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Autonomic Dysreflexia

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Autonomic Dysreflexia (AD) is a condition found in individuals with spinal cord injuries, characterized by suddenly unstable vital signs. It can be very frightening for both the person experiencing it and his or her caregivers, and is considered a medical emergency. If you are caring for someone who has a spinal cord injury at or below T6, it is important to know the signs and how to reverse this condition.

What is AD?

AD usually strikes people after the initial spinal shock phase of their injury is over, at four to six weeks post injury. The swelling from the injury goes down and sometimes people begin to regain sensation and/or movement, which can lead to a first AD crisis. For some people AD is a one-time event, and for others it becomes a chronic condition. All people with spinal cord injuries, regardless of history of AD and how long it has been since their injury, are at risk.

So what happens with AD? Basically, the injury prevents the upper and lower halves of the spinal cord and nervous system from communicating with each other. The signals are lost or mixed up. Typically, something begins to irritate or hurt the person below the level of injury. It can be as simple as a full bladder, or the cause may be less obvious. A full list of triggers is provided later on in this article. The person cannot feel it consciously, but the body knows something is bothering it. The lower half of the body tries to send the signal to the brain to please empty the bladder or otherwise resolve the uncomfortable situation. Unfortunately, the signal is interrupted by the injury and never gets through, which causes the lower half of the body to become more and more irritated. This triggers the sympathetic nervous system (SNS) to activate. The SNS is the system that responds to danger and pain, such as running from a bear or pulling your hand away from a hot stove after you have burned it. The SNS causes the arteries in the lower half of the body to squeeze, and that sends a rush of blood up towards the heart, head, and upper arms above the injury.

Now the person has sudden, super high blood pressure above the level of injury. They will complain of a headache, vision changes, and a sense of panic. They may begin to sweat or have goose bumps above the injury. They may complain of a stuffy nose or looked flushed. To compensate, the body tries to send a message back down to the lower half of the body to please stop squeezing the arteries. Unfortunately, the body thinks this

message has gotten through even though it cannot get through because of the spinal cord injury. Consequently, the heart rate slows down, which just makes the problem worse. This cycle continues until the trigger that started it all is found and taken care of.

What makes this dangerous is that the extreme high blood pressure that occurs puts the person at risk of a stroke, heart attack, and damage to small vessels of the eyes and brain. Repeated AD episodes can do long term damage. It's best to try to prevent the AD in the first place, but if it happens, you need to know what to do to fix it fast. Once the painful stimulus is removed, the crisis usually stops on its own.

Preparing for and Preventing AD

A person with AD should have an AD kit ready and available at all times. The kit should contain a step by step instruction card, contact information including the doctor's name and phone number, a straight catheter set, lidocaine jelly, rubber gloves, an automatically inflating blood pressure cuff set, and any high blood pressure medications that are prescribed for such a crisis. The person should always wear a medical alert bracelet to help medical workers identify a risk for Autonomic Dysreflexia.

If an episode does occur, it is important to take note of what might have triggered it. Knowing what triggered previous episodes will help to solve the crisis faster the next time. Call the doctor as soon as it's over, even if it was solved quickly. The doctor may want to examine the person to make sure he or she is okay. There are medications that can be prescribed if the blood pressure gets too high or the crisis is not resolved right away, especially if AD crises keep happening.

The Five B's

When a person has an AD crisis, nurses or caregivers use the Five B's to help get the person out of the crisis. These are:

- **BED UP:** When the person starts to show symptoms of AD including severe headache, put the head of bed up and the feet down. This causes the blood to flow back by gravity away from the head.
- **BLOOD PRESSURE:** If it's available, check the person's blood pressure immediately. If it gets above 150 at any time during the crisis and cannot be brought down within a few minutes, call 911. The person's doctor may have prescribed blood pressure medication to use in a crisis, and it should be in the AD kit.
- **BLADDER:** Does the bladder need to be emptied? When cathing someone, use lidocaine jelly to prevent more pain during the crisis. If no one is around who is qualified to cath the person, call 911 and have medical personnel do it.
- **BOWELS:** If the bladder care did not solve the problem, check to see if the person needs to have a bowel movement. Use lidocaine jelly to assist in this

- process and decrease any further irritation that can add to the AD crisis.
- **BODY:** Check the rest of the body. Is the person lying on something? Is a brace or piece of clothing too tight? Is the person in an awkward position? Is he or she too cold or too hot? Start at the feet and visually work your way up and down the body, both front and back to see if you can figure out the problem.

AD Triggers

Below are some triggers that can cause AD. Some of these can only be found or treated by a doctor, which is why it's important to call the doctor every time there is an AD crisis.

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| <ul style="list-style-type: none"> • bladder or kidney infection • gastric ulcers, gallstones, other GI disturbances • tight clothing, leg braces, shoes • lying or sitting on hard object • pressure ulcer • ingrown toenail • insect bites and other minor injuries • blood clots • extreme temperatures • rapid changes in temperature | <ul style="list-style-type: none"> • sexual activity • menstruation • pregnancy • vaginal infections • positioning problem • lack of circulation to limbs • stretching and physical therapy exercises • drug stimulants |
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If the person is going in for a medical procedure, remind the staff about a history of AD. The operating room can be very cold and trigger a crisis, as can placing the person in an awkward position. Use warming blankets and warmed IV solutions. Surgical incisions can also cause a crisis. Even if a person may not have conscious pain sensation below the injury, the body can still feel it and will respond. Physical therapy can be another trigger if the muscles or joints are over-stretched.

With proper measures taken to prevent Autonomic Dysreflexia, and knowing what to do should a crisis occur, AD can just be one small bump in the road rather than a life defining condition.

For further information, see the following resource:

- http://www.scicpg.org/cpg_cons_pdf/ADC.pdf
Autonomic Dysreflexia: What You Should Know, Consortium for Spinal Cord Management. Free down loadable booklet funded by the Paralyzed Veterans of America