



## **Distal Level in Scoliosis Surgery for Non-Ambulatory Patients with Cerebral Palsy: Is L5 an Option? A case Study**

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### **Background**

The benefits of fusing to pelvis vs L5 in this patient group remains unclear. The aim of this study was to determine radiographic outcomes for cerebral palsy (CP) patients who underwent posterior spinal fusion from T2/3 to L5, at two quaternary hospitals.

### **Methods**

from January 2010 to January 2020, 167 CP scoliosis patients underwent posterior spinal fusion using pedicle screws from T2/3 to L5 in both centers with a minimum of 2 years follow-up (FU). Radiologic measurements and chart review were performed.

### **Results**

167 patients aged  $15.6 \pm 0.4$  years were included. No patient was lost to FU. All patients had significant correction in Cobb angle (CA), pelvic obliquity (PO). Thoracic kyphosis (TK) and lumbar lordosis (LL), without loss of correction at last FU. The mean values for preoperative, immediate postoperative and last FU were CA  $93.4^\circ$ ,  $37.5^\circ$  and  $42.8^\circ$ , PO:  $25.8^\circ$ ,  $9.9^\circ$  and  $12.7^\circ$ ; TK  $52.2^\circ$ ,  $44.3^\circ$  and  $45^\circ$ ;

and LL  $-40.9^\circ$ ,  $-52.4^\circ$  and  $-52.9^\circ$  respectively. Higher residual PO at LFU, was associated with more severe MC and PO baselines, lower implant density and apex at L3.

## **Conclusions**

CP scoliosis and PO can be corrected, and this correction maintained over the time with posterior spinal fusion using all pedicle screws setting L5 as the lowest instrumented vertebra. Larger preoperative MC and PO values associated with apex at L3 can be related with residual PO. Comparative large-scale studies with patients related clinical outcomes are required to demonstrate whether this intervention is related to improved surgical outcomes and reduced complication rates.