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REGIONAL THORACIC AND LUMBAR SAGITTAL COBB ANGLE CHANGES AND UIV DETERMINE EVOLUTION OF CERVICAL ALIGNMENT AFTER ASD SURGERY: SERIES OF 171 PATIENTS WITH 2 YEAR FOLLOW UP

Introduction

The aim of our study was to assess the influence of operative changes in spinopelvic parameters on cervical alignment in ASD pts.

Methods

Retrospective review of prospectively collected multicenter database. 171 ASD pts ≥ 18 yrs were assessed for changes from baseline to the 2-yr F/U (base-2yr) in the: C2-C7 sagittal vertical axis (C2-C7 SVA), T1-slope (T1S), and C2-C7 lordosis (C2-C7Lord). Multivariate models were constructed to analyze the influence of: UIV selection (T9 and below vs. above T9), and operative changes from baseline to 6-weeks (base-6wk) in the following spinopelvic parameters: thoracic kyphosis (TK), lumbar lordosis (LL), C7-S1 SVA, pelvic incidence, pelvic tilt and sacral slope.

Results

The base-2yr changes in C2-C7 SVA and in T1S were both significantly associated with the surgical changes from base-6wk in TK, LL and with the UIV selection (Figure 1). Interestingly, the operative correction of C7-S1 SVA from base-6wk was not significantly associated with either changes in C2-C7 SVA or T1S over the 2-yr F/U. Multivariate model revealed that changes from base-2yr in the C2-C7Lord were associated with the base-6wk changes in the C7-S1 SVA ($P=0.004$). The majority of changes in the C2-C7 SVA over the 2-yr F/U occurred in the first 6 weeks after surgery (base-2yr 95% CI: -0.1mm to +4.6mm, and base-6wk 95% CI: +0.7mm to +4.7mm). Over the 2-yr F/U, on average, there was loss of C2-C7Lord, majority of which was lost in the first 6 weeks after surgery (base-2yr 95% CI: -3.2 to +0.5deg, and base-6wk 95% CI: -4.8 to -1.2deg).

Discussion

The aim of this study was to assess the influence of postoperative changes in spinopelvic parameters on cervical alignment in adult spinal deformity patients. Reciprocal changes in cervical alignment occur over a 2-yr follow-up in response to operative changes. Cervical alignment is also influenced by UIV selection.

Conclusions

Reciprocal changes in cervical alignment occur in response to operative changes in TK, LL and C7-S1 SVA. Cervical alignment is also influenced by UIV selection. Majority of changes occur in the first 6 weeks and persist over 2-yrs.