

DELAWARE HEALTH ADVISORY #517: With Six Confirmed Cases, AGS is Now Reportable in Delaware

The Delaware Division of Public Health (DPH) is sending this health alert to notify clinicians that Alpha-gal Syndrome (AGS) is now reportable in Delaware and to encourage the testing and reporting of this condition.

Summary

As of July 8, 2024, DPH has identified the first six confirmed cases of AGS in Delaware residents. Cases of AGS are not nationally notifiable and AGS was not made reportable in Delaware until 2024, so this number is likely an undercount. AGS is not caused by an infection, but an IgE-mediated allergic condition. AGS is associated with the bite of a lone star tick, but may also be caused by other types of tick bites. The lone star tick is the most common species of tick in Delaware.

The lone star tick can transmit alpha-gal sugar molecule to people through its saliva, which can cause the immune system to produce IgE antibodies against alpha-gal sugar molecule. Affected persons become allergic to the alpha-gal sugar molecule found in mammalian meat and dairy products.

Background

AGS is an emerging, tick bite-associated allergic condition characterized by an immunoglobulin E (IgE)-mediated hypersensitivity to galactose-alpha-1,3-galactose (alpha-gal), a sugar molecule found in most non-primate mammalian meat and products derived from these mammals. It is also known as mammalian meat allergy, alpha-gal allergy, red meat allergy, and tick bite meat allergy.

AGS is a serious and potentially life-threatening allergic condition, with symptoms and severity varying among persons. Symptoms generally appear two to eight hours after eating foods or being exposed to other products containing alpha-gal (for example, mammalian meat and dairy products). AGS is associated with the bite of the lone star tick, *Amblyomma americanum*, in the United States. The lone star tick is Delaware's most abundant species of tick.

Clinical Characteristics

AGS is characterized by a delayed onset of symptoms following ingestion of mammalian meat or products made from mammals. The allergic reactions can occur two to eight hours after exposure to the allergen. The clinical spectrum of AGS is broad with symptoms ranging from hives and gastrointestinal distress to angioedema and life-threatening anaphylaxis. Delaware patients have had the following signs and symptoms:

- Abdominal pain
- Nausea
- Diarrhea
- Vomiting
- Acute episode of hypotension
- Dizziness
- Itching
- Hives
- Heartburn/indigestion

- Swelling
- Shortness of breath
- Anaphylaxis

Diagnosis

AGS is typically diagnosed by an allergy specialist or other health care provider through a detailed patient history, physical examination, and an Allergen-Specific Immunoglobulin E (IgE) test that tests for alpha-gal IgE levels.

There is no definitive IgE level that confirms AGS diagnosis. Patients can have sensitization to alpha-gal without clinical reactivity, and only a fraction of patients with alpha-gal IgE experience allergic reactions. Even though the presence of alpha-gal IgE is an established diagnostic criterion, levels do not correlate directly with symptom severity and not all patients who test positive for alpha-gal IgE will have AGS. Unlike most other food allergies, AGS signs and symptoms have a delayed onset after ingesting the allergen/offending food types and this can make diagnosis even more difficult.

Recommendations for Prevention

Preventing tick bites is the most important method to reduce the risk of the development of AGS and other tick-borne diseases. Additional tick bites may worsen or reactivate allergic reactions to alpha-gal. Educate patients to avoid tick bites by doing the following:

- Avoid wooded or brushy areas with high grass and leaf litter.
- Stick to the center of trails.
- Treat clothing with products containing 0.5% permethrin or use EPA-registered insect repellents containing products like DEET. Always follow label instructions.
- Perform tick checks on themselves, children, and pets after being outdoors.
- Shower within two hours of coming indoors and tumble dry clothes in a dryer on high heat for 10 minutes to kill ticks.
- Keep pets up to date on tick preventive products.

Recommendations for Management of AGS

As with any severe allergy, patients with AGS should work with their health care providers to develop a multi-faceted approach, including a management plan which should include preventing additional tick bites, a diet without mammalian meat and mammalian meat products, and use of rescue medications such as antihistamines and epinephrine auto-injectors. It is important to note that not all patients have reactions to every ingredient containing alpha-gal. Moreover, certain types of meat, meat products, and cuts of meat contain more alpha-gal than others. People with AGS who need to avoid eating meat from mammals can continue to eat chicken, turkey, fish, and other non-mammalian meats because those meats do not contain alpha-gal.

Reporting

Report any suspected cases of AGS or patients with laboratory evidence of AGS by completing the [CDC case report form](#) and emailing it to reportdisease@delaware.gov, or by calling the Office of Infectious

Disease at 1-888-295-5156. We encourage physicians to complete and communicate the CDC case report form with all relevant signs and symptoms and exposures to assist the DPH with their investigations.

More Information

- CDC, About Alpha-gal Syndrome: <https://www.cdc.gov/alpha-gal-syndrome/about/index.html>
- DPH, Alpha-gal Syndrome Frequently Asked Questions: https://dhss.delaware.gov/dph/files/AlphaGalSyndrome_FAQ_PUB_ENG_1123_.pdf