P17 Systemic Immediate-Type Reactions to Gelatin Included in Varicella and Japanese Encephalitis (JE) Vaccines

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Recently we found that most of the children who showed anaphylactic reactions to measles, rubella and mumps vaccine had anti-gelatin IgE and assumed that most of the reactions were caused by the gelatin contained in the vaccine. The varicella vaccine contains a large amount of gelatin (13.5 mg per shot). All the JE vaccines produced in Japan contain 0.05 to 0.1 mg gelatin per shot.

In this study, we report on the children who had systemic immediate-type reactions to varicella and JE vaccines containing gelatin. To clarify the relationship between the gelatin in the vaccines and the allergic reactions, we measured anti-gelatin IgE in their sera.

We found that the four children who had cutaneous and respiratory symptoms to the varicella vaccine had anti-gelatin IgE. As a negative control, all 50 children who had no reaction to the vaccine had no anti-gelatin IgE antibody.

We found two different patterns of systemic immediate-type reactions to the JE vaccine. One group of six children had cutaneous and respiratory symptoms (e.g., systemic urticaria and wheezing), and another group (six children) had cardiovascular symptoms (e.g., hypotension and cyanosis) without cutaneous and respiratory symptoms. The children in the former group had anti-gelatin IgE in their sera, whereas those in the latter group did not. We think that the two patterns may be caused by different mechanisms or different allergens.

No etiologic relationship exists between egg proteins and the reactions to the varicella and JE vaccines because these vaccines are derived from human embryo cells and mouse brain, respectively. The gelatin-containing varicella and JE vaccines must be used with the same caution as the gelatin-containing MMR vaccine.