epithelium enabling enhanced antigen translocation directly through leaky tight junctions [4, 5]. Cow’s milk antigens may trigger the development of auto-immune diseases such as type I insulin-dependent diabetes. Such patients have an increased immune reaction towards certain milk proteins [6] and several authors underline the relationship between early cow’s milk exposure and the development of type I diabetes in humans [7, 8].

“The cows' milk hypothesis for (...) insulin-dependent diabetes is based on the concept that early consumption of cows' milk may expose the immune system to a foreign protein possessing immunological cross-reactivity with an antigen present on pancreatic beta-cells” [9]. Indeed, “sequence homologies exist between beta casein and several beta-cell molecules” [9]. High antibodies to beta-casein are also seen among coeliac patients [10].

The early introduction of formula feeding in replacement of breastfeeding, i.e. during the first trimester, results in increased cow’s milk protein IgG antibodies and in the development of allergic reactions [11], but “breastfeeding within the first 4 months of life prevents the generation of antibody response to bovine beta-casein” [12].

Allergic patients who should avoid cow’s milk proteins might not tolerate hydrolyzed formulas [13], even though an extensively hydrolyzed whey formula could be tried [14]. It seems that using a soy formula can be effective [14] and safe [15]. Other alternatives can be employed: a rice hydrolyzed formula [16,17], almond milk [18] or horchata de chufa.