Response to Omalizumab by Age of Asthma Onset

Age of onset is an important determinant of characteristics of asthma and the course of the disease, whether it affects the response to treatments like omalizumab, which is approved for allergic asthma is still unknown. And so in this analysis, the investigator looked at two large clinical studies with omalizumab done in the United States, but they went back and looked at the age of onset based on patient's self-report. And they looked at the population who had asthma, less than age 18, who started having asthma between 18 to 40 years of age. And they looked at patients with reported asthma at 40 years of age or older. And specifically they asked the question, does the effect on exacerbation reduction or lung function improvement, is it affected by the age of onset? We know that patients with late onset asthma tend to have less atopic conditions, but they may not respond well to certain treatments.

So what the investigators did is they analyzed these three groups of patients. And the bottom line, when they look at exacerbation reduction, there was really no difference between early onset asthma, late onset asthma, and the exacerbation reduction with omalizumab. Where there was a difference ... Or there was no difference also in ICS, those reduction in these three groups. But there was a difference in lung function improvement. So patients who had best lung function improvement where those who were younger who had asthma less than age 40. So patients who had asthma at age 40 or above tend to have less response to lung function with omalizumab. And so that's basically what this study is about. I think it sheds light on some more phenotypes of asthma patients that we may in the clinic think of, but no matter which age the patient had asthma, he or she responded well to exacerbation reduction. But maybe their lung function improvement is a bit attenuated in the late onset asthmatics.

So exacerbation reduction and lung function improvement are definitely important outcomes, but they don't need to be correlated. And this has been shown in other studies as well, and probably is related to the mechanism of why one occurs. Exacerbation we believe is due to more inflammation the airway, and while inflammation is important in determining airway obstruction or lung function improvement is related to the smooth muscle. And I can't tell you why these patients who had late onset asthma did not respond well, but one hypothesis may be if they had asthma for a long time, but they did not get treated early. And they got diagnosed at age less than 40, they may have some element of remodeling of the airway. But it's not uncommon to see disconnect. And this has been shown in other studies between exacerbation reduction and lung function. We obviously like to see both go hand-in-hand, which most of the time they do, but sometimes you see one improve better than the other. And that's what they found here in this study.