Yellow fever vaccine and egg allergy

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The Article by Esper G Kallas and colleagues[1] about the yellow fever epidemic in Brazil underlines that, despite the availability of an effective vaccine against yellow fever, better vaccine coverage is needed. Several strategies have been implemented to increase vaccine coverage, including the yellow fever rapid desensitisation protocol in patients with a history of egg allergy.

Egg allergy is classified as the second most common food allergy.[2] European Union legislation has established a concentration of 2 µg/mL as the maximum permissible egg protein concentration that is considered safe in patients with prior egg anaphylaxis.[3] In the yellow fever vaccine, egg concentrations range from 2·43 µg/mL to 4·42 µg/mL according to the vaccine batch, which means it is contraindicated in patients with egg allergies.[4,5]

Yellow fever is an acute febrile disease with high lethality, and vaccination is the most effective protective measure against this disease.[5] Following the epidemic of yellow fever in 2018, the largest since 1980, vaccination has become indispensable. The Special Immunobiological Reference Center of UNIFESP (Centro de Referência de Imunobiológicos Especiais UNIFESP), in conjunction with the Division of Allergy and Clinical Immunology of the Federal University of São Paulo, adapted a rapid desensitisation protocol to the vaccine using the national yellow fever vaccine (Fiocruz/Bio-manguinhos; Rio de Janeiro, Brazil) in patients with a history of egg allergy.

The diagnosis of specific food allergies is complex and requires oral challenge tests. Because of the yellow fever epidemic, all patients with history of egg allergy had standardised interviews and national yellow fever vaccine skin tests (skin prick test, intradermal skin test, or both). Patients with a positive skin prick test or intradermal skin test (after a negative skin prick test) underwent desensitisation, and those with a negative skin prick test and negative intradermal skin test were vaccinated under medical supervision. Desensitisation was adapted according to the Munóz-Cano[5] protocol and four applications (1:10, 0·05 mL; pure, 0·5 mL, 0·15 mL, and 0·3 mL) were done every 30 min. 132 patients were vaccinated, 92 (70%) by use of the standard vaccine and 40 (30%; 17 with positive skin prick tests and 23 with positive intradermal skin tests) with desensitisation (with no adverse reactions).

Vaccination protocol with national yellow fever vaccine proved to be safe for patients with a history of egg allergy. To the best of our knowledge, this is the first time that a large patient sample has been exposed to desensitisation with national yellow fever vaccine. This initiative might help other countries to safely vaccinate people when the vaccine might be contraindicated in certain populations.

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