

Upper Thoracic versus Lower Thoracic Upper Instrumented Vertebrae Endpoints Have Similar Outcomes and Complications in Adult Scoliosis at 2 Year Follow Up

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Learning Objectives

By the conclusion of this session, participants should be able to:

- (1) Identify factors that may contribute to the decision of whether to stop a long fusion to the sacrum/pelvis in the lower versus upper thoracic spine in adult deformity patients;
- (2) Appreciate that despite UT terminations longer operative times and length of stay, patients with upper and lower thoracic upper-most instrumented vertebrae have similar complication rates and similar radiographic and clinical outcomes at two year follow up.

Introduction

Optimal upper-most instrumented vertebrae (UIV) for long fusions to the sacrum/pelvis are controversial. The purpose of this study was to compare the upper thoracic (UT) and lower thoracic (LT) UIV in long fusions to the sacrum/pelvis for adult scoliosis.

Methods

Patients from a prospective database were selected based on fusions to the sacrum/pelvis with UIV of T1-6 (UT Group) and those with a UIV of T9-L1 (LT Group). Demographic and operative data and radiographic and clinical outcomes were compared.

Results

198 patients (UT=91, LT=107) with mean age of 61.6 were followed for an average of 2.5 yrs. Demographics were similar between groups except for more women in the UT group (86% vs 65%) and a slightly higher BMI in the LT group (28.7 vs. 26.9).

Pre-operatively, the UT group demonstrated significant greater lumbar scoliosis (53.6 vs. 33.2, $p < 0.01$), thoracic scoliosis (41.6 vs 31.7, $p = 0.01$) and thoracolumbar kyphosis (17.9 vs. 8.9, $p = < 0.01$). The UT group demonstrated a greater length of stay (LOS) (9.1 vs 7.4, $p < 0.01$) and longer operative times (430 vs 371 min, $p < 0.01$). EBL was similar (1947cc vs 1887cc, $p = 0.08$).

Rates of complications were similar between groups (57% vs 39%, $p = 0.20$), as were those that required revision surgery (15% vs 22%, $p = 0.19$). The UT group had a higher percentage of patients with =2 complications (55% vs 43%, $p = 0.38$) but not statistically significant. Although the LT group had a higher PJK angle (19.2 vs 16.5, $p = 0.37$), the UT group had a higher number of cases requiring revision for PJK (3 vs 2, $p = 0.45$).

SRS and ODI outcomes were similar between groups.

Conclusions

Despite UT terminations having larger coronal and sagittal plane deformities, longer operative times and LOS, UT and LT UIVs have similar complication rates and similar radiographic and clinical outcomes at two year follow up.

References

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