ALPHA-GAL SYNDROME: PUBLIC HEALTH CONCERNS AND OPTOMETRY

This food allergy highlights the importance of a holistic medicinal approach.

BY CECELIA KOETTING, OD, FAAO, DIPL ABO

We all have stories about patients we helped by taking the time to refer them to someone who was finally able to connect the dots on their diagnosis. The optometric community plays a crucial role in identifying and addressing systemic diseases and public health concerns. Although certain specialties may not directly interact with particular conditions, having a broad understanding of various health issues is essential for providing comprehensive care. Alpha-gal syndrome (AGS) is an excellent example of a condition that might not initially seem connected to ocular health, but nonetheless underscores the importance of a holistic approach in medicine.

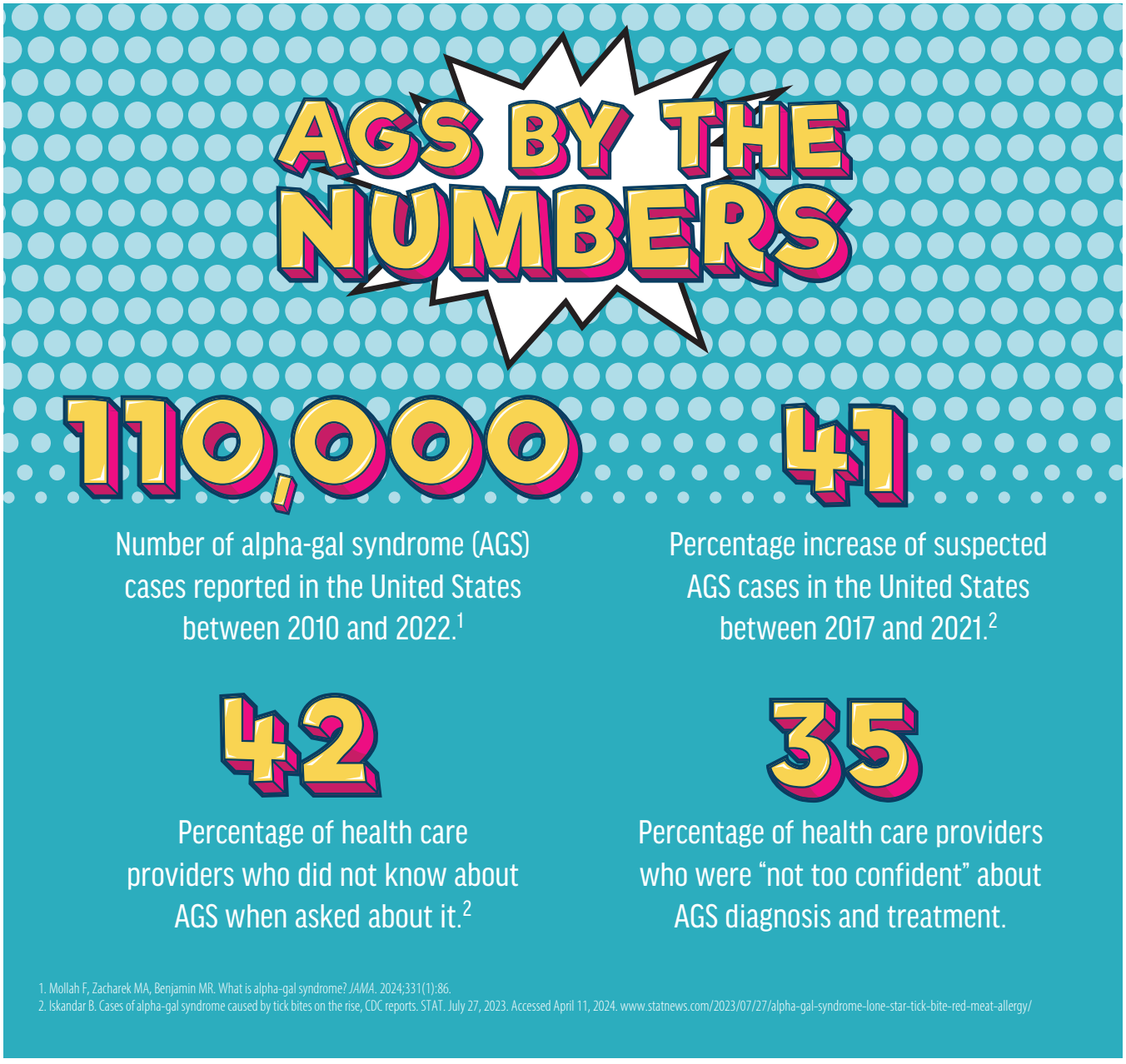
WHAT IS AGS?

