

**NATIONAL SPINAL INJURIES CENTRE**

STOKE MANDEVILLE HOSPITAL

**HANDOUT PREPARED**

**BY**

**SPINAL OUTPATIENT SERVICES**

**AUTONOMIC DYSREFLEXIA**

# **AUTONOMIC DYSREFLEXIA**

Autonomic Dysreflexia (AD) is a potentially life threatening condition that can occur in patients with spinal cord injury at or above the sixth thoracic vertebra (T6). (Teasel et al 2000; Matthias and Frankel 2002)

It is the term used to describe the paralysed body's autonomic response to a painful (noxious) stimulus perceived below the level of lesion which can cause severe, sudden hypertension (raised blood pressure) and if left untreated can lead to a stroke, epileptic fit or even death and for this reason should always be treated as a medical emergency. (Eltorai et al 2002; Valles et al 2005)

Patients with both complete and incomplete lesions can be affected, however it is thought that symptoms are less common and severe in the latter group. Not all patients will be affected but it is probable that between 50% and 70% of patients with lesions at or above T6 experience symptoms of AD. (Bycroft et al 2005).

## **Why does it occur?**

Anything that would normally be painful, uncomfortable or physically irritating may cause dysreflexia following spinal cord injury. The sensory nerves try to send messages to the brain but this is prevented by the damage to the spinal cord. Instead the autonomic nervous system (sympathetic system) reacts to the painful stimulus causing vasoconstriction of the blood vessels above the injury which results in a marked increase in blood pressure (Walker 2002). The nervous system (parasympathetic system) then responds by trying to lower the blood pressure but these messages are unable to travel down the spinal cord past the level of injury and the blood pressure continues to rise. (Essat 2003)

## **Symptoms**

Presenting signs and symptoms will include one or more of the following:

- severe pounding headache
- flushed appearance of the skin above the level of injury
- profuse sweating above the level of the lesion
- nasal congestion
- feeling unwell
- blurred vision
- increase in spasm
- continued severe hypertension (raised blood pressure)

Individuals may experience a variety of these symptoms but the one symptom which is nearly always present is the severe pounding headache.

## What are the causes?

There can be many stimuli that can cause autonomic dysreflexia, the most common of which is over distension of the bladder. This may be due to a blocked urinary catheter or kinked tubing. This is easily rectified by repositioning the tubing or changing the catheter promptly, using a lignocaine based lubricating gel to reduce painful stimuli. Over distension may also be due to insufficient frequency of intermittent catheterisation. Other urinary tract triggers include infection, bladder spasm or possibly bladder stones. (Wiesel P and Bell S 2004; Ash 2005)

The second most common cause is related to the bowel and may be due to constipation, rectal distension, overloaded bowel or haemorrhoids and anal fissures. An overloaded rectum should be evacuated immediately using lignocaine gel and gentle digital stimulation to encourage the rectum to empty. Aperients and faecal softeners should be increased and bowel care should be carried out on a daily basis until any constipation has been resolved. Haemorrhoids should be treated with medications available from the pharmacist or on prescription from the GP. If these are ineffective procedures can be carried out in the spinal outpatient department to help manage the problem. (Coggrave 2008)

Other causes include the following:

- Skin related problems such as pressure sores, burns, ingrown toenails.
- Skeletal problems such as fractures and heterotopic calcification and hip dislocation.
- Sexual/Fertility issues – for some men ejaculation may cause a dysreflexia episode but individuals learn their tolerance level and manage accordingly. Men with high level cervical injuries using vibrostimulation for either sexual or fertility purposes may be at higher risk of experiencing dysreflexia. This can present as “silent dysreflexia” where the usual symptoms of the condition are absent.
- Pregnancy/Labour – women planning pregnancy are advised to arrange for joint care between their GP and the Spinal Unit so that the baby may be delivered at Stoke Mandeville Hospital. This enables close monitoring of “mum” and should dysreflexia occur it can be treated by medication prescribed and administered by a spinal trained doctor and nurse.
- Other – autonomic dysreflexia can be triggered by any painful stimulus below the level of injury and could be caused by acute abdominal conditions.

## Treatment

Early recognition of the condition 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 hypertension must be treated and the cause identified.

The following steps should be taken:

- Sit the individual up and drop the feet, if not already seated.
- Perform a quick assessment to identify the cause so that the stimulus may be removed
- Treat the cause
- If the hypertension is severe, or if the cause cannot be identified, treat with medication as below.
- Seek prompt medical advice if the cause cannot be identified or the hypertension cannot be controlled.

