

**LIVING WITH SCI**

**FACTSHEETS**

**sia** spinal  
injuries  
association  
FOR LIFE AFTER SPINAL CORD INJURY



**AUTONOMIC DYSREFLEXIA**

# Autonomic Dysreflexia

### What is it?

Autonomic Dysreflexia is the name given to a condition where there is a sudden and potentially lethal rise in blood pressure (BP). It is your body's way of responding to a problem. It is often triggered by acute pain or some other harmful stimulus within the body. It is unique to spinal cord injury and most commonly affects spinal cord injured people with injuries at or above T6. This extreme rise in blood pressure (hypertension) can lead to some types of stroke (cerebral haemorrhage) and even death.



***It should ALWAYS be treated as a medical emergency***

Studies have shown that it can occur at any time following the onset of spinal cord injury, when the period of spinal shock has subsided. Spinal cord injured people with incomplete lesions are just as likely to experience autonomic dysreflexia as people with complete lesions, (Harris 2001) although it is reported that symptoms are less severe in this group.

### Why does it occur?

Autonomic dysreflexia occurs in response to pain or discomfort below the level of spinal cord lesion. It is the body's 'fight or flight' response. Your blood pressure rises when your body encounters a harmful stimulus. This is detected by the nervous system, which then responds, via the autonomic nervous system, by dilating blood vessels, therefore lowering blood pressure to try to keep it within the normal range.

When your level of injury is T6 or above, the autonomic nervous system cannot lower raised blood pressure *below* your level of injury, in response to pain or discomfort below the level of spinal cord injury. Hence, your blood pressure continues to rise until the offending stimulus is removed.

However your autonomic nervous system does make an attempt to lower your blood pressure *above* your spinal cord injury. This is the source of the symptoms of autonomic dysreflexia which are an invaluable warning mechanism for you to take appropriate action.

If an autonomic dysreflexic episode is not resolved, the continuing surge in blood pressure becomes very dangerous and can lead to a stroke or possibly death.

#### Who is at risk?

- Spinal cord injured people injured at or above the level of T6.
- People with complete injuries are more likely to be affected.

#### What are the symptoms?

- It should be noted that you may not experience all the symptoms, you might even experience symptoms that are peculiar to you.
- However one symptom that is always present is:
- Pounding, usually frontal, headache

**and** one or more of the following most common presenting symptoms:

- Flushed (red) appearance of skin above the level of injury
- Profuse sweating above the level of injury
- Pale coloured skin below the level of injury
- Stuffy nose
- Non-drainage of urine (urine obstruction is the most common cause)
- Severe hypertension (note: sci people have lower resting bp compared to non-sci people)
- The sensation of a tight chest
- Bradycardia (slowing of the heart rate)

#### What are the common causes?

##### Bladder

- Distended bladder
- A kink in the catheter
- An over-full leg bag
- Blockage or obstruction that prevents urine flowing from the bladder
- Urinary tract infection or bladder spasms
- Bladder stones

##### Bowel

- Distended bowel which can be due to a full rectum, constipation or impaction
- Haemorrhoids
- Anal fissures
- Stretching of rectum or anus or skin breakdown in the area

##### Skin

- Pressure ulcer, contact burn, scald or sunburn
- Ingrown toenail
- Tight clothing/leg bag etc

### Sexual activity

- Over-stimulation during sexual activity
- Ejaculation – can cause a dysreflexic episode, but this can be managed

### Gynaecological issues

- Menstrual pain
- Labour and delivery

### Other causes

- Bone fractures, below the level of injury
- Pain or trauma
- Syringomyelia
- Deep vein thrombosis(DVT)
- Acute conditions such as gastric ulcer, appendicitis
- Severe anxiety (eliminate all possible physiological factors first)

Unless this is the first time you have experienced autonomic dysreflexia, or if you are recently injured, you will usually be familiar with the symptoms of autonomic dysreflexia in the same way a person with diabetes is aware of the early symptoms of hypoglycaemia (low blood sugar). You may well be able to spot the problem yourself and take immediate action or get appropriate help.

