Is Performing a Definitive Fusion for Scoliosis in Juvenile Cerebral Palsy (CP) Patients a Good Long-term Surgical Option?

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Disclosures

- **K2M/Stryker – Consultant, Royalties, Speaker Bureau**
- **Depuy Synthes - Consultant, Speaker Bureau**
- **Nuvasive - Consultant, Royalties, Speaker Bureau**
- **Biogen – Consultant**
- **Orthopediatrics – Royalties**
- **Globus - Royalties**

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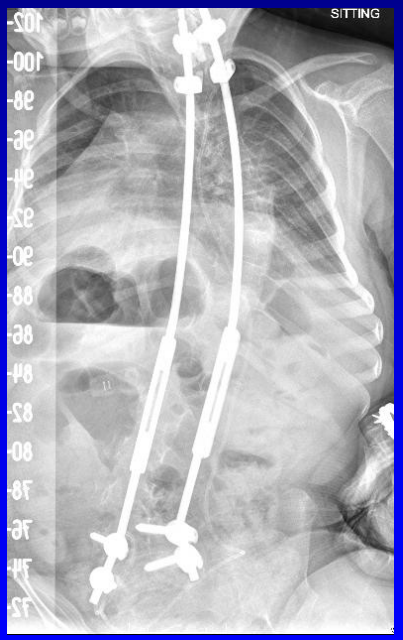
Introduction

- **Management of juvenile CP patients with large scoliosis is a challenge.**

Introduction

- **When observation with or without a brace is no longer an option, surgeons frequently choose surgery**



Growing Construct

Definitive fusion

Purpose

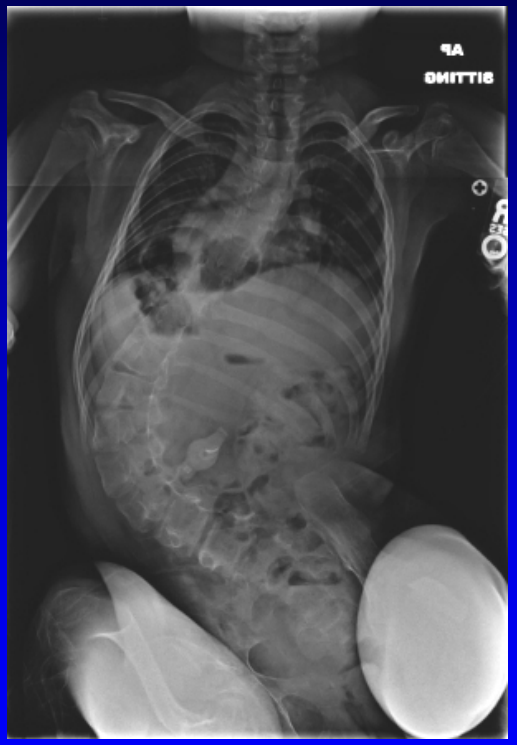
- **The purpose of the study is to present a series of juvenile CP scoliosis patients that underwent early definitive fusion with minimum 5 years of follow-up.**

Methods

- **A retrospective review of a multi-center database of patients with CP scoliosis was conducted.**
- **Patients ≤10 years who had a definitive fusion for their scoliosis and minimum 5 years follow-up were included.**
- **Preoperative and postoperative demographic and radiographic changes were evaluated with descriptive statistics. Repeated measures ANOVA were utilized to compare outcome scores.**

Results

- **20 patients were identified**
  - Average age 9 years (8-10yrs)
  - All patients were skeletally immature
  - 85% had spastic CP with GMFCS level 5
- **Surgical Approach**
  - Posterior spinal fusion only: 18 patients
  - Anterior only fusion: 1 patient
  - Anterior/Posterior fusion: 1 patient
- **Construct Type**
  - 3 patients had unit rods with wires while the rest incorporated pedicle screws.
  - 16 (80%) were instrumented to the ilium, 2 to L4, 1 to L5, and 1 to S1.



Radiographic Data

	Preoperative	1st postop	5 years postop	Pre vs 5yr p-value
Major Curve Magnitude	84 ± 20	28 ± 12	31 ± 16	**<0.001**
T2-T12 Kyphosis	41 ± 27	34 ± 13	31 ± 14	0.094
Pelvic Obliquity	32 ± 14	8 ± 6	10 ± 6	**<0.001**

No significant differences between postop time points ($p>0.05$)

Results

- **12 patients had 30 total complications**
  - 7 major, 23 minor
  - Majority were gastrointestinal or respiratory related
- **There were no unplanned revisions or deaths in this cohort.**
- **Two patients had minor instrumentation-related complications**
  - 1 patient had a unilateral broken rod that did not require further treatment.
  - 1 patient had loss of fixation of an iliac screw

Results – CPChild & HUI

	Preoperative	5 years postop	p-value
Personal Care	36 ± 13	45 ± 13	**0.052**
Positioning, Transferring & Mobility	29 ± 13	44 ± 14	**0.004**
Comfort & Emotions	78 ± 12	89 ± 13	**0.019**
Communication & Social Interaction	45 ± 32	36 ± 29	0.25
Health	49 ± 16	55 ± 13	0.21
Overall QOL	64 ± 22	64 ± 26	1
Total Score	48 ± 11	57 ± 13	**0.047**
HUI3 Overall Utility Score	-0.25 ± 0.084	-0.12 ± 0.26	0.154

Conclusions

- **Performing a definitive fusion in skeletally immature patients with CP results in improved coronal deformity, pelvic obliquity, and CPCHILD outcomes scores that remain stable at the 5-year mark.**

- **Definitive fusion is a viable treatment in these skeletally immature patients.**