TOX UPDATE

Alabama Poison Information Center

Letter from the Alabama Poison Information Center

ALABAMA POISON INFORMATION CENTER
800-222-1222

Welcome to the December edition of ToxUpdate, the official newsletter from the Alabama Poison Information Center, dedicated to keeping Alabama's pediatricians informed about critical toxicological issues. As the calendar turns and the holidays commence, we are faced with an increased potential for exposures, from seasonal decor to public health outbreaks.

This month's newsletter features three timely and important articles to help you navigate the winter months and the related risks to your young patients:

- Brown Recluse Spiders: A comprehensive review of the assessment and management of suspected brown recluse spider bites.
- Holiday Plant Hazards: A guide to common festive plants, like mistletoe and holly, detailing their toxicity levels and necessary management strategies.
- Infant Botulism Outbreak: An update on the ongoing infant botulism outbreak, focusing on current recommendations for parent education, symptom monitoring, and accessing the required treatment, BabyBIG.

In this issue:

ToxUpdate is brought to you by APIC and edited by Rachael Fogel CSPI, PharmD

Spooky season brings out the thrills, but in Alabama, creepy crawlers like the brown recluse spider are always lurking!

By: Bailey Sexton RN, SPI

What do they look like?

The brown recluse spider (Loxosceles reclusa) has a distinct brown, violin-shaped marking on its back, with three pairs of eyes arranged in a half-circle on its head. Its legs are about five times the length of its body, and it measures between 6 to 20 mm long. The spider's color ranges from gray to orange or reddish brown.

How do they live?

Brown recluse spiders are reclusive in nature, hence the name. They are nocturnal hunters that prefer dark, secluded places like wood piles, rocks, and basements. These spiders can live for over two years and are tough creatures, able to survive without food or water for up to six months and tolerate temperatures between 46°F and 109°F (8°C–43°C). Brown recluses build uneven, sticky white webs in the places they hide.

How does envenomation occur?

Brown recluse spiders are not typically aggressive but may bite if threatened. Female brown recluses are more dangerous than males, similar to black widow spiders. The toxicity of Loxoceles venom varies by species, with Loxosceles intermedia venom being especially harmful to humans. Bites are most common from spring to fall, with many incidents occurring in the morning. Brown recluse spiders may hide out in piles of clothing or in suitcases, so it is always important to inspect anything left on the floor when staying in a wooded area. Shaking clothes out after a camping trip is a key tip!

The venom of the brown recluse spider may cause both localized and systemic effects resulting from the release of two main enzymes, hyaluronidase and sphingomyelinase D. Hyaluronidase allows the venom to spread through tissue but is not directly damaging. Sphingomyelinase D is the primary enzyme responsible for toxicity, causing necrosis and hemolysis both directly and through the release of inflammatory mediators, which increase clotting, occlude the local microvasculature, and ultimately lead to tissue ischemia. Lab tests may reveal signs of hemolysis, blood in the urine (hemoglobinuria), and problems with blood clotting. These abnormalities include elevated levels of fibrin split products, low fibrinogen levels, and positive tests for clotting abnormalities (like D-dimer). Other findings may include increased white blood cell count, signs of anemia, low platelet counts, and abnormal kidney and liver tests.

Loxoscelism, or the effects of envenomation from a brown recluse spider bite, can be classified into three main categories based on the severity of the reaction:

Mild Reaction: In this case, very little to no venom is injected. A small red papule forms, which becomes firm before healing. There is usually a mild, localized allergic reaction such as hives around the bite area.

Cytotoxic Reaction: The bite may start with little to no pain or a slight sting, followed by blistering, bleeding, and ulceration within 2 to 8 hours. The wound worsens over the next few days, with the center becoming necrotic and further surrounded by areas of damaged skin. This reaction is sometimes referred to as the "red, white, and blue" response. The necrosis progresses over several days, and by 5 to 7 days, an eschar forms. The wound may take weeks or even months to heal, especially if the ulcer is large. Fatty areas, such as the thighs, buttocks, and abdomen, tend to experience more extensive necrosis. In rare cases, such as bites to the head or neck, the swelling may block airways and cause difficulty breathing, which requires prompt medical attention.

Systemic Reaction: This can occur 24 to 72 hours after the bite and affects the body beyond the site of the bite. It includes symptoms like fever, chills, weakness, swelling, nausea, vomiting, joint pain, skin rashes, muscle breakdown (rhabdomyolysis), blood clotting issues, and organ damage. In severe cases, it can lead to kidney failure or even death, though these severe outcomes are rare in North America.

Stages of a typical brown recluse bite:

Necrosis 3 days post bite:

Treatment:

For brown recluse spider bites, treatment depends on the severity of the symptoms and whether any infections or systemic reactions occur.

General Treatment:

Wound Care: Clean the wound and provide tetanus protection if needed. Regularly monitor the wound to track changes. In most cases, the wound will heal naturally through a process called granulation. For more severe cases, delayed closure methods (primary or secondary) might be used, which could involve skin grafts or gauze packing.
Immobilize and Elevate: Keep the affected limb elevated and immobilized to reduce swelling.

Systemic Treatment:

Medications: Antihistamines for itching, anti-anxiety or pain relief medications, and antibiotics if there is a secondary bacterial infection. Prophylactic antibiotics are not recommended. Patients with hemolysis may also require corticosteroids. Consultation with a regional poison center is vital in managing systemic loxoscelism.