Not all medical staff are aware of autonomic dysreflexia and you, as a spinal cord injured person, are an expert on your condition. You may well find yourself having to educate a health professional as to what is happening to you.

Whilst some SCI people injured at T6 and above, will have experienced at least one episode of autonomic dysreflexia during their rehabilitation in a Spinal Cord Injury Centre (SCIC), this cannot be guaranteed.

Ideally the best way to experience the symptoms of autonomic dysreflexia for the first time, is within the protective environment of a SCIC, where many of the risk factors that influence autonomic dysreflexia are well controlled.

At your discharge planning stage, it is appropriate that the Community Care Team and your full time carers, have been educated on the causes and effects of autonomic dysreflexia and they, in turn, should establish your own current knowledge and experience for future reference.

### Treatment

Early recognition of AD is essential so that treatment can be started immediately. Once raised blood pressure has been confirmed, where possible, together with the typical signs and symptoms of autonomic dysreflexia, the high blood pressure must be treated and the cause identified.

### What actions should be taken once autonomic dysreflexia is identified?

- Sit up and drop your feet
- Loosen any clothing and check nothing putting pressure on the skin
- Perform a quick assessment to identify the cause so that the stimulus may be removed.

Actions should be prioritised as follows:

### Identify and remove cause

#### Bladder

The most common cause of autonomic dysreflexia is non-drainage of urine. This can be due to a blocked catheter, urinary tract infection or overfilled collection bag.

#### Action:

If you have a Foley or suprapubic catheter, check the following:

- Is your drainage bag full?
- Is there a kink in the tubing?
- Is the drainage bag at a higher level than your bladder?
- Is the catheter plugged?

After correcting the obvious problem, and if your catheter is not draining in 2-3 minutes, your catheter must be changed immediately. If you do not have a Foley or suprapubic catheter, perform a catheterisation and empty your bladder.



***Do NOT attempt a bladder washout as this could increase your blood pressure***

### Bowel

If your bladder has not triggered the episode of autonomic dysreflexia, then the cause may be your bowel. This can be due to constipation, anal fissures / haemorrhoids or an infection.

### Action:

Insert a gloved finger lubricated with an anaesthetic lubricant such as 2% lignocaine gel, into your rectum. If the rectum is full, insert some lubricant and wait for a minimum of 3 minutes. This is to reduce the sensation in the rectum which is important as performing digital stimulation and manual evacuation may worsen the autonomic dysreflexia. Gently perform manual evacuation.



***If you were doing this when the symptoms of autonomic dysreflexia first appeared, then stop the procedure and resume after the symptoms subside***

### Other causes

If an overfull rectum isn't the cause, investigate alternative causes from the list given previously. It is important that if you are having an autonomic dysreflexic episode that you remain calm; anxiety can make the problem worse. Once identified, remove the offending stimulus.

Ideally you, your carers and family members, should know your normal blood pressure. It is important for you to know your normal blood pressure and pulse rate and document them in an obvious place, such as on your care plan, in the event of you having an episode of autonomic dysreflexia.

As people with high level paraplegia and tetraplegia usually have a low resting blood pressure, (80 or 90 systolic for a cervical injury) a rise to 120 or 130 systolic, could be dangerous. If you have an episode of AD it is important to be able to give any attendant health professional your normal blood pressure.

### **If possible record a baseline BP**

If your BP increases by 20 mm/Hg and is accompanied by a lowering of the pulse rate, then you could be having an episode of autonomic dysreflexia.

If appropriate once you have eliminated bladder and bowel distension as the cause of the autonomic dysreflexia, sit up and have frequent BP checks until the episode has resolved.

If you are unable to measure your BP using the appropriate measuring machine (sphygmomanometer) then a good indicator is the severity of your headache. If your BP continues to rise, then your headache will become more intense; when it begins to fall, your headache will be less painful.

### Call your GP

If the symptoms persist despite interventions, notify your GP and local SCI centre. It is important that you are familiar with your treatment options in the event of autonomic dysreflexia. You should also be provided with an appropriate vasodilator (substance that causes the blood vessels to widen, thereby reducing BP) for use at home, which should be administered if you have an episode of autonomic dysreflexia.

