



Clinical impact correlation of the Hart ISSG proximal junctional kyphosis severity scale and HRQOL

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Introduction

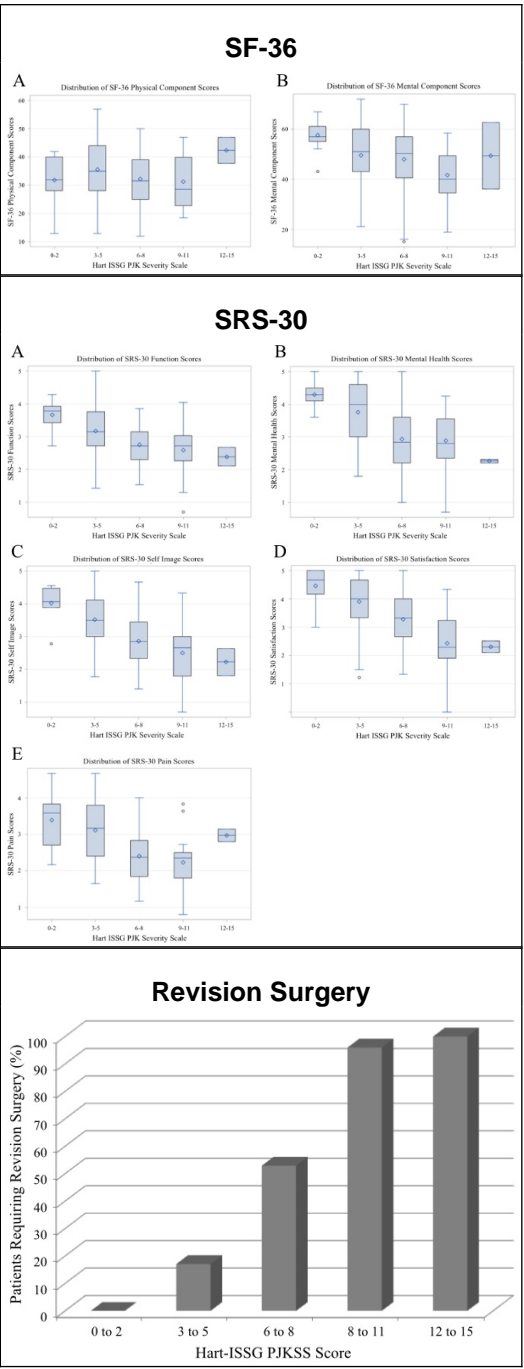
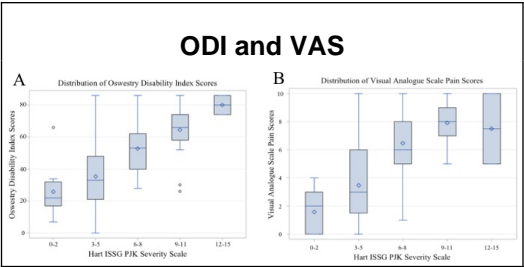
Proximal junctional kyphosis (PJK) and proximal junctional failure (PJF) are well-described adverse outcomes following long-segment instrumented fusion for spinal deformities. Recently, Hart et al. and the International Spine Study Group (ISSG) developed a PJK severity scale (Hart-ISSG PJKSS) which incorporates neurological deficit, pain, instrumentation problems, degree of kyphosis, fracture, and level of upper-most instrumented vertebrae. The aim of the current study is to evaluate the correlation between Hart-ISSG PJKSS and quality of life measures and the need for revision surgery in patients with PJK.

Methods

All adult spinal deformity patients with PJK and/or PJF were identified from two large academic centers over a 7-year period. Patients were retrospectively assigned scores based on the Hart-ISSG PJKSS at the time of PJK diagnosis. Health related quality of life (HRQOL) measures were prospectively collected at the time of PJK diagnosis: Oswestry Disability Index (ODI), visual analogue scale (VAS) pain, SF-36 questionnaire, and SRS-30 questionnaire. Correlation between the Hart-ISSG PJKSS and HRQOL outcomes was assessed by linear regression and Pearson correlation coefficients. The association between revision surgery and Hart ISSG PJK severity scale was assessed by chi-squared analysis.

Results

A total of 184 cases were included. 21.2% were male and mean age was 65.0 years. 11.4 % presented with weakness and/or myelopathy. 88.6% had pain, with a mean VAS pain of 5.1. 44.0% had instrumentation issues and 64.1% had PJK associated fractures. PJK occurred in the upper thoracic spine in 21.7% of cases. Hart-ISSG PJKSS scores ranged from 1 to 15 and had a mean of 5.9: 6.5% with scores of 0 to 2, 41.3% with scores of 3 to 5, 37.0% with scores of 6 to 8, 13.6% with scores of 9 to 11, and 1.6% with scores of 12 to 15. The Hart-ISSG PJKSS was significantly and strongly associated with ODI ($p<0.001$, $r=0.611$), VAS pain ($p<0.001$, $r=0.676$), SRS-30 function ($p<0.001$, $r=-0.401$), SRS-30 mental health ($p<0.001$, $r=-0.592$), SRS-30 self-image ($p<0.001$, $r=-0.511$), SRS-30 satisfaction ($p<0.001$, $r=-0.531$), and SRS-30 pain ($p<0.001$, $r=-0.445$). Higher Hart-ISSG PJKSS scores were associated with higher proportion of patients undergoing revision surgery ($p<0.001$).



Conclusions

Based on the current study, the Hart-ISSG PJKSS was strongly correlated with validated functional outcomes. In addition, higher scores were associated with higher rates of revision surgery. The Hart-ISSG PJKSS may be a useful clinical tool to identify those patients who will ultimately require revision surgery.

Learning Objectives

1. Recognize the incidence and significance of PJK and PJF following long-segment instrumentation
2. Describe the correlation of the Hart ISSG PJK severity score with clinical outcomes
3. Apply the Hart ISSG PJK severity scale to patients with PJK and PJF

References

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