Presentation #63

Outcomes and Complications of Fusions from the Cervical Spine to the Pelvis: Series of 46 Cases with Average 2.7-Year Follow-up

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Introduction: The increasing incidence of adult deformity sometimes requires primary or revision operations with fusions extending up into the cervical spine. The purpose of this study is to determine outcomes in this subset of patients utilizing the Scoliosis Research Society 22 (SRS-22r) questionnaire, Oswestry Disability Index (ODI) and Neck Disability Index (NDI) health related quality of life measures (HRQOLs).

Methods: A multicenter retrospective review was performed to identify patients with a UIV at any level in the cervical spine and an LIV in the sacrum/pelvis. Those with infectious or acute trauma related deformities were excluded. Patients included in the trial had surgery between 2003 and 2014. Patient demographics, medical history, diagnosis, operative procedure and HRQOLs were analyzed. Students T-tests (continuous variables), a Kruskal-Wallis tests (ordinal variables) or X2 Tests (categorical variables) were used as appropriate; significance was set at p < 0.05 for all tests

Results: 55 patients were identified and 46 (84%) had sufficient data for analysis. The average age at the time of surgery was 44 years. The average follow up time was 2.7 years. Proximal Junctional Kyphosis (PJK) was the most common indication for fusion to the cervical spine (28%), followed by kyphosis (21%) and kyphoscoliosis (15%). The most common UIV was C2 (28%) or C7 (28%). There was a significant improvement in radiographic outcomes with an average 31-degree correction in maximum kyphosis and a 3.3cm improvement in SVA.
Complications data was available in a subset of 28 patients. In these patients, the rate of all types of complications was 71%. The incidence of major complications was 39.3% and minor complications 53.6%. The rate of medical complications was 61% while the rate of surgical complications was 43%. Of these 28 patients, 15 (53.6%) required reoperation. The rate of pseudarthrosis was 29.1%.

There was an improvement of the SRS score from $3.0 \pm 0.7$ pre-operatively to $3.5 \pm 0.9$ at the most recent follow up visit ($p < 0.01$); this is greater than the MCID for the SRS-22r total score. Improvement was greatest for the SRS Mental Health ($\Delta$SRS Mental Health = 0.9, $p < 0.01$) and Pain ($\Delta$SRS Pain = 0.6, $p < 0.01$) domains. There were no significant differences in pre and post-op scores for the NDI or ODI.

**Conclusion:** When necessary, fusions that extend from the C-Spine to the Pelvis can result in improvements in HRQOLs. Our data demonstrated a significant improvement in SRS-22r outcomes and radiographic parameters with operative intervention in this subset of patients.