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Timing Considerations for Skin Testing Following Food-Induced Anaphylaxis

Dr. Turck:

This is *On the Frontlines of Food Allergies* on ReachMD, and I'm Dr. Charles Turck. Joining me to discuss a study examining considerations for food allergy skin testing after food-induced anaphylaxis are Drs. Monica Kraft and Peter Mustillo. Dr. Kraft is a Clinical Assistant Professor of Otolaryngology at the Ohio State University Wexner Medical Centers in Westerville and Columbus. Dr. Kraft, welcome to the program.

Dr. Kraft:

Thank you so much for having me.

Dr. Turck:

And not only is Dr. Mustillo a Clinical Professor of Pediatrics at the Ohio State University College of Medicine, but he's also the Director of the Immunology Clinic Center for Allergy Immunotherapy and Infusion Clinic at Nationwide Children's Hospital in Columbus. Dr. Mustillo, it's great to have you with us as well.

Dr. Mustillo:

Thank you. It's good to be here.

Dr. Turck:

So starting with you, Dr. Kraft, would you tell us about what you aimed to accomplish and why it was important to conduct this study?

Dr. Kraft:

So this study really came out of a discussion that Dr. Mustillo and I had during my allergy and immunology fellowship training at Ohio State and Nationwide Children's regarding the patients who were coming in for food allergy evaluation. Standard workup included skin testing, but there was this practice discrepancy between when somebody came in after a recent allergic reaction if there was any merit to waiting to test that patient in case they had a false-negative result whereas some people completely felt that the testing would be appropriate to do same day. Other people might feel like you should wait four weeks, which seemed like a pretty big difference, so we were interested in seeing if there's any data to support it, and if not, to look into whether or not there is any indication to delay that skin testing.

Dr. Turck:

Now with that objective in mind, Dr. Mustillo, how was the study designed? What methods did you employ?

Dr. Mustillo:

Well, this was a prospective study where we recruited children, being at the Children's Hospital here. There were basically two different cohorts. So one of them was patients who had anaphylaxed after coming in for a food challenge, so while undergoing a food challenge, and then the other cohort was a set of patients who had experienced anaphylaxis outside of the clinic setting, so that could have been either at home or at school and may have wound up in the emergency department. And then those patients, if they agreed to participate, were scheduled to come into our clinical research center in order to undergo the skin prick testing within the first 14 days of

the reaction and then again at four weeks for the second skin prick test set, and the results were compared from their first and second visits.

Dr. Turck:

Well, speaking of the results, Dr. Kraft, would you give us the highlights of the study's most important findings?

Dr. Kraft:

Absolutely. The most important finding that we took away from this was that every patient who was tested both at the early interval, within two weeks of a reaction, and at the four- to six-week mark had reactive skin testing to the food they had had the allergic reaction to. So in other words, there were no false-negative results, even if you tested shortly after that reaction. There was no significant difference between the size of the skin testing, so it's not as if somebody could have been fooled by the first testing looking borderline. They were both robustly reactive at both timepoints for all patients, and we feel like that was really helpful information to clarify that in the entire cohort, everybody was able to maintain that reactivity.

Dr. Turck:

For those just joining us, this is *On the Frontlines of Food Allergies* on ReachMD. I'm Dr. Charles Turck, and I'm speaking with Drs. Monica Kraft and Peter Mustillo about the timing of food allergy skin testing after food-induced anaphylaxis.

So, Dr. Mustillo, considering the results of the study that Dr. Kraft mentioned just a few moments ago, what's their significance?

Dr. Mustillo:

I think the most important takeaway from this study based on the data that we were able to demonstrate is that it doesn't seem that there's a waiting period from the time of food-induced anaphylaxis until the time they actually undergo skin prick testing. And, of course, the exception to this would be if a patient at the time of anaphylaxis is put on an antihistamine; we have a five-day wait period, and that's why many of our patients weren't able to be tested in the first five days of their reaction because that could suppress the skin test responses. It's important to point out here also that there are some limitations, and one of the limitations of this study is that none of these patients experienced severe anaphylaxis that resulted in hypotension, so there is the question that if someone experiences the most severe form of anaphylaxis where they also become hypotensive, those are the patients who, perhaps, might have a more massive histamine released from the mast cells. We were not able to say based on the cohort that we had that those patients also could be tested within the first 14 days. We just don't have data to support that.

Dr. Turck:

Well, to that, Dr. Kraft, are there any opportunities for further research in this area?

Dr. Kraft:

There are definitely opportunities here, particularly because our sample size was relatively small. We were able to recruit and complete the tests, both periods of testing, for 24 children who had a broad variety of different foods that caused the reaction, so we had representatives who had reactions to egg, to milk, to peanuts, to tree nuts, and to sesame. However, we only had a few numbers of each type of food, so we can't say for sure that a food difference would have caused a difference in reaction that we wouldn't have expected it. We also only children in this cohort, so we don't know that there wouldn't be a difference between pediatric and adult population or on just larger scale, as Dr. Mustillo alluded to, any of the severity of the reaction. If it was a more severe anaphylactic reaction, would that have triggered some changes in the reactivity? So those are all areas for further exploration that, with a larger cohort, may be able to be confirmed and reproduced with this study.

Dr. Turck:

And we're almost out of time for today, but the final question goes to you, Dr. Mustillo. Based on your research, what would your recommendations at this point be to your fellow allergists concerning the timing of skin testing after a food-induced anaphylactic reaction?

Dr. Mustillo:

Well, as allergists, I think we are all aware that there could be some significant anxiety amongst the patients and family members after experiencing anaphylaxis to a food, in particular when it's not confirmed that it was. They may not know specifically what food it was due to, and when the referral is made, if there's a recommendation to wait four weeks before the patient is seen and tested for whatever foods might be of concern, that can sort of prolong the anxiety and the fear of the unknown and potentially delay also the lifesaving

therapy of epinephrine and knowing which foods to avoid. So knowing that it seems that there is a high positive predictive value and a low false-negative rate when the patients undergo skin prick testing to whatever food is potentially the culprit causing allergen, there is no need to delay the implementation of the skin prick testing in these patients.

Dr. Turck:

Well, with those recommendations in mind, I'm going to thank my guests, Drs. Monica Kraft and Peter Mustillo, for joining me to discuss food allergy skin testing after food-induced anaphylactic events. Dr. Kraft, Dr. Mustillo, it was great having you both on the program.

Dr. Kraft:

Thank you for having us.

Dr. Mustillo:

Thanks very much.