Triage Considerations:

If there are signs of systemic loxoscelism (fever, skin rash, laboratory abnormalities) or rapidly worsening necrosis, the patient should be admitted to the hospital for closer monitoring and to receive treatment. This includes checking for signs of hemolysis, kidney damage, or coagulopathy. Caregivers and healthcare professionals should be familiar with local poison control services (1-800-222-1222) that can provide instruction and guidance on spider bite exposure to ensure a safe and healthy spooky season.

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Festive, Not Digestive! Keep Holiday Plants Off the Menu!

By: Bailey Sexton RN, SPI

The holiday season is here! Along with the festive spirit, we welcome time-honored traditions like decorating our homes with plants and greenery. These plants not only add a warm aesthetic but also make beautiful and thoughtful gifts. However, it's important to remember that some of these seasonal plants can be toxic, especially to children and pets.

While enjoying the beauty of live plants, be sure to place them out of reach of little ones and furry friends. Don't forget to watch for any berries or fallen leaves that may drop around the plant, as they pose a risk if ingested.

Some of the most popular poisonous plants used during the holidays include poinsettias, mistletoe, and holly. Other honorable mentions include bittersweet, Jerusalem cherry, yew, amaryllis, and lilies.

Poinsettias

Poinsettias are a holiday staple thanks to their brightly colored flowers and star-like appearance. Children are especially attracted to their alluring foliage and are consequently at higher risk of accidental ingestions. Luckily, inadvertent exposures usually do not result in significant adverse effects, as it takes a considerably large ingestion to cause true toxicity. However, mild gastrointestinal upset, nausea, and vomiting are possible. Some patients may also have a severe allergic reaction to the poinsettia's sap, which is known to have many proteins in relation with natural latex rubber.

Mistletoe

Mistletoe is another common holiday must-have whose white berries often lead to children mistaking this holiday décor as a sweet winter treat. While all parts of the plant are considered toxic, especially the leaves, significant adverse effects from ingestion are rare. Data from poison control centers suggest that the ingestion of 3-5 berries or 1-5 leaves of the American species of mistletoe generally does not cause toxicity. Common effects of inadvertent ingestion can include gastrointestinal upset, nausea, vomiting, and drowsiness. European mistletoe is generally more dangerous; however it is not native to the United States.

Holly

Although these holiday holly hazards are dazzling and decorative, they should not be confused for delicious. All parts of the plant are toxic; however, the berries are the most concerning. While serious effects are not expected with ingestions less than 6 berries, the sharp spines of the holly leaf can cut or puncture the mouth and parts of the gastrointestinal tract. Additionally, ingestion can cause gastrointestinal disturbances such as nausea, vomiting, diarrhea, and abdominal pain. If ingestion of a holly leaf is suspected, check for lacerations in the mouth and determine if there is discomfort in the throat or chest that might indicate a tear or puncture. Be sure to remove any pieces of the plant that may remain in the mouth.

Safety Tips:

Decorate with fake or non-toxic plants
Keep live plants out of reach of children
Do not decorate food with any parts of a plant
Keep plant labels handy. Knowing the exact species helps medical professionals determine toxicity.
Store live plants safely after the holidays. Do not let dried leaves or berries fall where children can find them.

Management:

If ingestion or contact with any toxic plant is suspected, thoroughly check the oral cavity and remove any plant/leaf residue from the mouth, rinse the mouth, and have the child drink a small amount of water to ensure safe swallowing. Wash any exposed or irritated skin with a mild soap, and rinse well with water. The mainstay of treatment is supportive care as symptoms are typically self-limiting and restricted to gastrointestinal effects and minor dermal irritation. More serious reactions may require prompt medical attention. Caregivers and healthcare professionals should be familiar with local poison control services (1-800-222-1222) that can provide instruction and guidance on exposure management to ensure a safe and healthy holiday season.

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Infant Botulism Outbreak

By: Rachael Fogel PharmD, CSPI

All ByHeart Whole Nutrition Infant Formula products have been recalled, including all lots of canned formula and single-serve sticks. Communication with parents and caregivers is essential for early detection and rapid treatment. Here are some key education points for parents and caregivers.

Formula handling procedures

- Do not use any ByHeart Whole Nutrition infant formula
- Take a picture of the lot number and use by date
- If parents have any leftover ByHeart powdered formula, label it “DO NOT USE.” It should be stored in a safe place for at least 30 days.
- If the infant develops signs of botulism, the state health department may want to test the formula. If no symptoms develop, the formula should be thrown away.
- Wash items and surfaces that may have touched the formula with hot soapy water or by placing item in the dishwasher.

Early signs to monitor

- Constipation (often the first sign)
- Poor feeding (weak suck or swallow)
- Loss of head control and generalized floppiness (hypotonia)
- Weak or altered cry
- Decreased facial expression
- Parents should seek immediate medical care if their infant shows any of these signs.

Prompt administration of the antitoxin, BabyBIG (Botulism Immune Globulin Intravenous [Human]), is the standard first-line treatment. Consultation is required to receive antitoxin. BabyBIG is only distributed by the Infant Botulism Treatment and Prevention Program (IBTPP) at the California Department of Public Health (CDPH). If you suspect a case of infant botulism, do not wait for laboratory confirmation to seek treatment. For clinical consultation and to arrange for BabyBIG shipment, immediately call the IBTPP 24-hour phone line at **1-510-231-7600**.

The California Department of Public Health has a public hotline to provide support to caregivers with concerns about infant botulism. Caregivers can call 1-833-398-2022 from 7 AM to 8 PM PST with questions or concerns.

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