

AAAAI Ask the Expert

1/19/2012

Q: This question is concerning the possibility of a baked milk challenge on a 10 month old with skin test and immunocap positive for milk, egg, wheat, peanut, tree nuts and sesame. Positive history of clinical reaction to milk. First is there a decision point for immunocaps for egg and milk when doing baked challenges (less than 2 years old). And what food would you use for a baby that is allergic to milk, egg and wheat to perform the challenge. Is boiled milk a possibility.

A:Response from Dr. Anna Nowak-Wegrzyn:

Regarding baked milk, I am not aware of any published data in such young infants. Our own studies included children over 4 years old, only few were about 2 years old (for practical reasons). (1;2)For older kids, we would consider challenges if milk-IgE was less than 35 kUA/L. I would definitely lower this threshold for such a young kid. My gut feeling would be to consider a baked milk challenge if milk-IgE was less than 10 kUA/L. Our unpublished data (in older kids, median age about 4 years; Caubet JC et al, manuscript under revision) suggested that casein-IgE <0.7 kUA/L is a very favorable prognostic factor for tolerance of baked milk with the vast majority of kids tolerating baked milk with such level.

We have never tried challenging with boiled milk. However, skin tests with boiled milk were done and some kids who tolerated milk in a muffin had very strong skin test reactivity to boiled milk. In addition to high temperatures involved in baking, there are interactions between milk proteins and wheat proteins that result in decreased bioavailability of milk proteins in baked products. You might consider baking a rice muffin or cupcake with milk.

Regarding baked egg, undetectable ovomucoid IgE has a very high negative predictive value in young infants (Alessandri C, Zennaro D, Scala E, Ferrara R, Bernardi ML, Santoro M, et al. Ovomuroid (Gal d 1) specific IgE detected by microarray system predict tolerability to boiled hen's egg and an increased risk to progress to multiple environmental allergen sensitisation. *Clin Exp Allergy*. 2011 Dec 14.). In the study by Ando et (3)al conducted in a cohort of Japanese children, the positive decision point for reactivity to heated egg was 10.8 kUA /L for ovomucoid ImmunoCAP and the negative decision point was 1.2 kUA /L (UniCAP, Phadia).We generally avoid baked egg challenges when egg white IgE is over 50 kUA/L.(4) I would say that for such a young infant I would consider a baked egg challenge in the office if egg white IgE was less than 7 KUA/L-just my gut feeling. BTW, we frequently see relatively later onset of reactions to baked egg, toward the end of the 2 hour observation period compared to lightly heated egg (scrambled egg or French toast).

Best regards,

Anna Nowak-Wegrzyn, MD
Associate Professor of Pediatrics
Division of Allergy and Immunology
Jaffe Food Allergy Institute
Mount Sinai School of Medicine

References

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- (3) Ando H, Moverare R, Kondo Y, Tsuge I, Tanaka A, Borres MP et al. Utility of ovomucoid-specific IgE concentrations in predicting symptomatic egg allergy. *J Allergy Clin Immunol* 2008; 122(3):583-8.
- (4) Lemon-Mule H, Sampson HA, Sicherer SH, Shreffler WG, Noone S, Nowak-Wegrzyn A. Immunologic changes in children with egg allergy ingesting extensively heated egg. *J Allergy Clin Immunol* 2008; 122(5):977-83.