Anaphylactic Reaction After Beef Consumption Due to the Development of IgE Antibodies Against the Carbohydrate Galactose-Alpha-1,3-Galactose

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A 52-year old female was seen in the emergency department with symptoms of anaphylaxis. History revealed that shortly after eating dinner she developed hives, which quickly evolved into wheezing, throat tightness, and difficulty breathing. Her symptoms intensified even after taking Benadryl. Once in the emergency department she was treated with epinephrine as well as 125 mg of Solu-Medrol. She was later admitted for observation. The patient stated she had several visits to the emergency department in the past few years with hives possibly due to food allergies but not this severe. Subsequent laboratory testing revealed elevated levels of IgE specific antibodies to the beef allergen. An alpha-gal panel was performed for beef, lamb/mutton, and pork IgE levels which were all elevated. The patient was advised to avoid eating these types of meats in the future. Individuals with IgE antibodies to galactose-alpha-1,3-galactose (alpha-gal) are at risk for delayed anaphylaxis, angioedema, or urticaria following consumption of these products. The patient lives in a rural area in New Jersey and has been bitten numerous times by ticks. Recently, several cases in Virginia have been reported of hives and difficulty breathing in 45 children aged 4-17 after ingesting red meat. All described being bitten by a tick within the past year. It is believed the Lone Star tick, which is endemic in the southern and eastern United States, carries the carbohydrate alpha-gal in its saliva and once bitten, the patient develops antibodies against this sugar, which can result in life-threatening anaphylaxis. Although there is currently no treatment, individuals who experience symptoms such as hives and difficulty breathing after ingesting meat should be tested for alpha-gal sensitivity and if positive, should avoid consumption of mammalian meat in the future.

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