Preventing recurrence, along with education, remains the long term goal in managing this condition as most causes can be avoided. For individuals who are unable to verbalise any symptoms they are experiencing, carers should be aware of the possibility that any subtle changes in their client's condition could indicate an episode of AD.

## Medication

The medications most commonly used in this centre are as follows:

1. **Nifedipine 5-10mgs** – the content of the capsule should be put under the tongue and the capsule swallowed. It should be noted that this will have a prolonged effect after the cause has been treated and eliminated. Individuals who are at risk of experiencing autonomic dysreflexia should ask their GP to prescribe a small quantity of the drug to be kept close at hand.
2. **Glyceryl trinitrate spray ( 400micrograms )** – one to two sprays under the tongue.
3. **Glyceryl trinitrate transdermal patches ( 0.2 mg/hour )** – these should be applied to a non hairy area of skin above the level of injury and have the advantage that they can be removed once the episode has been resolved, thereby reducing the risk of prolonged hypotension (low blood pressure). It should be noted that if oral medication for erectile dysfunction, such as Viagra or Cialis, is being taken, GTN must **not** be used as the blood pressure may be lowered too much.

It is advisable for anyone who is potentially at risk of suffering from autonomic dysreflexia to carry emergency medical/alert cards, giving a short summary of causes and treatment, which may assist medical practitioners in the community setting in the acute management of the condition. It is also advisable for these individuals to keep a small supply of appropriate medication to hand in case of sudden onset of an episode of dysreflexia.

AD episodes usually resolve quickly once the noxious stimulus has been removed. However in a few cases, recurrent attacks triggered by minimal stimuli can continue for up to 10days afterwards, especially common where there was a prolonged delay in resolving the original cause. (Eltorai et al 1992)

#### **Disclaimer**

***This is a clinical advice sheet only, not a treatment plan, as individual care may vary***

## References

- Ash D (2005): Sustaining safe and acceptable bowel care in spinal cord injured patients. *Nursing Standard*, 20, 8, 55-64
- Bycroft J, Shergill IS, Choong EAL, Arya N, Shah PJR. (2005) Autonomic dysreflexia: a medical emergency. *Postgraduate medical Journal* **81**(954) 232-235
- Coggrave M, (2008) Neurogenic continence. Part 3: Bowel management strategies. *British Journal of Nursing* Vol 17 N o.15
- Eltorai I, Kim R, Vulpe M, et al (1992). Fatal cerebral haemorrhage due to autonomic dysreflexia in a tetraplegic patient: case report and review. *Paraplegia* 30: 355-360
- Essat Z (2003) management of autonomic dysreflexia. *Nursing Standard* **17** (32) 42-44
- Mathias CJ, Frankel HL(2002). Autonomic disturbances in spinal cord lesions. In: Bannister R, Mathias CJ. (Ed). *Autonomic Failure: A Text book of Clinical Disorders of the Autonomic Nervous System*. Oxford University Press, NYC NY p839-881
- Teasell RW, Arnold JM, Krassioukov A, Delaney GA. (2000) Cardiovascular consequences of loss of supra spinal control of the sympathetic nervous system following spinal cord injuries. *Archives Physical Medical Rehabilitation* ; 81:506-516
- Valles M, Benito J, Portell E, Vidal J (2005) Cerebral haemorrhage due to autonomic dysreflexia in a spinal cord injury patient. *Spinal Cord*; 43: 738-740
- Walker J (2002) Autonomic dysreflexia. *Professional Nurse* **17** (9) 519-520
- Wiesel P, Bell S. (2004) Bowel dysfunction: Assessment and management in the neurological patient. In Norton C, Chelvanayagam S.(eds) *Bowel Continence Nursing*, Beaconsfield 181-203

## Bibliography

- Blackmer J. (2003) Rehabilitation medicine: Autonomic dysreflexia. *Canadian Medical Association Journal* **169**(9) 931-935
- Dunn KL. (2004) Identification and management of Autonomic Dysreflexia in the Emergency Department *Topics in Emergency Medicine* **26**(3) 254-259
- Kavchak-Keyes MA. (2000) Autonomic hyperreflexia. *Rehabilitation Nursing* **25**(1) 31-35
- Paralysed Veterans of America (2006) *Clinical Practice Guideline, Acute Management of Autonomic Dysreflexia: Individuals with Spinal Cord Injury Presenting to Health-Care Facilities*. *Spinal Cord Medicine* 2<sup>nd</sup> edition.
- Shergill IS, Arya M, Hamid R, Khastgir J, Patel HRH, Shah PJR. (2004) The importance of autonomic dysreflexia to the urologist. *British Journal of Urology* **93**(7) 923-926