Clinical Standard Operating Procedure (SOP)
MAGEC RODS DISTRACTION FOR EARLY ONSET SCOLIOSIS

SETTING
Bristol Royal Hospital for Children

FOR STAFF
Spinal orthopaedic practitioners – advanced nurse practitioners and specialist registrars working with paediatric patients undergoing MAGEC rods distraction

PATIENTS
Paediatric patients with MAGEC rods in situ for early onset scoliosis

Standard Operating Procedure

Introduction

The normal spine has a straight profile when seen from behind. Scoliosis occurs when this profile is deformed by rotation of the spine. Scoliosis can be classified by cause into idiopathic or secondary. Idiopathic scoliosis is further classified into infantile, juvenile and adolescent types. Scoliosis can also be secondary to congenital disorders, neuromuscular conditions, tumours, and trauma or syndromic (Nnadi, C, Fairbank J 2009). Depending on age at onset, scoliosis is defined as early-onset or late-onset.

Early onset scoliosis is defined as lateral curvature of the spine, greater than 10 degrees, in a child diagnosed under the age of 10 years. Early onset scoliosis can have a profound effect on lung development that in turn has an impact on life expectancy. Early intervention on scoliotic spines is primarily aimed at enhancing lung development, encouraging normal spine growth and preventing progression of the deformity.

The MAGEC Distraction System is an implanted adjustable growing rod that uses an external electromagnet to lengthen the rods from outside the body. It is used in children with early onset scoliosis to encourage spinal growth, enhance lung development and control progression of the curvature until a definitive scoliosis fusion can be performed.

Procedure

History and neurological examination to ensure that signs of altered neurology (from patients’ norm) are promptly detected and treatment delivered. These should include:

• Strength and movement of upper/ lower limbs/always examine lower limbs
• Touch and sensation
• Bladder and bowel neurology
• Observe normal functional activities – walking/squatting
• Pain assessment
• Wound healing and contours of back i.e. observe for prominent instrumentation or discomfort on palpation
• Psychological wellbeing of both child and parent/carer
• Height and weight

The following observations should be recorded if concerns arise during clinic visit:

• Heart rate
• Oxygen saturations
• Respirations
• Blood pressure
• Temperature

Any change in these observations, follow PEWS escalation.

Any concerns liaise with duty Spinal Consultant prior to any distraction procedure.

**MAGEC Rods Distraction Procedure**

- Ensure patient is comfortable and relaxed
- Check that the patient is comfortable to proceed with distraction.
- Position as is comfortable for each individual child i.e. sat straddling parent, laid on couch face down with pillow under abdomen
- Locate Magnets using Magec Wand and use marker pen
- Dim lights and using Ultrasound measure Magec Rods length
- Using External Handset lengthen the Magnets 3mm or a little more if no feeling of kick back through the handset.
- Kick back from the machine reaching the limit of the spinal growth should be avoided as causes discomfort for the patient
- Further ultrasound to check that measurement of lengthening offered by External Handset correlates with actual length with Ultrasound
- Ensure all lengths are recorded to monitor growth and for possible audit purposes
- Distractions should be performed every 6 -8 weeks
- Ultrasound is performed pre and post distractions. Yearly full length AP and Lateral Scoliosis X rays are performed
- Advise parents / carers regarding complications and encourage use of the spinal helpline if issues arise, including:
  - Protruding of implants
  - Increased pain
  - Discharge from wound
  - Altered bladder, bowel and lower limb neurology
  - Change in postural alignment

**REFERENCES**


[www.sauk.org.uk](http://www.sauk.org.uk)


**AUTHORISING BODY**

Paediatric Surgical Governance

**SAFETY**

None.

**QUERIES AND CONTACT**

Contact Spinal Nurse Practitioner or spinal orthopaedic registrar via switch.