Emergency Medical Retrieval Service (EMRS)

www.emrs.scot.nhs.uk

Standard Operating Procedure
Public Distribution

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Aims

- To recognise patterns of spinal injuries
- To have a pathway for safe treatment of patients with an acute spinal injury including transfer

Background

All patients with multiple trauma should be suspected of having a spinal injury. Pre-hospital care and the initial management of a patient with a suspected spinal cord injury can have major implications for the patient’s long-term management. Failure to detect usually results from failure to suspect. Cervical spine and thoraco-lumbar junction are commonest site of injury.

All injuries should be assumed to be unstable

People who sustain a spinal cord injury require specialised care and rehabilitation. Spinal cord injury can be complete or incomplete.

Neurological sequelae of spinal cord injury

**Paraplegia**

Refers to partial or complete paralysis of all or part of the trunk and both lower extremities from lesions of the thoracic or lumbar spinal cord or sacral roots.

**Tetra / Quadriplegia**

Partial or complete paralysis of all four extremities and trunk, including the respiratory muscles from lesions of the cervical cord.

Application

EMRS Team Members
SAS Paramedics
Patients appropriate for EMRS activation

Patients with acute spinal injury who may require advanced procedures whether multiple trauma scenario or isolated spinal injury.

Advice to GP prior to team arrival

- Assess ABC remembering to perform Airway with C-spine protection
- Place the patient into a neutral supine position keeping the spine in alignment at all times to avoid further pressure or damage on the cord.
  Place in hard collar, sandbags and tape or use manual in-line stabilisation
- Remove any objects from patient’s clothing (may cause pressure).
- Logroll patient to ensure no obvious direct injury to vertebral column or anything that could cause pressure - objects in back pockets etc.
  Perform Per Rectum examination to assess anal tone.
In trauma when a patient has a normal pulse but is hypotensive then spinal injury should be suspected.
The patient suffering solely from neurogenic shock will be:

  - Hypotensive.
  - Bradycardic with pulse of good volume.
  - Colour good.
  - Peripherally warm and dry.

- Pass urinary catheter unless priapism or associated pelvic trauma
- Pass naso- or oro-gastric tube
- Administer anti-emetic +/- PPI
- Place on vacuum mattress (if available)
  To ensure that total immobilisation of the spine is maintained when the patient is moved there are 2 techniques which can be applied;

  - Logroll
  - Spinal / straight lift

Medical management on scene

- Reassess ABC in multiple trauma
The detection of internal haemorrhage is difficult in those with spinal cord injuries due to Autonomic dysfunction.
As haemorrhage is more likely fluid resuscitation should be instigated to maintain adequate perfusion of vital organs until proven otherwise. This involves screening for haemorrhage into the pelvis, abdomen and chest

Neurogenic shock occurs only in the presence of acute SCI above T6.
Shock in the multiple trauma patient must not be considered to be due to neurogenic shock. It is vital that a thorough search for haemorrhage is made.
• Examine for both Sensation and Motor Power. 

Examine by: Light Touch 
            Blunt pin (pain).

Record level of normal sensation by drawing a line on the patient’s skin.

**Sensation:**
- C4  Shoulder
- C6  Thumb
- T10 Umbilicus
- L3  Front of knee
- L5  Big toe
- S1  Little toe
- S3  Genitalia

**Motor**
- C4  Shrug shoulder
- C5  Bend elbow
- C6  Push wrist back
- C8  Open & close hands
- T1-12 Intercostal muscles
- L1-5 Abdominal muscles
- L1-3 Bend hip
- L3  Straighten knee
- L4  Push foot up
- L5-S1 Push foot down

One of the first signs of neurologic deterioration is the extension of the sensory deficit cephalad. Careful repeat neurologic examination may reveal that the sensory level has risen 1 or 2 segments. Repeat neurologic examinations to check for progression are essential.

**Triage**

The Queen Elizabeth Spinal Injuries Unit is located at The Queen Elizabeth University Hospital(QEUH) and patients with Acute Spinal Injury should be discussed with the receiving doctors. General Switchboard (0141) 201 1100
If other injuries suspected should be transferred to Emergency Department QEUH for further assessment.

Further information on Spinal Injuries is available via [www.spinalunit.scot.nhs.uk](http://www.spinalunit.scot.nhs.uk)

Information on transfer of these patients is available from www.spinalunit.scot.nhs.uk/Spinal%20Documents/TRANSFER.p