Prevalence of type I sensitization to alpha-gal in forest serviceemployees and hunters: Is the blood type an overlooked riskfactor in epidemiological studies of the α -Gal syndrome?

To the Editor:

We read with great interest the cross-sectional study presented by Fischer et al. showing the higher risk to develop red meat allergy in individuals exposed to ticks and with a high prevalence of anti- α -Gal IgE response. The α -Gal syndrome is a tick-related allergy, affecting individuals mainly in Europe, the United States, and Australia. The sensitization mediated by the IgE response to tick-produced proteins with α -Gal modifications could result in anaphylactic reactions to tick bite and/or red meat consumption. Fischer and colleagues¹ characterized the risk factors associated with the α -Gal syndrome in forest service employees and hunters from Germany. They found that tick bites and high levels of anti- α -Gal IgE were important risk factors associated with the α -Gal syndrome in these individuals, a common finding in other similar studies. Other risk factors such as gender, pollen allergy, bronchial asthma, pet-keeping, age and lifestyle, among others, have also been considered in studies on the epidemiology of the α -Gal syndrome. However, factors affecting directly the capacity of the immune system to produce anti- α -Gal antibodies are not usually included in these studies. We propose that all factors increasing the capacity of the immune system to produce anti- α -Gal antibodies should be considered as a risk factor to develop the α -Gal syndrome. It was previously shown that individuals with blood type B produce less anti- α -Gal IgE antibodies, and red meat allergy after tick bites is strongly associated with individuals lacking the blood type B. In agreement with these findings, the frequency of blood group B in Europe, the United States, and Australia where the α -Gal syndrome is increasingly being reported is lower than in Africa and Asia where reports of this allergy are scarce. The presence of blood group B will reduce the capacity of the immune system to produce anti- α -Gal antibodies, presumably due to tolerance to α -Gal, which is very similar to blood group B antigen. These results support that the allergy to α -Gal should also be considered in the context of the susceptibility to infectious diseases caused by pathogens with α -Gal on their surface. High anti- α -Gal IgG and IgM antibody levels were associated with protection against malaria. Remarkably, the frequency of blood group B was positively correlated to the incidence of malaria and tuberculosis in endemic regions. Therefore, individuals with blood group B and reduced levels of anti- α -Gal antibodies should have lower risk to develop the α -Gal syndrome, but will have the trade-off of higher susceptibility to infectious diseases that are controlled by the immune system through anti- α -Gal immunity. We believe that this reasoning and evidence justify the inclusion of blood groups in the analysis of risk factors and susceptibility to the α -Gal syndrome.

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