



The Clinical Correlation of the Hart-ISSG Proximal Junctional Kyphosis Severity Scale with Health Related Quality of Life Outcomes and Need for Revision Surgery

D. Lau MD; H. Funao MD; A. J. Clark MD PhD; F. Nicholls; J. S. Smith MD, PhD; C. I. Shaffrey MD, FACS; F. Schwab MD, PhD; V. Lafage PhD; V. Deviren MD; R. Hart MD; K. Kebaish MD; C. P. Ames MD
Department of Neurological Surgery, University of California San Francisco



Introduction

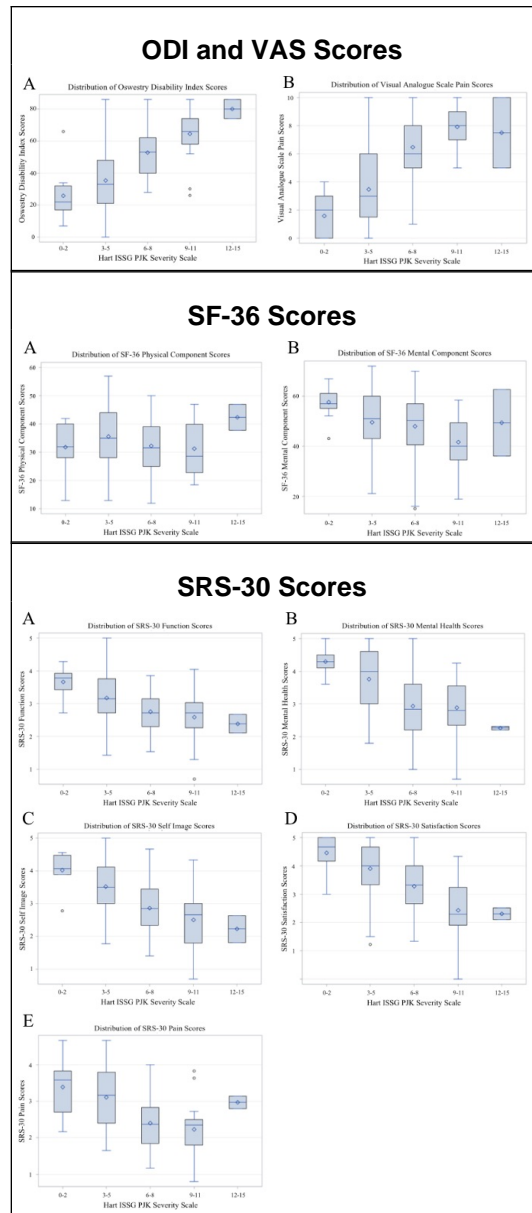
Proximal junctional kyphosis (PJK) and failure (PJF) are well-described complications following long-segment instrumentation. The Hart-International Spine Study Group proximal junctional kyphosis severity scale (Hart-ISSG PJKSS) was recently developed and incorporates neurological deficit, pain, instrumentation issues, degree of kyphosis, presence of fracture, and level of upper-most instrumented vertebrae. This study Evaluates the utility of the Hart-ISSG PJKSS.

Methods

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

Results

A total of 184 cases were included; 21.2% were male and mean age was 65.0 years. Weakness and/or myelopathy were present in 11.4 % of patients and 88.6% had pain. Instrumentation issues occurred in 44.0% and 64.1% had PJK associated fractures. PJK occurred in the upper thoracic spine in 21.7% of cases. Mean score was 5.9. 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 scores were associated with higher proportion of patients undergoing revision surgery ($p<0.001$); scores of 9 to 11 and 12 to 15 underwent revision 96.0% and 100.0% of the time, respectively.



Conclusions

The Hart-ISSG PJKSS was strongly correlated with validated functional outcomes and higher scores were associated with higher rates of revision surgery. The Hart-ISSG PJKSS may be a useful clinical tool in the treatment of patient with PJK.

Learning Objectives

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

1. Describe Hart-ISSG PJKSS's six components of PJK and PJF when assessing disease severity.
2. Understand Hart-ISSG PJKSS is strongly correlated with validated functional outcomes, particularly ODI, VAS pain, and SRS-30 outcomes and need for revision surgery.

References

1. Hart RB, S.; Burton, D.C.; Shaffrey, C.I.; Protopsaltis, T.; Boachie-Adjei, O.; Ames, C.P.; Deviren, V.; Hostin, R.A.; Klineberg, E.; Mummaneni, P.V.; Mundis G.; Smith, J.S.; Schwab, F.; Study Group, International Spine. Proximal Junctional Failure (PJF) Classification and Severity Scale: Development and Validation of a Standardized System. 2013 Annual Meeting of the AANS/CNS Section on Disorders of the Spine and Peripheral Nerves. Phoenix, Arizona, 2013.
2. Hart R, McCarthy I, O'Brien M, et al. Identification of Decision Criteria for Revision Surgery among Patients with Proximal Junctional Failure following Surgical Treatment for Spinal Deformity. Spine 2013.