AGS is a relatively recently recognized food allergy, wherein a person produces immunoglobulin E (IgE) antibodies against a sugar molecule most commonly found in nonprimate mammals.[1] More specifically, it is an immune-mediated hypersensitivity response to carbohydrate galactose-alpha-1,3-galactose (alpha-gal).[1,2] Alpha-gal is present in the tissues of many mammals, but is not found in the human species.

It is believed that this sensitivity to alpha-gal stems most commonly from tick bites—specifically the lone star tick—but it has also been linked to dog bites that introduce the alpha-gal sugar molecule to its new recipient.[2,3] With a reported 110,000 cases of AGS between 2010 and 2022, AGS is quickly becoming a more widely recognized problem.[3]

Symptoms

When a patient with AGS ingests something containing alpha-gal (eg, red meat or other mammalian products), an allergic reaction typically starts within 2 to 6 hours.[2,4]



The reaction itself can range from hives, urticaria, gastrointestinal symptoms, and angioedema to more severe symptoms, including but not limited to anaphylaxis.[2,4]

Diagnosis

Diagnosis of AGS is often painfully slow because of poor awareness and because AGS mimicks many other conditions. Onset of symptoms may not start until many years after exposure, also complicating our ability to diagnose. However, these patients are at a high risk of anaphylaxis, which is life-threatening, so a timely diagnosis is even more important.

Diagnosing AGS involves a combination of clinical evaluation, patient history, and specific laboratory tests. Blood tests, such as the detection of specific antibodies against alpha-gal, play a crucial role in confirming the diagnosis.[2] Skin prick tests with extracts containing alpha-gal can be used to assess allergic sensitization.[2] Measurement of IgE antibodies specific to alpha-gal can also be part of the diagnostic process.[2]

WHAT CAN CAUSE A REACTION?

The oligosaccharide alpha-gal is found in frequently consumed nonprimate mammals, such as cows, pigs, and sheep. It can also be found in food products derived from dairy, broths, etc, and in gelatin.

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Carrageenan is an extract derived from edible red seaweed, widely used as an aid in food processing, gelling, thickening, and stabilizing.[5] It is found in products such as beer, wine, cheese, organic fruit, nut milk, packaged lunch meats, and yogurt. Even though carrageenan is not made from mammals, it does contain alpha-gal epitope, and at least 2% of patients with AGS report reacting to it.[5]

Any medications or medical devices that are mammal-derived may contain alpha-gal. Of main concern is use of gelatin-containing implants, monoclonal antibodies, heparin, bovine extracts, and any animal-derived valves or implants.[6] Some of note that we use in eye care are collagen plugs; the iStent inject W (Glaukos), which has a heparin coating; heparin itself, used during cataract surgery; and viscoelastic used during surgery.[6]

BE ON THE LOOKOUT

It took doctors almost 5 years to diagnose my father with AGS, during which time there were some close calls and many trips to the ER. Even after his diagnosis, our poor understanding of AGS and a general lack of public awareness led to many unplanned side effects.

As members of the medical community, it is incumbent upon us to consistently update our knowledge and stay informed about advances in health care. This commitment ensures that we not only make timely, accurate diagnoses, but also understand the potential effect of the treatments we employ on our patients and their lifestyles. ■

AT A GLANCE

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