

Correspondence

Does maternal IgG protect infants from allergen-specific IgE sensitization?

To the Editor:

Passively acquired IgG antibodies are known to prevent immunization. The prototypic clinical application is the neonatal prevention of Rhesus D immunization by anti-rhesus antibodies. The prospect of a similar intervention in relation to IgE sensitization is the topic of an interesting article by Lupinek et al¹: Does maternal IgG protect infants from allergen-specific IgE sensitization? The title of the article was carefully chosen: “Maternal allergen-specific IgG might protect the child against allergic sensitization,” but the title of the editorial by Schroeder² was more explicit: “A role for maternal IgG in protecting infants from allergen-specific IgE sensitization.” This statement is based on the conclusion that none of the children demonstrated IgE sensitization when the level of allergen-specific maternal IgG was higher than a given cutoff value.¹ However, the investigators used a very high cutoff value, and no statistical information on the predictive value of maternal allergen-specific IgG is presented.

We would argue that the data on the large majority of the allergen tests are not informative, because the allergen is positive in fewer than 6 children.¹ Only the results on the 3 most frequently sensitizing airborne allergens in their study, that is, Phl p 1 ($n = 19$), Bet v 1 ($n = 10$), and Fel d 1 ($n = 6$), are informative. However, the data on the relationship between the maternal antibody levels to these 3 allergens and the presence of sensitization in their child at age 5 years are not clear from the results shown.

In an unpublished analysis of sera from 92 children from the prevention and incidence of asthma and mite allergy cohort,³ we measured maternal allergen-specific IgG using radiolabeled affinity-purified major allergens from mite (Der p 1) and cat (Fel d 1) as described elsewhere.⁴ Sixty of these children were negative (<0.35 kU_A IgE/L) for *Dermatophagoides pteronyssinus*. The mothers of 8 (13%) of these mite-negative children had higher IgG anti-Der p 1 antibody levels compared with any of the 32 mite-positive children (see Fig 1, A). However, this negative association between the level of maternal allergen-specific IgG and mite sensitization in the child was not statistically significant by Mann-Whitney test ($P > .1$), but marginally significant by chi-square analysis ($P = .077$). In contrast, maternal IgG levels to Fel d 1 were higher in 3 of 13 cat-sensitized children (23%) than in any of the 79 mothers of children without IgE to cat. This positive association was statistically not significant by Mann-Whitney test ($P > .1$), but significant by chi-square analysis ($P < .001$).

We conclude that a protective effect of allergen-specific maternal IgG remains a very interesting hypothesis, but as yet needs more extensive studies for validation. Effects on persistent sensitizations, particularly to allergens from pollen and mites, are most likely to be amenable to interventions, because these IgG levels are low in most mothers. The logical next step would be to have a closer look at existing data from cohort studies with

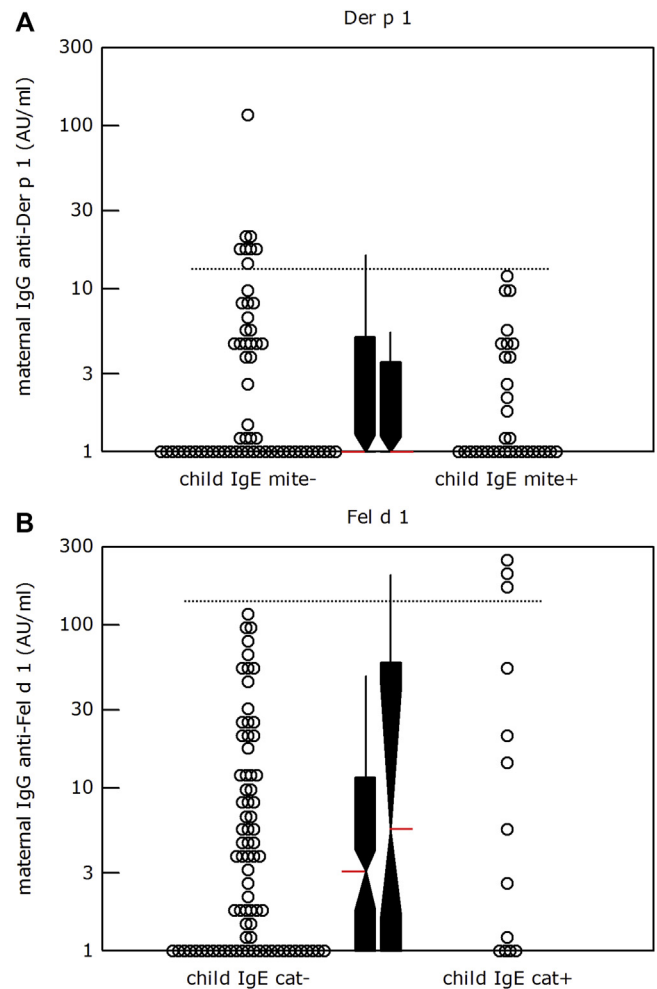


FIG 1. Maternal IgG to Der p 1 (A) and Fel d 1 (B) vs the presence or absence of IgE to *Dermatophagoides pteronyssinus* (Fig 1, A) and cat dander (Fig 1, B) in the mother's child. The IgG levels on the y-axis are in arbitrary units (AUs). The box plots indicate the 10th, 25th, 75th, and 90th percentiles and the median (red lines). For Der p 1, the 25th and 10th percentiles are below the detection limit of 1 AU/mL. The dotted lines indicate the cutoff with the highest chi-square value.

mother-child pairs in which the mother received immunotherapy with airborne allergens during pregnancy and the level of allergen-specific IgE was monitored in childhood. Because the effect of maternal IgG is likely to be dependent on allergen exposure during early infancy, it might be relevant to take the child's date of birth into account.

The data shown were obtained thanks to the participants of the prevention and incidence of asthma and mite allergy project coordinated by Bert Brunekreef. The serological assays were performed by Janny de Vrieze and Ellen Vermeulen.

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Disclosure of potential conflict of interest: The authors declare that they have no relevant conflicts of interest.

The prevention and incidence of asthma and mite allergy study protocol was approved by the medical ethics committees of the participating institutes. All parents gave written informed consent.

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