As mentioned previously, since not all medical and healthcare staff are familiar with autonomic dysreflexia and its treatment, you should carry an emergency medical card with you always that describes the condition and the treatment required. You can obtain a free emergency medical card from SIA.

### Autonomic Dysreflexia Emergency Kit

It is also worthwhile to have an AD kit with you at all times which would contain:

- Catheter and supplies: if you use intermittent catheterisation, pack a straight catheter, and if you use an indwelling catheter, pack insertion supplies, irrigation syringe and sterile water/saline solution.
- Medicine prescribed for autonomic dysreflexia (usually Nifedipine or Glyceryl tri-nitrate - GTN) – check this from time to time to make sure it is in date
- Anaesthetic lubricant like 2% lidocaine (lignocaine) gel
- Sterile latex gloves
- Wet wipes and disposal bag.

### How can the risk of autonomic dysreflexia be reduced?

Fortunately there are precautions you can take to reduce the risk of autonomic dysreflexia including:

#### Bladder

- Change catheters regularly to prevent blockage
- Keep catheters free off kinks, clean, and follow your intermittent catheterisation regime regularly to avoid an overfull bladder
- Check urine for signs of infection (UTIs)
- Have regular bladder and bowel check-ups with your GP or at your SCIC
- Drink enough fluids.

### Bowel

- Maintain a regular bowel regime (ideally alternate days between bowel evacuations)
- Adequate fibre in diet to help avoid constipation
- Get treatment for haemorrhoids.

### Skin

- Frequent pressure relief when in both chair and bed
- Check skin regularly
- Avoid tight or restrictive clothing
- Avoidance of sunburn / scalds (avoid overexposure, use sunscreen with SPF15 or higher, avoid extreme water temperatures)
- Establish good posture in your wheelchair
- Maintain essential equipment, especially making sure your cushion is fit for purpose.

### Other

- If pregnant or planning to get pregnant, make sure your obstetrician / gynaecologist is aware of your healthcare needs as a SCI person
- Correct dosage and timing of medications
- Be educated in the causes, signs and symptoms, first aid, and prevention of autonomic dysreflexia and make sure those around you, or caring for you, are similarly educated.

### In Summary

- AD is a potentially life-threatening medical problem
- It requires immediate attention by yourself / your carers
- Learn what triggers an episode, how to deal with it and teach those around you the warning signs and treatment
- Have the necessary tools handy to deal with an episode
- Fix the problem, sit up and try to stay calm
- Call for medical attention if the symptoms do not subside.

**For an Emergency Medical Card, ring SIA Advice Line – Tel: 0800 980 0501**

*\*Adapted from *Managing Spinal Cord Injury: Continuing Care*; Chapter 22 'Autonomic Dysreflexia' by Paul Harrison & Alison Lamb.*



### **Postural hypotension – (a drop in blood pressure)**

Postural hypotension is a drop in blood pressure when moving from a flat to an upright position. If you have a high spinal cord injury, particularly T6 and above, you may experience a feeling of faintness or you may pass out briefly after moving too quickly, for example:

- from lying down to sitting up in bed
- shortly after transferring into your wheelchair
- when standing in a frame.

The feeling of faintness occurs because, as you sit up, gravity allows more blood to move down into your legs and, due to your paralysis, it has difficulty returning up to your heart. This leads to a drop in blood pressure, making you feel faint.

There are several ways to overcome faintness:

- If you are sitting in bed, lie down again, wait for a few minutes and then sit up or elevate the back of the bed more slowly, so that you sit up in bed in stages before getting into your wheelchair
- If you are in your wheelchair, ask a helper to put the brakes on and tilt your wheelchair backwards until your head and neck are nearly horizontal. A second person could lift your feet up. Wait for a few minutes and the feeling should pass
- As an alternative it may be possible for you to lean forward in your chair. If you are tetraplegic, take special care if you decide to do this, as you could overbalance. It will be safer if you are wearing a lap belt and if someone is with you
- Some people use TED stockings or abdominal binders to lessen the effect of gravity on blood pressure. If you have ongoing problems from low blood pressure, speak to your doctor as medication can also help.

