

## Autonomic Dysreflexia

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### What is autonomic dysreflexia (AD)?

- AD is considered a **medical emergency** that needs immediate treatment. It is unique to people with spinal cord injury (SCI).
- AD is a sudden increase in blood pressure (20-40mmHg above your usual readings) that happens in response to an uncomfortable or painful condition that is often below the level of SCI. A person with SCI may not feel the pain or discomfort and not know anything is wrong until AD symptoms occur (see symptoms, below).
- AD is different from the hypertension or high blood pressure seen in the general population: AD happens in response to a painful stimulus and resolves when the stimulus goes away; non-AD hypertension results in elevated blood pressure due to other conditions such as cardiovascular disease.

### Who is at risk for AD?

Anyone with an SCI at the T6 level or above, but is more common in people with complete injuries.

### What are the common triggers of AD?

- Most common: a full bladder (often caused by a kinked or clogged catheter), urinary tract infection or stones.
- Second most common: bowel problems, such as constipation, retained stool in rectum, hemorrhoids, and anal fissures (cracks). Sometimes you can get AD while doing your bowel program.
- Other triggers: pressure ulcers, tight clothing, ingrown toenails, fractures, ejaculation, squeezing or pressure on the scrotum, a blood clot in an arm or leg, and childbirth.

### What are the symptoms of AD?

- Most commonly, a pounding headache and sweating above the injury level along with blood pressure that is 20-40mmHg above your usual readings (Note: people with SCI frequently have lower blood pressure than the general population.)
- Flushing of the face or body parts above the injury level and goosebumps below the injury level
- Blurred or spotty vision
- Nasal congestion
- Anxiety or sense of impending doom
- Slowed heart rate (does not always happen)
- Cool, pale body areas below the injury level
- Shortness of breath or chest pain

### What are the possible complications of AD?

These serious complications are rare, and can often be prevented by finding and removing the pain source and treating the high blood pressure.

- Bleeding in/around the brain and inner eye (stroke, retinal hemorrhage)
- Seizures
- Heart rhythm disturbances or heart attack
- AD can very rarely lead to death, if it is not treated or continues despite treatment

## What should I do if I am having AD?

- Immediately sit upright in order to reduce pressure inside your head.
- Remove tight clothing including any blood pressure supports (belt, compression stockings, wraps, belly binder)
- Start searching for a cause and try to eliminate it. Recheck blood pressure after each step and every 5 minutes.
  - Bladder:
    - Indwelling catheter: check for kinks and flush the catheter.
    - Intermittent catheterization (IC): empty the bladder.
  - Bowels:
    - Apply topical anesthetic (such as lidocaine) to rectum, then check rectum for stool and remove if present.
    - Check for hemorrhoids, apply lidocaine if present.
  - Skin:
    - Check for pinching or pressure, including the testicular and buttock areas, and change position.
    - Check for ingrown toenails and if present, apply topical anesthetic.
- If the systolic blood pressure remains higher than 150 mmHg after the steps above, use medications to lower the blood pressure.
  - Nitropaste: When using, the person applying the paste should wear gloves to minimize accidental absorption.
  - Nitropaste should not be used by patients who have used medications for erectile dysfunction (such as sildenafil, tadalafil, vardenafil) in the past 24 hours.
  - One inch of nitropaste is a standard starting dose.
  - Nitropaste should be wiped off when systolic blood pressure has lowered to 130mmHg.
  - Other medications may also be used to lower blood pressure: hydralazine is a frequent second choice, but other medications that act quickly and briefly may be used.
- If your blood pressure does not go down after applying nitropaste and you are unable to identify the cause of your AD symptoms, seek immediate medical attention at the nearest emergency department. If necessary, call 911 to assist with transportation. Remember that health care providers who are not familiar with SCI may not know about AD. Be prepared to explain your need for immediate treatment.

## How can I be prepared for AD?

- Know your usual blood pressure readings. Remember that people with SCI often have lower blood pressure than people in the general population. A blood pressure reading that is high for you may not seem very high to people unfamiliar with SCI.
- Familiarize yourself with the usual causes, and try to minimize or prevent these conditions.
- If you are at risk for or have experienced AD, consider carrying an AD emergency kit with the supplies and medications you may need.
- Develop and rehearse a plan for what to do if you suspect AD is occurring.
- Carry AD information in a wallet card (#2 in Resources, below) or on a mobile device.

## AD Emergency Kit

- Medical card with identification, list of medical problems and medications, and your normal blood pressure
- Blood pressure cuff
- Catheter and insertion supplies
- Irrigation syringe and sterile water or saline solution
- Lidocaine gel
- Gloves
- Prescription medications for AD, such as nitroglycerin paste, from your healthcare provider.

***Replace your nitroglycerin paste prescription every six months.***

## Resources for patients:

- Fact sheets with information about Autonomic Dysreflexia

Model Systems Knowledge Translation Center. (2015). *Autonomic Dysreflexia*. Retrieved from: [http://www.msktc.org/sci/factsheets/autonomic\\_dysreflexia](http://www.msktc.org/sci/factsheets/autonomic_dysreflexia)

- Handouts with information about Autonomic Dysreflexia

Spinal Cord Essentials. (2015). *Autonomic Dysreflexia*. Retrieved from: <http://www.spinalcordessentials.ca/Handouts/Autonomic-Dysreflexia/>

- SCI Forum Video about Autonomic Dysreflexia

Retrieved from: [http://sci.washington.edu/info/forums/reports/autonomic\\_dysreflexia.asp](http://sci.washington.edu/info/forums/reports/autonomic_dysreflexia.asp)

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**Disclaimer:** This information is not meant to replace the advice from a medical professional. You should consult your health care provider regarding specific medical concerns or treatment.

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