The Management and Treatment of Metastatic Spinal Cord Compression

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South Wales Cancer Network
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- Formerly South East Wales and South West Wales Cancer Networks
- Formed 1st April 2011
- Hosted by Abertawe Bro Morgannwg UHB
- Covers a population of over 2.3 million people across:-
  - Abertawe Bro Morgannwg University HB
  - Aneurin Bevan HB
  - Cardiff & Vale University HB
  - Cwm Taf HB
  - Hywel Dda HB
  - Powys HB
  - Velindre NHS Trust
Aims

In line with cancer rehabilitation standards:-

☐ Raise awareness of MSCC
  - Early signs and symptoms
  - Proactive liaison with medical teams
  - Revision of red flags
Outline of Presentation

- Introduction
- Pathophysiology
- Signs and symptoms/ Red Flags
- Diagnosis and medical management
- Physiotherapy Management

- Workbook
Metastatic Spinal Cord Compression (MSCC)

“Compression of the dural sac and its contents (spinal cord and /or cauda equina) by an extradural tumour mass.

The minimum radiological evidence for cord compression is indentation of the theca at the level of clinical features.

Loblaw and Laperriere, 1998
Normal vertebral anatomy

- Atlas (C1)
- Axis (C2)
- C7
- T1
- T12
- L1
- L5
- Sacrum (S1-S5)
- Cervical Vertebra C1-C7
- Thoracic Vertebra T1-T12
- Lumbar Vertebra L1-L5

Anatomy parts:
- Spinal Cord
- Spinous process (the bony part of your spine)
- Vertebra
- Disc
- Nerves
Spinal Cord Anatomy
MSCC Pathophysiology
MSCC - General Incidence

- 5 - 10% of patients with cancer will develop MSCC (Smith et al. 1993, Doyle 1998)
- 3 - 7.4% of all patients with Ca lung, breast and prostate will develop MSCC
- Also lymphoma, melanoma, sarcoma, myeloma, thyroid and renal cell carcinoma
Epidemiology

- 4000 cases of MSCC per year

- 50% present off their legs
  - 20% of these walk after treatment and rehab

- 50% present on their legs
  - 80% of these walk after treatment and rehab

Ref: NICE
GP’s perspective

- 30% of population have back pain
  - 20% of these visit their GP = 4 million people

- <1/1000 GP cases of spinal pain have spinal mets

- 23% of patients with MSCC have no prior cancer diagnosis

Ref: NICE
MSCC - Distribution

Cervical Vertebrae - 10%

Thoracic Vertebrae - 70%

Lumbar Vertebrae - 20%
MSCC – an oncological emergency

Why?

1. Devastating effects
2. Irreversible damage
3. Potentially life threatening
MSCC - Onset

Onset may be:-

☐ Slow - tumour expansion
☐ Rapid - bony collapse/aggressive
Metastatic Spinal Cord Compression (MSCC)
Spinal Metastases - The Problem

- Instability +/- neural compromise
- Pathological fracture
- Tumour Compression
Signs and Symptoms

- Pain
- Muscle weakness
- Sensory disturbance
- Bladder/bowel dysfunction
Red Flags

- Can happen at any level of the spinal cord
- A search of the literature has shown that 163 Red Flags for sinister back pain have been identified!

‘Which of these are most useful for identifying MSCC at an early stage?’
Early Warning Signs of Metastatic Spinal Cord Compression

- Referred pain that is segmental or band-like
- Escalating pain which is poorly responsive to treatment (including medication)
- Different character or site to previous symptoms
- Funny feelings, odd sensations or heavy legs (multi-segmental)
- Lying flat increases pain
- Agonising pain causing anguish & despair
- Gait disturbance, unsteadiness, especially on stairs (not just a limp)
- Sleep grossly disturbed due to pain being worse at night

Greenhalgh & Selfe 2009
Cauda Equina Syndrome

Low back pain and:

☐ Bladder dysfunction, usually retention.
☐ Sphincter disturbance
☐ Saddle anaesthesia
☐ Lower limb weakness
☐ Gait disturbance

Urgent referral is mandatory
Metastatic Spinal Cord Compression

- **NB**—Established motor/sensory/bladder/bowel disturbances are late signs
- **Past Medical History of Cancer** (but note 25% of patients do not have a diagnosed primary)
- **Early Diagnosis is Essential** as the prognosis is much worse once paralysis occurs
- **A Combination of Red Flags increases suspicion** (the greater number of red flags the higher the risk and the greater the urgency)
- To access the **MSCC guidelines** go to www.gmccn.nhs.uk

Greenhalgh & Selfe 2009
Diagnosis

Investigation of choice:-

• MRI

Also:-

• CT scan
• Plain X rays - AP/Lat
• Bone scan
• Myelography
Medical management

Aims:

- Maintain/improve neurological function
- Reduce pain
- Prevent local recurrence
- Maintain spinal stability
- Quality of life
Medical treatment

☐ High dose steroids
  ■ dexamethasone 8mg bd

☐ Radiotherapy

☐ Chemotherapy

☐ Surgery when indicated
Indications for surgery

Bone metastases

Potential or actual spinal instability or SCC
Clinically significant neurological compression
Unresponsive spinal tumour
Pathological (or impending) fracture to weight-bearing bone

Surgical referral
Surgical Techniques

Cages

Pedicle Screws
Vertebroplasty

- Considered for patients with spinal metastases with:
  - Mechanical pain resistant to conventional analgesia
  - Vertebral body collapse

- Not for patients with evidence of MSCC
**MSCC prognosis**

**Depends on:**
- Neurological impairment
- Speed of disease progression
- Tumour histology
- Nearness of terminal stage

*Generally poor - survival 2 - 24 months*
Physiotherapy Management

- Advice and education of the condition
  - Better patient compliance

- Assessment
  - Pain
  - Muscle power
  - Sensation
  - Respiratory
Physiotherapy Management

- **Acute management**
  - Prophylactic chest care
  - Prophylactic exercises
    - Passive
    - Assisted
    - Active

- **Fitting of collars/braces**
  - Miami J collar
  - Miami JTO
  - Lumbar support
Collars and Braces

Miami J

Miami Lumbar support

JTO
Who fits the collars and braces?

- Physio
- Orthotist

Discuss.....
Physiotherapy Management

- Rehabilitation
  - Sit to 15°, monitor pain and neurology
  - Progress and monitor through 30°, 45°, 60° to sitting
  - Assess sitting balance
  - Transfers as leg power allows
  - Mobilise as leg power allows
  - Set realistic goals with the patient to maximise independence, control and QoL
Ongoing care

Role of the MDT
Occupational Therapy

☐ Safe discharge
☐ Home adaptations
☐ Appropriate lifting/manual handling equipment
☐ Special mattresses/cushions
☐ Wheelchairs
☐ Fatigue management
☐ Coping strategies
Dietetics

- Nutritional support
  - Skin integrity
  - Pressure areas
Other Therapies

- Speech and Language Therapy
  - Swallowing – risk of aspiration when lying flat
- Lymphoedema management
- Complementary Therapy
Ongoing rehabilitation

- Discharge to suitable unit according to rehabilitation potential
- Palliative Care team
- Support at home

Its all about
Living Well with Cancer
Workbook

☐ Self study
☐ Broaden knowledge
☐ Resource for future, new staff

☐ Please complete evaluation form at back of book and return to:-
  Palliative Medicine Dept
  Velindre Cancer Centre
Thank you

Any questions?