



Autonomic Dysreflexia – A Medical Emergency

A guide for patients

Only applicable to T6 level and above

Key Points

- Autonomic Dysreflexia (AD) is a medical emergency that occurs due to a rapid rise in blood pressure in response to a harmful or painful stimulus below the level of your Spinal Cord Injury (SCI)
- It occurs in people with SCI at T6 and above but has in rare occasions been reported in individuals with SCI as low as T8
- If left untreated your blood pressure can rise to dangerous levels, risking stroke, cardiac problems, seizures, even death
- Typically there is a pounding headache as your blood pressure rises. Other symptoms can include redness and sweating above the level of your SCI, slow heart rate, goosebumps, nausea, nasal congestion, blurred vision, shortness of breath and anxiety
- Some or all of the symptoms may be present
- AD can be triggered by any continuous painful or irritating stimulus below the level of your lesion. The most common causes are related to the bladder or bowel
- Relieving the cause of the AD will resolve your AD episode
- If the cause cannot be found or treated, medication is required to lower your blood pressure which may require a visit to your nearest emergency department
- All people with SCI at T6 and above should carry their Autonomic Dysreflexia Medical Emergency Card at all times
- The best treatment for AD is prevention
- People at risk of AD often carry an 'AD Kit' with them – items useful to resolve AD such as catheters and prescribed medication

What is Autonomic Dysreflexia?

Autonomic Dysreflexia (AD) is a medical emergency. It is an exaggerated nervous system response to a noxious or painful stimulus below the level of your SCI. This means that your body responds to something painful or harmful by raising your blood pressure, but your brain cannot control this potentially dangerous rise in blood pressure (BP) because messages are blocked by your SCI.

The rise in BP can be resolved by treating the cause of the AD. If the cause cannot be found or treated medication must be administered to temporarily control your blood pressure.

Who gets Autonomic Dysreflexia?

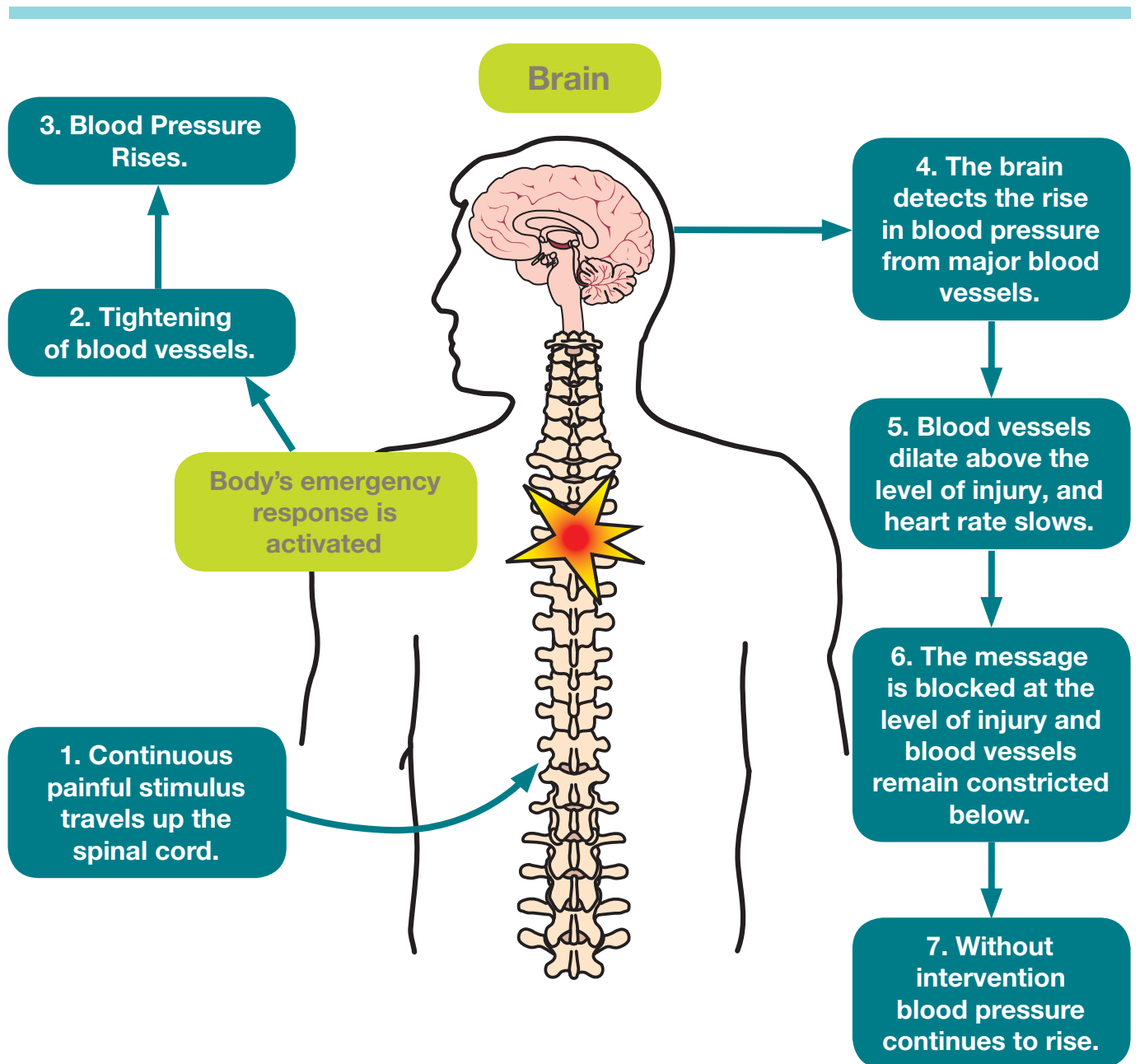
AD can occur in people with spinal cord lesions above the T6 level, however some rare cases of it occurring as low as T8 have been reported. Because this condition affects only a very small percentage of the population there is a lack of awareness of it. It is important you, your family, and your carers know how to recognise and treat this life-threatening condition.

