

Paper #6

Similar Deformity Correction, but Limited Spinal Growth and Lower Health Related Quality of Life in Children with Skeletal Dysplasia Undergoing Growth-Friendly Management for Early-Onset Scoliosis. A Matched Comparison with Idiopathic Early-Onset Scoliosis



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Summary: Children with skeletal dysplasia received similar deformity correction, but gained significantly less spinal growth during growth-friendly management of early-onset scoliosis (EOS). The skeletal dysplasia group had significantly worse health related quality of life preoperatively and at final follow-up than the idiopathic group.

Hypothesis: We hypothesized that children with skeletal dysplasia associated EOS (SKDEOS) would achieve less spinal growth and would improve less in terms of HRQoL after growth-friendly spinal management than children with idiopathic EOS (IEOS).

Introduction: The value of growth-friendly spinal instrumentation has remained unclear in patients with skeletal dysplasia associated EOS.

Methods: A review of two prospective multicenter EOS databases identified 33 children (mean age 5.3 years, follow-up 5.6 years) with SKDEOS (major curve $\geq 30^\circ$) who were treated with growth-friendly instrumentation at younger than 10 years of age, had minimum 2-years of postoperative follow-up, and ≥ 3 lengthening procedures. 7 had OI, 6 diastrophic dysplasia, 4 camptomelic dysplasia, 3 spondyloepiphyseal dysplasia, 3 achondroplasia, 2 cleidocranial dysplasia, 2 atelosteogenesis type III, one each chondrodysplasia punctata and bent bone dysplasia, and in 4 children unknown SD. From the same registries 33 age, gender and type of index surgery matched controls (mean 5.4 years, follow-up 7.1 years) with IEOS were identified. In each group, the index surgery was carried out using growing rods in 20 patients and VEPTR instrumentation in 13 patients.

Results: Preoperative major curves were 76° in SKDEOS group and 75° in IEOS group ($p=0.55$), which were corrected at final follow-up to 49° and 46° ($p=0.68$). T1-S1 increased by a mean of 36 mm in SKDEOS and 38 mm in IEOS at index surgery ($p=0.40$), and by 21 mm and 46 mm, respectively, during the distraction period ($p=0.0085$). The SKDEOS group had significantly worse scores in the physical function, daily living, financial impact and parent satisfaction preoperatively and financial impact and child satisfaction domains of the 24-Item Early-Onset Scoliosis Questionnaire at final follow-up than the IEOS ($p<0.05$).

Conclusion: Children with skeletal dysplasia gained significantly less spinal growth during growth-friendly management of their EOS and their health-related quality of life was significantly lower than in children with idiopathic EOS.

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Paper #7

Is the Juice Worth the Squeeze: Additional Spine Length with Shorter Distraction Interval, but at What Cost?



Catherine Qiu, Carina Lott, Patrick Cahill, Jason Anari

Summary: We challenge the paradigm of expanding rib-based growth instrumentation every 6 months by assessing the effects of the timing intervals between surgeries on clinical outcomes and complications.

Hypothesis: We predict that there will be no difference in T1-S1 spine height when comparing the short vs long lengthening