

# Informing risk management for patients with cow's milk allergy: Threshold dose distributions from a large population of cow's milk allergy patients underwent very low dose food challenges

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June 7, 2022

## Abstract

**Background** The safe consumption of foods depends on their allergen content in relation to patient Low Observed Adverse Effect Level (LOAEL) and No Observed Adverse Effect Level (NOAEL), and other factors. In the case of milk, data on LOAEL and NOAEL is limited and conflicting. **Objective** To determine the threshold dose distribution and the lowest individual ED for milk in a large group of milk allergic patients **Methods** Individuals with confirmed cow's milk allergy who underwent either a diagnostic or pre-oral immunotherapy (OIT) open milk oral food challenge in The Institute of Allergy, Immunology, and Pediatric Pulmonology at Shamir Medical Center, between 2010 and 2015 were included. A subgroup of patients with severe milk allergy underwent a modified challenge with 90-120 minute-interval following a dose of 0.3 mg cow's milk protein. **Results** A total of 866 participants (193 with diagnostic challenges and 673 with pre-OIT challenges) were included in the study. The discrete ED<sub>01</sub> and ED<sub>05</sub>, or values derived where 1% or 5% of the respective allergic population would be predicted to experience an allergic reaction, were 1.1-1.9 and 4.7-5.6 mg milk protein, respectively, and the values for cumulative doses for ED<sub>01</sub> and ED<sub>05</sub> were 0.9-1.8 and 5.2-6.2 mg milk protein, respectively. None of the patients, including the most severe milk allergic individuals who underwent the modified challenge, reacted to the first 0.3 mg protein dose. **Discussion** This report provides valuable information on milk NOAELs, LOAELs and EDs which might assist regulators in their decisions on food labeling in general, and for milk in particular. **CLINICAL IMPLICATIONS** The current study, using the largest studied population, demonstrates that milk NOAELs and LOAELs are higher than previously described. No patient reacted to <1mg milk protein. **CAPSULE SUMMARY** The finding of higher LOAEL and NOAEL and of a "safe dose" is important for mainly for regulators but as well as milk allergic patients and families in their decisions on milk labeling.

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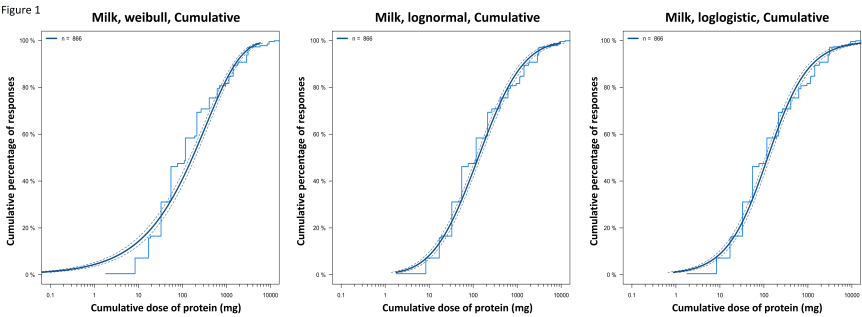


Figure 3

