Clinical Guideline

SPINAL CORD COMPRESSION (SCC) – MANAGEMENT IN HAEMATOLOGY AND ONCOLOGY PATIENTS

SETTING: Bristol Royal Hospital for Children
FOR STAFF: All Staff involved in clinical management
PATIENTS: All children, teenagers and young adults, under the care of the Paediatric Haematology and Oncology team

Guidance

This document should act as a guideline on the initial management of spinal cord compression in any patient within the haematology and oncology unit. Early discussion with the consultant in charge is mandatory.

1 INTRODUCTION

Any patient presenting with symptoms and signs of spinal cord compression must be investigated and treated without delay.

- Tumours arising outside the central nervous system (CNS) may present with spinal cord compression as a result of extension into the spinal canal, for example; Neuroblastoma, peripheral Primitive Neuroectodermal Tumours (PNETs), Lymphoma or more rarely Germ Cell Tumours (GCT) or Wilms’ Tumour (WT). SCC can arise also because of primary intraspinal tumours and, least commonly, extradural metastatic deposits.

- Up to 5% of children with solid malignant tumours have been reported to develop spinal cord compression, usually in the final stages of their disease (Lewis et al., 1986; Klein, Sanford and Muhlbauer, 1991).

- In patients who have previously undergone spinal surgery or radiotherapy, infarction or radiation myelopathy (radiation necrosis) may be indistinguishable clinically or radiologically from tumour.

- Oedema and obstruction of vascular drainage causes further deterioration, regardless of the process leading to compression. If prompt action is not taken this process will lead to irreversible infarction.

- Any patient presenting with a spinal or paraspinal mass must be discussed urgently with a senior member of the neurosurgical team

- The decision regarding decompression and biopsy must be made together with the Neurosurgical consultant.
2 SYMPTOMS AND SIGNS

Symptoms suggestive of cord compression include

- Back pain
- Sensory level
- Bladder or bowel dysfunction

Back pain in a young patient must always be investigated fully, unless minor, transient and with a clear history of injury.

Signs suggestive of cord compression include

- Sensory change at the level of disease
- Sensory loss
- Loss of deep tendon and abdominal reflexes
- Motor loss

Assess clinically for

- Local tenderness at the level of the compression, particularly if this arises as a result of vertebral destruction.
- Scoliosis, particularly with low grade intrinsic spinal cord tumours.
- Other features suggestive of systemic malignant disease

3 INVESTIGATIONS

Spinal imaging must be obtained urgently

- Magnetic resonance imaging (MRI) is the investigation of choice – Computerised Tomography (CT) will give enough information to facilitate emergency referral to a neurosurgical centre.
- Imaging of other sites as indicated by diagnosis e.g. MIBG scan, bone scan or CT scan of chest to be arranged as appropriate once acute medical situation has been managed.

Supportive investigation – these should not delay spinal imaging or urgent neurosurgical referral

- Urinary catecholamines (to diagnose or exclude neuroblastoma),
- Alpha Fetoprotein (aFP) and Beta Human Chorionic Gonadotrophin (βHCG) (to diagnose or exclude GCT),
- Routine baseline blood tests: Full blood count (FBC), urea and electrolytes, calcium, phosphate, liver function tests, clotting profile, lactate dehydrogenase, urate and group and save sample.
- Histopathology: liaise with pathologist to obtain appropriate specimen collection, handling and storage in the event of an out of hours procedure.
- Other eg. bone marrow examination, lumbar puncture

4 EMERGENCY TREATMENT

Airway: Can the patient self-ventilate normally (may require an arterial blood gas)?

Breathing: High flow oxygen unless a specific contraindication exists e.g. previous use of bleomycin for a germ cell tumour.

Circulation: Maintain normal blood pressure, but note that rapid reduction of a raised blood pressure may lead to irreversible cord damage. Avoid hyperhydration.

Spine: Stabilise the spine before any procedure involving movement.
Steroids In the presence of neurological deficit:
- High dose Intravenous dexamethasone should be given either before or immediately after urgent imaging
- Smaller oral doses may be used in the absence of neurological deficit.

<table>
<thead>
<tr>
<th>DRUG</th>
<th>DOSE</th>
<th>ROUTE</th>
<th>FREQUENCY</th>
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<tbody>
<tr>
<td>Dexamethasone</td>
<td>0.25-0.5mg/kg</td>
<td>Oral</td>
<td>6 hourly</td>
</tr>
<tr>
<td>Dexamethasone</td>
<td>1-2mg/kg/dose</td>
<td>Intravenous</td>
<td>Immediate dose. Reduced and changed to oral if possible as above dependent on symptoms and ongoing management</td>
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Further treatment depends on the aetiology of the compression and may include surgical decompression, emergency radiotherapy and/or chemotherapy.

It is mandatory that these patients are discussed at consultant level.

REFERENCES


RELATED DOCUMENTS AND PAGES
None

AUTHORISING BODY
Paediatric Haematology and Oncology Governance Group

SAFETY
No unusual or unexpected safety concerns to staff or patients

QUERIES AND CONTACT
For clinical concerns please contact any of the following for advice:
- Paediatric Haematology Registrar: bleep 3495
- Paediatric Oncology registrar: Bleep 2950
- Ocean Unit (8am-6pm): 28145
- Starlight Ward: 28334
- Apollo 35 Ward: 28335
- Bluebell Ward: 27930
- Daisy Ward: 27897
- Haematology or Oncology consultant (via switchboard)