



*Management
Of
Autonomic Dysreflexia*

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1.0 AUTONOMIC DYSREFLEXIA

Autonomic Dysreflexia is one of the most serious life-threatening conditions which occurs in a high percentage of patients with lesions at or above the 6th thoracic vertebra (T6). The syndrome occurs as a result of uncontrolled reflex sympathetic activity resulting in significant rise in blood pressure and is a response to the stimulus which should be identified.

It is essential that prompt action is taken to reduce the blood pressure and to remove the cause of Autonomic Dysreflexia in order to avoid serious and life-threatening complications.

Do not ignore Headache.

2.0 ANATOMY AND PHYSIOLOGY

The autonomic nervous system functions at an unconscious reflex level and regulates the internal environment of the body. The autonomic nervous system consists of two major divisions, the Sympathetic and Parasympathetic Nervous Systems which normally function in a balanced manner. The Sympathetic Nervous System stimulates activities to provide a normal response to stress, activity and injury. Autonomic dysreflexia occurs when there is an irritating stimulus introduced to the body below the level of the injury. The stimulus results in nerve impulses travelling up the spinal cord which are obstructed on reaching the level of the injury. The impulses therefore cannot reach the brain but instead activate a reflex which increases the response of the of the Sympathetic Nervous System. This activity results in vaso-constriction which in turn will lead to the development of high blood pressure.

Indirectly the brain will appreciate the change in the blood pressure through nerve receptors in the heart and aorta but cannot, in turn, influence changes below the level of the injury. The changes therefore may be inappropriate and result in changes in heart rate and blood pressure and affect organs above the level of injury. There will be concomitant relaxation of blood vessels (vaso dilatation) seen as flushing and blotching of the skin. In the upper half of the body and face, nasal congestion with the pounding headache are a feature of the systemic high blood pressure.

A vicious circle of activity will be maintained until the cause is removed and or appropriate treatment is given.

3.0 PATHO-PHYSIOLOGY

Symptoms

- Pounding headache
- Feeling of doom, anxiety & apprehension
- Profuse sweating
- Tightness in chest.

Signs

- Flushing and/or blotching above level of cord lesion
- Hypertension and bradycardia
- Pupillary dilatation
- Cardiac dysrhythmia

Above lesion:

- Pallor initially
- Flushing head and neck
- Sweating in area above and around the lesion.

Below lesion:

- Cold peripheries
- Pilo erection
- Contraction of bladder and bowel
- Penile erection & seminal fluid emission.

Danger: Can result in Intracranial Haemorrhage.

Note:

Under normal circumstances a tetraplegic person may have a low blood pressure (e.g. 90/60mm.Hg). A rise to "normal" level of 120/80mm.Hg. may represent a significant elevation.

Regular monitoring is necessary since blood pressure changes can occur extremely rapidly.

Monitor blood pressure every five minutes until blood pressure control is achieved and then every thirty minutes for four hours.

4.0 CAUSES OF AUTONOMIC DYSREFLEXIA

1. Bladder

- Over distension
- Blocked catheter
- High pressure voiding
- Defective drainage system (e.g. kinked tubing/full drainage bag)

- Urinary tract infection
- Bladder stones.

Note:

Bladder dysfunction is the most common cause of autonomic dysreflexia.

2. Bowel

Bowel distension from:

- Constipation
- Digital evacuation
- Part of a normal bowel programme
- Rectal examination.

Any of the above may provide a sufficient stimulus to initiate dysreflexia.

3. Pressure Sores.

4. Ingrowing Toenails.

5. Electro-Ejaculation.

6. Pregnancy and Labour.

7. Sexual Activity.

8. All other conditions which would have been associated with pain prior to the injury such as anal fissure/fracture.

5.0 TREATMENT

Urgent Action

1. Reduce the blood pressure by placing the patient in a sitting position and/or raising the head.
2. Take the blood pressure.
3. Give sublingual Nifedipine 10 mg. pierced, bitten or chewed or GTN Spray (If possible monitor blood pressure every five minutes during the episode). Treatment may be repeated up to four doses (40mg.) over one hour.

