

TOLERANCE TO WATER BUFFALO MILK IN A CHILD WITH COW MILK ALLERGY

Cow milk allergy is the most common food allergy affecting toddlers, with a prevalence of 2% to 3%.¹ Alternatives to cow milk include hydrolyzed or elemental cow milk, soy milk, and rice milk. Other mammalian sources, such as goat milk and sheep milk, have shown a high degree of cross-reactivity.^{2,3} Milk from water buffalo (*Bubalus bubalis*) is a common drinking milk in many developing countries and is the main component of buffalo mozzarella eaten throughout the world. In vitro studies^{4,5} demonstrate a similar proteomic makeup and suggest antibody cross-reactivity between cow milk and water buffalo milk proteins. Similarly, 1 human study⁶ showed a high degree of skin test positivity to water buffalo milk in patients with cow milk allergy. However, the use of water buffalo milk in these patients has never been further studied. We describe the first report of a child with cow milk allergy who tolerated water buffalo milk.

The patient is a 3-year-old boy followed up for cow milk allergy. At the age of 4 months, he developed immediate vomiting after drinking 4 oz of cow milk formula. He was transitioned to a partially hydrolyzed whey-based cow milk formula without any reaction. At 11 months of age, cow milk products were reintroduced into his diet. On this occasion, he developed facial erythema and diffuse urticaria within 30 minutes of ingestion of 8 oz of cow milk.

He was referred to our allergy program at the age of 20 months and was found to have a positive skin prick test (SPT) reaction (5-mm wheal) to cow milk extract (Greer Laboratories, Lenoir, North Carolina) and a negative SPT reaction to casein extract (Adamis Pharmaceutical Corp, San Diego, California) in the presence of negative saline and positive histamine controls (6-mm wheal). His total IgE level was 1,440 U/mL, with positive allergen specific IgE levels (ImmunoCap 250, Phadia AB, Portage, Michigan) to cow milk (4.99 kU/L), casein (2.09 kU/L), and the whey proteins α -lactalbumin (2.92 kU/L) and β -lactalbumin (0.78 kU/L).

Repeated SPTs were performed at the age of 2 years, and results continued to be positive for cow milk (5-mm wheal). Per parental request, the patient underwent SPT to water buffalo milk-based yogurt (Woodstock Water Buffalo Co, Woodstock, Vermont), and the results were negative. Subsequently, he passed an open food challenge to water buffalo milk-based yogurt. During the next year, he continued to strictly avoid cow milk and cow milk-containing products. He continued to consume water buffalo milk-based yogurt and cheese on a regular basis without any reaction.

At follow-up at 3 years of age, he had a negative SPT reaction to cow milk, with a reduction in his allergen specific IgE levels to cow milk (1.34 kU/L), casein (0.71 kU/L), α -lactalbumin (0.89 kU/L), and β -lactalbumin (<0.35 kU/L). He underwent an open food challenge to cow milk. During this challenge, he developed urticaria within 15 minutes of exposure to 15 mL of whole cow milk. The failure of this challenge was indicative of the persistence of his cow milk allergy.

To our knowledge, this is the first reported case of a patient with cow milk allergy who was clinically tolerant of water buffalo milk. Previous in vitro and SPT studies^{5,6} indicate that this scenario is unexpected. However, the true rate of water buffalo milk allergy in

cow milk-allergic patients is unknown because a clinical intervention study has never been performed.

It is also interesting that this patient tolerated partially hydrolyzed whey-based cow milk formula. These formulas are not typically recommended because they have been shown to be allergenic in 45% of patients with cow milk allergy.⁷ The present patient had allergen specific IgE antibodies to the whey proteins α -lactalbumin and β -lactalbumin; however, these levels were lower than to other cow milk proteins. Therefore, it is possible that this patient is allergic to whey; however, the partial hydrolysis has allowed for tolerance.

There exists a case report of a patient with the opposite scenario in that this patient was allergic to water buffalo milk but was tolerant of cow milk.⁸ That report, combined with our patient, suggests that there are allergenic proteins in cow milk that are not contained in water buffalo milk, and vice versa. This implies that other cow milk-allergic patients may tolerate water buffalo milk. Further clinical studies are required to determine whether water buffalo milk is a suitable alternative for children with cow milk allergy.

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LICHEN PLANUS ASSOCIATED WITH OMALIZUMAB ADMINISTRATION IN AN ADULT WITH ALLERGIC ASTHMA

A 63-year-old white woman was referred to the Allergy Service of Texas Children's Hospital for evaluation of recurrent lichen planus (LP). The patient's medical history was remarkable for a long history of steroid-dependent asthma, allergic rhinitis, osteoarthritis, hypertension, and hypercholesterolemia. Her serum IgE level was 55 kU/L, and omalizumab therapy was prescribed at Food and Drug

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