

AUTONOMIC DYSREFLEXIA

Background

Autonomic dysreflexia (AD) is an abnormal overreaction of the autonomic nervous system in response to a stimulus. The autonomic nervous system regulates involuntary, unconscious physiologic processes in the body such as heart rate, blood pressure, respiration and digestion.

AD is a potentially life-threatening medical emergency that causes vasoconstriction (narrowing of the blood vessels) and a sudden, exaggerated increase in blood pressure. It is usually accompanied by a severe throbbing headache, slowed heart rate and facial flushing.

AD is a condition that emerges after a spinal cord injury (SCI), usually when there is damage at level T6 or higher. The higher the SCI, the greater the risk of developing episodes of AD. Individuals with any disease or injury affecting the autonomic nervous system are at risk result for episodes of AD. These include individuals with a diagnosis of brain injury, stroke, multiple sclerosis, Guillain-Barré syndrome or other neurological diseases.

Quick assessment and immediate intervention(s) are critical. Lowering blood pressure and removing the stimuli is necessary to prevent complications such as seizure, stroke, cardiac complications or death. Bladder and bowel irritation are the most common causes of AD including distension, urinary tract infection, blocked urinary catheter, bladder or kidney stones, constipation, and hemorrhoids. Other sources of discomfort such as pressure areas on the skin, tight clothing or socks, ingrown toenails, and blisters can also trigger a response.

Communicating baseline symptoms will support prompt management of AD. Carrying a “wallet card” or wearing a medical alert bracelet is recommended to educate others about the condition. Common signs and symptoms include:

- Increased blood pressure
- Pounding headache
- Blurry vision
- Shortness of breath
- Sweating above level of injury
- Flushed face, flushing above the level of injury
- Cold, clammy skin or goose bumps
- Nasal congestion
- Nausea
- Anxiety



Many students may have previously experienced episodes of AD so it is reasonable for the school nurse to identify their most common precipitating trigger or event and its most effective intervention.

In the event of an episode, the immediate first step is to sit the student upright with their legs dangling to help lower blood pressure. It is important to act quickly and remove the noxious stimuli from bladder, bowel, or skin if possible. Check the student’s skin and remove or loosen any tight or wrinkled clothing, shoes or braces. Blood pressure and heart rate should be monitored. Note that symptoms of AD may progress before they begin to improve.

Top Takeaways for School Considerations

Autonomic dysreflexia (AD) is a potentially life-threatening medical emergency that can develop in individuals with a spinal cord injury when an irritating stimulus below the level of the injury triggers a sudden increase in blood pressure.

Common triggers in school could include a full bladder or delay in bladder emptying, extended sitting (e.g., long bus ride) or pressure on the skin from tight socks or braces.

Prevention of AD is one of the best management techniques. Educating school staff on appropriate bladder, bowel, and skin care practices is essential.

Never leave the student unattended. Follow the student’s emergency care plan.

Kennedy Krieger Institute’s Specialized Health Needs Interagency Collaboration

The Specialized Health Needs Interagency Collaboration (SHNIC) program is a collaborative partnership between Kennedy Krieger Institute and the Maryland State of Department Education.



Kennedy Krieger Institute

Considerations for the Individualized Healthcare Plan (IHP)

- Nursing diagnosis of autonomic dysreflexia, risk for disturbed sensory perception, risk for unstable blood pressure, impaired urinary elimination and impaired physical mobility
- Current diagnosed health condition, including date of diagnosis, progress of disease process, and other chronic health conditions
- Current medication and treatment orders (consider schedule, equipment needs and side effects)
- Student-specific AD triggers, avoidance or intervention strategies
- Respiratory interventions and equipment needs (consider tracheostomy brand/size and downsize, suctioning brand/size, frequency of suctioning, ventilator brand and settings); note location of suctioning, use of private duty nursing if applicable
- Nutrition interventions and equipment needs (consider brand/size of feeding tube, tube replacement, water flushes, fluid intake goal and supplements); note school district policy on tube replacement and consider keeping backup feeding tube kit at school if applicable
- Elimination interventions and equipment needs (consider catheterization brand/system, French size, cleaning procedure and frequency of catheterization); note location of procedure
- Assessment of implanted medical device (consider location, date of surgical placement, and device specific information)
- Temperature regulation considerations in school setting and transportation
- Use of specialized equipment, adaptive equipment and orthotics
- Activity, positioning, transferring (consider precautions and/or restrictions)
- Skin check, pressure relief techniques
- Equipment troubleshooting (consider equipment/device user manual, battery, charger)
- Consider emergency care plan(s) (ECP) and emergency evacuation plan(s) (EEP) as related to medical needs in the school setting, and staff education/training, as appropriate

Discussion Starters for Educational Team

1. Has the school staff been trained to implement the student-specific emergency plan?
2. Would the student benefit from evaluations or assessments in any of the following areas: physical therapy, occupational therapy, speech and language therapy, assistive technology, adapted physical education, functional behavior, psychology, hearing and vision?
3. Would the student benefit from additional academic support and/or modified education (e.g., copies of notes, extra time, reduced workload, simplified instructions, alternative formats for presentation of material, 504/IEP)?
4. Does the student need additional adult support to access the academic curriculum in the least restrictive environment?
5. Is the physical school environment safely accessible for the student's mobility needs (e.g., entry and exit, ramps, location of classes, access to elevator, doorways)?
6. Does the classroom environment support the student's needs and/or equipment (e.g., desk/seating options, maneuverability space, electrical outlets, flash pass for bathroom or nurse)?

Resources

Kennedy Krieger Institute: International Center for Spinal Cord Injury
kennedykrieger.org

United Spinal Association
unitedspinal.org

Christopher and Dana Reeve Foundation
christopherreeve.org



Scan QR code or visit
KennedyKrieger.org/HealthInformation for more information.