Paper #41: Performing a Definitive Fusion in Juvenile CP Patients is a Good Surgical Option

Burt Yaszay; Paul D. Sponseller; Suken A. Shah; Jahangir Asghar; Firoz Miyanji; Amer F. Samdani; Carrie E. Bartley; Peter O. Newton


Introduction: Management of juvenile CP patients with large scoliosis is a challenge. When observation with or without a brace is no longer a viable option, surgeons frequently choose growing rod treatment or early definitive fusion. 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 identified patients 10 years and younger who had a definitive fusion for their scoliosis. Preoperative and postoperative demographic and radiographic changes were evaluated with descriptive statistics. Repeated measures ANOVA were utilized to compare outcome scores.

Results: Fifteen patients with an average age of 9.7 years (8.2-10.7 yrs) and a minimum of 2 years follow-up were identified. The average preop curve magnitude and pelvic obliquity was 87° and 28°, respectively. All patients were skeletally immature with open triradiate cartilage. 14 patients underwent posterior only surgery and 1 patient had an anterior/posterior fusion. 3 patients had unit rods with wires while the rest incorporated pedicle screws. Immediately postop, the average major Cobb was 22° (p≤0.001, 75% correction rate). At 2yrs post-op, the average major Cobb increased to 29° (p≤0.001) for a 67% correction rate. Pelvic obliquity improved to 6° (79% correction; p≤0.001) immediately postop and to 8° (p≤0.001) at 2yrs postop for a 71% correction rate. None of the patients required revision surgery for progression. From pre to 2yrs post-op, the CPChild Health outcome scores improved from 45 to 58 (p=0.004). One patient had a deep infection requiring a return trip to the operating room, and one patient had a broken rod that did not require further treatment.

Discussion: Progressive scoliosis refractory to conservative measures in juvenile CP patients can be a challenge which requires the surgeon to balance the need for further growth with the risks of progression or repeated surgical procedures. Our study demonstrates that definitive fusion results in stable fusions in these skeletally immature patients. Further follow-up is needed to determine whether those results are stable to skeletal maturity.