It should also be noted that people with SCI at T6 and above usually have a lower blood pressure than the general population, so a blood pressure which is considered normal in the general population may not be normal for you.

What Happens?

Pain or irritation below the level of your SCI triggers a reflex and your body's natural response is to raise your blood pressure by tightening your blood vessels below your injury level. Your brain gets information that your blood pressure is rising, and it tries to adjust this. It does this by slowing down your heart rate and trying to widen your blood vessels. However, the messages to your blood vessels below the spinal cord injury are blocked due to your SCI. Therefore, the blood vessels above your SCI widen, but the blood vessels below the level of your injury remain tight, causing your blood pressure to remain high. Without intervention and finding the cause your blood pressure will continue to rise.





Symptoms

Some or all of these symptoms may be present –

- A **rise in blood pressure** causing a pounding headache
- Your **heart rate slows**
- There is a **flushing, redness and sweating of the skin** above the level of your SCI where the blood vessels are widened
- Your skin is **cold** below the level of your injury, where the blood vessels remain narrow, also causing goosebumps.
- Your body's response to your rise in blood pressure may also cause **nausea, nasal congestion, blurred vision, shortness of breath, and anxiety or a sense of apprehension**

Causes of Autonomic Dysreflexia

Episodes of AD can be triggered by many potential causes. Any continuous, painful or irritating stimulus below the level of your injury can cause an episode of AD. However, **bladder** issues are by far the most common cause, followed by **bowel** issues.

The following events or conditions are some things that can cause episodes of AD.

- Excessively full bladder
- Constipation
- Urinary tract infection
- Bladder or kidney calculi (stones)
- Pressure injuries
- Ingrown toenails
- Tight clothing
- Sitting on scrotum
- Haemorrhoids
- Stomach upset
- Sexual intercourse
- Ejaculation
- Menstruation
- Pregnancy, labour or delivery
- Burns or sunburn
- Blisters
- Insect bites
- Fractures or other trauma
- Gallstones
- Surgery or procedures
- Gastric ulcers or gastritis

In fact, **anything** that causes continuous pain or irritation **below** the level of your SCI.

Treatment of Autonomic Dysreflexia

AD will resolve when the cause of your pain or irritation is removed. Therefore the cause must be identified and resolved. **This requires immediate action.**

Make sure you are sitting upright to try and reduce the blood pressure and loosen tight clothing.

Refer to the Autonomic Dysreflexia **Medical Emergency Card** for step by step instructions for managing and resolving AD.

If the cause cannot be found or fixed, medication must be given to lower your blood pressure. If AD continues to be uncontrolled or medication is not available, you (or someone) must dial 000 for an ambulance, and show your Autonomic Dysreflexia **Medical Emergency Card** to the paramedics and hospital staff. It is essential to present this card to anyone involved in your treatment to stress the seriousness and urgency of AD.

Many people at risk from AD carry a 'kit' in case of emergency. This kit can include such items as urinary catheters, lignocaine gel, gloves, and any medication that has been prescribed for you to manage AD.

Autonomic Dysreflexia Medical Emergency Card

This card should be carried at all times. It provides information about identifying and treating AD, as well as contact details for the Spinal Unit at Fiona Stanley Hospital if advice is needed.

If no response, i.e. if the elevated blood pressure does not start to fall within one minute of the above procedures, or the cause cannot be determined, treat as follows:

5. Glyceryl trinitrate.

NB: DO NOT use glyceryl trinitrate if sildenafil (Viagra), or vardenafil (Levitra) has been taken in the previous 24 hours or tadalafil (Cialis) in the previous four days.

Give one spray of glyceryl trinitrate (Nitrolingual Pumpspray) under the tongue. During administration, the canister should be held upright and the spray should not be inhaled.

OR

Place ½ a glyceryl trinitrate tablet (Anginine) under the tongue.

OR

Apply 5mg, GTN patch according to manufacturer's instructions. It can be removed if the BP drops too low.

The hypotensive response should begin within two to three minutes and may last up to 30 minutes.

A second spray/tablet may be given in 5–10 minutes if the reduction in the blood pressure is inadequate or if the blood pressure rises again.

