Performing a Definitive Fusion in Juvenile CP Patients is a Good Surgical Option

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a. Grants/Research Support
b. Consultant
c. Stock/Shareholder
d. Speakers’ Bureau
e. Other Financial Support
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.
Purpose

• The purpose of the study is to present a series of juvenile CP scoliosis patients that underwent early definitive fusion.
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 2 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

• 15 patients were identified
  – Average age 9.7 years (8.2-10.7 yrs)
  – All patients were skeletally immature with open triradiate cartilage

• Surgical Approach
  – Posterior spinal fusion only: 14 patients
  – Anterior/Posterior fusion: 1 patient
  3 patients had unit rods with wires while the rest incorporated pedicle screws.
## Radiographic Data

<table>
<thead>
<tr>
<th></th>
<th>Pre-op</th>
<th>1st Post-op</th>
<th>2yrs Post-op</th>
<th>p-value (Pre-1st post-op)</th>
<th>p-value (Pre-2yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Major Cobb (M±SD)</strong></td>
<td>87 ± 30°</td>
<td>25 ± 16°</td>
<td>29 ± 17°</td>
<td>≤0.001</td>
<td>≤0.001</td>
</tr>
<tr>
<td>Avg. % Correction</td>
<td>--</td>
<td>77%</td>
<td>67%</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pelvic Obliquity</strong></td>
<td>28±14°</td>
<td>4 ± 4°</td>
<td>8 ±8°</td>
<td>≤0.001</td>
<td>≤0.001</td>
</tr>
<tr>
<td>Avg. % Correction</td>
<td>--</td>
<td>86%</td>
<td>71%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Results

• None of the patients required revision surgery for progression.

• 1 patient had a deep infection requiring a return trip to the operating room.

• 1 patient had a broken rod that did not require further treatment.

• From pre to 2yrs post-op, the CPchild Health outcome scores improved from 45 to 58 ($p=0.004$).
Conclusions

• Progressive scoliosis refractory to conservative measures in juvenile CP patients can be a challenge.

• Balance the need for further growth with the risks of progression or repeated surgical procedures.

• Definitive fusion is a viable treatment in these skeletally immature patients.
Limitation

- Further follow-up is needed to determine whether those results are stable to skeletal maturity.