Remove Cause

Step One:

- Check Bladder
 - a. Bladder distended
 - If catheter present check patency and if blocked or kinked correct the problem.
 - If not catheterised catheterise immediately and leave on free drainage.

IF ANY DOUBT RE-CATHETERISE

b. If bladder not distended, free drainage established but infection suspected or if re-catheterised give antibiotic.

Step Two:

- Check Bowel.

Check rectum for faecal impaction using KY Jelly or Lignocaine Gel. If impaction present gently carry out manual evacuation.

If rectum empty consider constipation as a cause and arrange appropriate treatment.

Step Three:

- Check Skin.

Check Skin for pressure ulcers and abscesses.

Step Four:

- Check for other possible stimuli such as in-growing toenail, fractures, deep vein thrombosis and treat accordingly.

Step Five:

- Continue observations, B.P. Pulse, Urine Drainage.

Step Six:

- If condition has not resolved or for further advice contact Spinal Unit (Duty SHO) or nearest Accident & Emergency Department.

6.0 MEDICAL MANAGEMENT

1. Nifedipine, sublingual 10 mg. Bitten or chewed. This may be repeated up to four doses (40mg.) over one hour.

or

2. GTN spray 1- 2 doses under tongue (as alternative to Nifedipine).
3. Diazepam (Diazemuls I.V.) for treatment of associated spasms and for control of fits. May be useful for control during transfer to Specialist Unit.
4. Lignocaine Gel per rectum/per urethra to block afferent input.
5. Pain - do not use Aspirin or NSAID for analgesia or for relief of headache. Use Paracetamol, Co-proxamol and/or consider Morphine.

For Hospital Use

1. Phentolamine 10mg./ml ampoule. Give by I.V. injection 2-5 mg. repeated if necessary, short duration of action.

Side Effects - Tachycardia, dizziness, nausea and vomiting, angina, chest pains, arrhythmias.

Contra-indications - Hypotension, history of myocardial infarction, angina.

2. Labetalol

100 mg, in 20 ml. ampoule.

Infuse at 2 mg, per minute, until a satisfactory response is obtained. The infusion should then be stopped. Effective dose is usually in the range 50-200 mg. Can be used in pregnancy. Give when patient is in supine or left lateral position. Raising patient to upright position within three hours of receiving IV Labetalol, should be avoided since excessive postural hypotension may occur.

Side Effects - Excessive hypotension

Contra-indications - Asthma

3. Hydralazine

Direct acting vasodilator. 20 mg, ampoule. Give by slow IV injection or IV infusion 5-10mg IV over 20 mins. Repeat if necessary after 20 - 30 minutes.

Side effects - Tachycardia, fluid retention. (Note: Alpha blockers may be useful if bladder outlet problems contribute to the dysreflexia).

Autonomic dysreflexia is a dangerous complication of spinal cord injury and causes extreme anxiety to the patient. When the person with spinal cord injury has been stabilised a full review of the patient's care and consideration of precipitating causes should be carried out. This should involve the patient, the family and all care givers. This process may require an adjustment of the care or treatment plan ideally to prevent a further medical crisis by anticipatory treatment but also to ensure that any future episodes are fully recognised and are treated urgently before they become significant.

All patients with a lesion above T6 will be given a written description (this book) of autonomic dysreflexia and its treatment and will be given a personal card to carry at all times.

7.0 MEDICAL EMERGENCY CARD

This is a medical emergency

I have a spinal cord injury with paralysis.

I suffer from Autonomic Dysreflexia.

This can lead to seizure and cerebral bleeding.

Symptoms may be:

- Headache, flushing, sweating and goose bumps.**

Take Action quickly

Please dial 999 immediately

Inform Ambulance Service that I have Autonomic

FURTHER INFORMATION

For further information and advice please contact:

The Queen Elizabeth National Spinal Injuries Unit

South Glasgow Universities Hospitals NHS Trust
Southern General Hospital
1345 Govan Road,
Glasgow G51 4TF
Telephone: 0141-201 2563 (Outpatient Department)
0141-201 2550 (Night Answerphone)
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