These actions will increase your blood pressure, and you will begin to feel better, you can then be raised, or raise yourself, gradually. You may also find it helpful to have a small drink of water.

### **Using a Standing Frame**

If you are standing in a standing frame, you will need to sit back down in your wheelchair and follow the advice given above. If the sensation of feeling faint does not improve or if it reoccurs a few minutes later you may need to go back to bed and lie flat for a while.

If you experience difficulties when moving from lying to sitting, it is likely that you will have similar difficulties when standing. In preparation, try drinking a glass of water, it may help. You may feel faint more quickly if you have not used the standing frame before, in which case your physiotherapist will be with you, or if you have not stood in the frame for some time.

Although most people only experience postural hypotension for a few weeks when they start getting up into a wheelchair for the first time, it can be persistent. It may also occur if you have been on bed rest for a period of time, for example, due to a pressure ulcer.

Take care when you start getting up again, you may be taken by surprise!

Some people are more prone to postural hypotension than others. If you are, then you may need to wear elasticated 'anti-embolism' stockings and an 'abdominal binder', which is like an elastic corset, for a few weeks. These will help to prevent the blood pooling in the lower part of your body, thereby keeping your blood pressure up. Make sure any compression garments you use are not too tight and therefore liable to cause pressure ulcers. Eventually, as your body begins to adjust, you can usually stop wearing the abdominal binder and later the stockings.

*Extracts taken from SIA's publication 'Moving Forward – The Guide to Living with Spinal Cord Injury' (2008)*

---

### **Disclaimer**

This factsheet has been prepared by SIA and contains general advice only which we hope will be of use to you. Nothing in this factsheet should be construed as the giving of specific advice and it should not be relied on as a basis for any decision or action. SIA does not accept any liability arising from its use. We aim to ensure the information is as up-to-date and accurate as possible, but please be warned that certain areas are subject to change from time to time. Please note that the inclusion of named agencies, companies, products, services or publications in this factsheet does not constitute a recommendation or endorsement by SIA.

---

**Revised March 2013**

## ABOUT SIA



The Spinal Injuries Association (SIA) is the leading national user-led charity for spinal cord injured (SCI) people. Being user led, we are well placed to understand the everyday needs of living with spinal cord injury and are here to meet those needs by providing key services to share information and experiences, and to campaign for change ensuring each person can lead a full and active life. We are here to support you from the moment your spinal cord injury happens, and for the rest of your life.

For more information contact us via the following:

Spinal Injuries Association  
SIA House  
2 Trueman Place  
Oldbrook  
Milton Keynes  
MK6 2HH

**T:** 01908 604 191 (Mon – Fri 9am – 5pm)

**T:** 0800 980 0501 (Freephone Advice Line, Mon – Fri, 11am – 1pm/2pm – 4.30pm)

**W:** [www.spinal.co.uk](http://www.spinal.co.uk)

**@:** [sia@spinal.co.uk](mailto:sia@spinal.co.uk)

Charity No: 1054097

Brought to you by:





# PLEASE SUPPORT SIA

**SIA relies on fundraising, donations and gifts in wills to provide services that help spinal cord injured people rebuild their lives.**

With your help, we can provide the right support to spinal cord injured people and their families and friends so they can enjoy a full and independent life after injury. Your donation today will go towards changing someone's life.

I would like to give: £15  £20  £53  other amount £.....

### Method of payment

I enclose a cheque/postal order/CAF voucher made payable to Spinal Injuries Association.

I would like to pay by Mastercard/Visa/Maestro/Switch (delete as appropriate)

Card number

Start date

Expiry Date

Security Code

Signature ...../...../.....

Date

Name.....

Address .....

.....

Postcode ..... Tel no.....

Email address.....

Please gift aid my donation

If you tick the box it means for every £1 you donate we can claim an extra 25p from the taxman, at no extra cost to you. You need to pay an amount of income tax or capital gains tax at least equal to the tax we reclaim from HM Revenue and Customs – currently 25p in every £1 you give.

Please send your donation to: FREEPOST SPINAL INJURIES ASSOCIATION or you can donate online at [www.spinal.co.uk](http://www.spinal.co.uk)

**Thank you for your support!**