Re-operation after magnetically controlled growing rod implantation: A review of 26 patients with minimum two-year follow-up

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Disclosures

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Magnetically controlled growing rods for severe spinal curvature in young children: a prospective case series

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- Promising early results
- Effective and safe
- Reduced number of surgeries for child

Yet reoperations can occur
Aim of the study

- Report the rate and causes of re-operations using MCGR in Early Onset Scoliosis (EOS)
Method

- Retrospective analysis of prospectively collected data
- 6 centers
- Minimum 2 year follow-up
- Only EOS cases were included
26 patients (14F; 12M) included
Results

- Mean age at surgery = 7.6 years (4-14)
- Mean follow-up = 35 months (24-50)
- Diagnoses
  - Syndromic 10
  - Congenital 5
  - Neuromuscular 3
  - Idiopathic 8
- Primary in 12 cases; revision in 14 cases
- Single rod in 4 cases; dual rod in 22 cases
Distraction frequency

- Range = 1 week to 6 months
  - Mean = 2 months
Re-operations

- 11 out of 26 patients (42.3%)
- **Mean time** to re-operation 17 months (5-29)
- Causes of re-operation
  - Failure of rod distraction 5
  - Failure of proximal foundation 3
  - Proximal failure with infection 1
  - Rod breakage 2
Risk factors for re-operation

- No relationship between re-operation and
  - Pre-op diagnosis
  - Pre-op coronal / sagittal Cobb angle
  - Age at surgery
  - Levels of instrumentation
  - Number of distraction episodes
  - MCGR done as primary or revision cases
Failure of rod distraction

- Idiopathic scoliosis with MCGR implantation at aged 9
- BMI of 28
- Thick subcutaneous tissues inadequate distraction forces
Failure of rod distraction
Failure of proximal foundation

Failure of proximal fixation, lamina fracture and wound infection - 2 years post-op
Inadequate fixation with sublaminar tape construct
5 patients

- Proximal anchor dislodgement
  - 3
  - Revised
Rod breakage

Congenital, single rod and revision

Double rod, primary case, tiny girl and mild deformity
Discussion

- Heterogeneous group of EOS patients
- Reoperation rate = 42.3%
  - Still fewer procedures than traditional growing rod for the same period of FU!

- Reoperation
  - **MCGR**
    - Procedure-specific
    - Implant-specific
  - Surgeon, patient and parents need to understand that more than one operation may be needed