



## **Short to medium-term outcomes in early onset scoliosis patients who have graduated from magnetically controlled growing rods to final fusion**

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### **Background**

There is paucity in the literature regarding outcomes in patients with early onset scoliosis (EOS) who have graduated from magnetically controlled growing rods (MCGR) to final fusion (FF).

### **Methods**

All EOS patients in our institution who had FF after MCGR treatment with a minimum follow-up time of 3 months were included. Outcomes measured included additional unplanned surgeries (AUS), major Cobb (MCA), Kyphosis (MKA) angles, space available for lung ratios (SAL) and T1-T12 heights.

### **Results**

23 patients (13 Females/10 Males) were included. C-EOS classification breakdown was as follows: 3 Congenital, 7 Idiopathic, 5 Syndromic and 8 Neuromuscular patients. The mean age at MCGR surgery was 9.5 years and mean MCGR implant time was 44 months. Mean follow-up after FF was 20 months. 2 patients needed AUS after FF complications. Preoperative and latest mean MCAs post-MCGR were 76° and 56° respectively. The mean MCA after FF was 34°. Preoperative and latest MKAs post-MCGR were 37° and 34° respectively. Final MKA after FF was

36°. MCA correction was 55%,  $p < 0.001$  but MKA change was insignificant,  $p > 0.05$ . Preoperative and latest SALs post-MCGR insertion was 87% and 95%, respectively. The final SAL after FF was 98% (11% increase,  $p < 0.01$ ). The preoperative and latest T1- T12 heights post-MCGR insertion were 180mm and 222 mm respectively. T1- T12 height post FF was 242 mm (34% increase,  $p < 0.001$ ).

### **Conclusion**

EOS patients who have graduated to final fusion from magnetically controlled growing rods can achieve satisfactory outcomes. There is potential for further deformity correction when progressing to final fusion, but additional surgery may be required if complications occur.

### **Disclosures**

The authors have no conflict of interest to declare.