NOTE: If glyceryl trinitrate is not available or is contraindicated, e.g. within 24 hours of sildenafil use, give one 10 mg nifedipine tablet (not a slow-release tablet) crushed, mixed with water and swallowed.

Avoid sildenafil (Viagra), vardenafil (Levitra) and tadalafil (Cialis) for 48 hours after a severe episode of autonomic dysreflexia.

All recommendations are for spinal cord injury patients at the sixth thoracic level or above. Individual therapeutic decisions must be made by combining these recommendations with clinical judgement.

This information is endorsed by the Australian & New Zealand Spinal Cord Society 3/3/2006

If glyceryl trinitrate or nifedipine do not lower the blood pressure sufficiently AND the cause of the autonomic dysreflexia has not been identified, please contact:

**State Rehabilitation Service
Spinal Unit
Fiona Stanley Hospital
(08) 6152 9386 or
(08) 6152 2222**

For further advice regarding management or arrange transport to the nearest emergency department.

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Management of Autonomic Dysreflexia

Information for people with Spinal Cord Injury

MEDICAL EMERGENCY CARD

Autonomic Dysreflexia

A hypertensive crisis in people with Spinal Cord Injury at or above the sixth thoracic level.

Name:

UR No.:

This person is susceptible to autonomic dysreflexia: a condition of reflex sympathetic overactivity which can cause extremely high blood pressure.

THIS DEMANDS IMMEDIATE ACTION

For further information contact:

State Rehabilitation Service Spinal Unit
Fiona Stanley Hospital
Perth

What is Autonomic Dysreflexia?

This is a condition of sudden high blood pressure, which may continue to rise and may cause a brain haemorrhage or fits.

The normal BP for this group of people is commonly 90/60 – 100/60 lying and lower when sitting. A BP of 130/90 is therefore high for them. If untreated it can rapidly rise to extreme levels, e.g. 220/140.

Symptoms and signs

The person may present with all or some of the following:

- Pounding headache, which gets worse as the blood pressure rises
- Blurred vision
- Flushing and blotching of the skin above the level of the spinal cord injury
- Profuse sweating
- Goose bumps
- Chills without fever
- Bradycardia (slow pulse rate)
- Hypertension (high blood pressure)

Common causes

- Bladder irritation, e.g. distended bladder, urological procedure, urine infection
- Bowel irritation, e.g. distended rectum, chemically irritant suppositories
- Skin irritation, e.g. pressure sore, ingrown toenail, burns
- Other, e.g. contracting uterus, fractured bones acute intra abdominal disease.

Patients and carers know about this condition and can often suggest the cause.

Treatment

Ask if the patient has just taken a drug to control the autonomic dysreflexia.

Two people are required to control the situation.

1. Sit upright or elevate the head of the bed. Loosen clothes and remove compression stockings and abdominal binder.

2. If the person has an IDC or SPC:

- i) Empty leg bag and estimate volume. To determine whether the bladder is empty, ask if volume is reasonable considering fluid intake and output earlier that day.
- ii) Check that the catheter or tubing is not kinked or flow is not impaired by a blocked inlet to the leg bag or perished valve in the leg bag. **If the blood pressure >170mm systolic, start drug therapy (see point 5).**
- iii) If the catheter is blocked, irrigate GENTLY with no more than 30mls of sterile water. Drain the bladder slowly – 500ml initially and 250ml each 15 minutes afterwards to avoid a sudden drop in blood pressure. If this is unsuccessful, recatheterize, using a generous amount of lubricant containing a local anaesthetic, e.g. 2% lignocaine (Xylocaine) jelly.
- iv) If the blood pressure falls after the bladder is emptied, the person still requires close observation as the bladder can go into severe contractions causing hypertension

to recur. Consider giving an oral anticholinergic medication, e.g. Oxybutynin HCL.

- v) Monitor the blood pressure for the next four hours.

3. If the person does not have a permanent catheter:

If the bladder is distended, lubricate the urethra with a generous amount of local anaesthetic jelly, e.g. lignocaine (Xylocaine) jelly, wait two minutes, then pass a catheter to empty the bladder. Drain the bladder slowly (see point 2iii).

4. If constipation is suspected, check the rectum for faecal loading:

If the rectum is full, check the blood pressure – **if it is more than 150 mm systolic, start drug treatment (see point 5).** Gently insert a generous amount of lignocaine jelly into the rectum and gently remove the faecal mass. **Note: if symptoms are aggravated stop immediately.**

Prevention of Autonomic Dysreflexia

Preventing episodes of AD relies on managing the factors which trigger AD. It may be helpful for you to keep an AD diary, recording your episodes of AD, its cause and effective treatment.

Given many episodes of AD are related to the urinary tract, good bladder management is essential. Avoidance of bladder distension, urinary tract infections, and renal stones are important. Additionally, other factors which commonly trigger AD include constipation and skin problems, so good bowel management and skin care can help prevent AD.



Contact

State Rehabilitation Service

Fiona Stanley Hospital
11 Robin Warren Drive, Murdoch WA 6150
Phone Helpdesk: (08) 6152 2222
www.fsh.health.wa.gov.au

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