

Title: Factors Related to Hospital Length of Stay in Spinal Deformity Correction for Patients with Cerebral Palsy

Study Design: Retrospective analysis of a multi-center database

Objective: To determine factors influencing length of hospital stay (LOS) in patients with cerebral palsy following corrective spinal deformity surgery with a goal of identifying those factors potentially modifiable to reduce LOS.

Summary of Background Data: A variety of prior studies have investigated outcomes following spinal deformity correction in CP, but few have focused primarily on factors relating to LOS

Methods: Univariate and multivariate analyses were used to assess the relationships between both patient and hospital variables in the database and the LOS. Centers included performed at least 5 reconstructions during the collection period. Staged anterior/posterior cases were excluded.

Results: Mean LOS was 11.81 days across all centers (SD = 9.53). Over two-thirds of patients (69.3%) were noted to have severe impairment consistent with GMFCS V. Eighty-eight percent of distal fusion constructs included the pelvis. There was a significant difference in LOS between centers ($p < 0.0001$). LOS was positively correlated with ICU LOS, intubation duration, post-operative day oral feeding began, estimated blood loss, and total blood given (all $p < 0.001$). The use of TPN, the use of a unit rod and the occurrence of any complications significantly increased LOS (all $p = 0.001$). LOS was significantly lower when oral feeding was utilized ($p = 0.001$). LOS was not related to GMFCS level or subtype, distal fusion level, pelvic obliquity, major coronal curve, kyphosis, lordosis or CP Child scores.

Conclusion: The best predictors of LOS are center, ICU LOS and intubation duration. Time to oral feeding was another important factor. This and intubation duration represent potentially modifiable factors. This study further contributes to the overall improvement of practice pathways in treatment of spinal deformity in patients with CP.