

Persistent Iliosacral Joint Syndrome Following Instrumentation to the Sacropelvis in Patients with Adult Spinal Deformity

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Long Fusion to the Sacropelvis



Long fusion to the sacropelvis in a patient with adult deformity

Introduction

Persistent sacroiliac joint syndrome (PSIJS) may complicate spinopelvic fusion in adult spinal deformity surgery (ASDS).

Methods

Perioperative health-related quality of life (HRQOL) outcomes (ODI, SF12v2 scores) at 6, 12 and 24 months and radiographic studies were retrospectively analyzed in a cohort of 71 consecutive patients undergoing ASDS. PSIJS was confirmed in 9 individuals (12.7%) by placebo-controlled dual sacroiliac joint (SIJ) blocks. The relationships between global and regional spinopelvic morphometry, PSIJS and HRQOL outcomes were assessed by logistic regression and receiver-operating characteristics (ROC) analysis.

Results

PSIJS, independently causing significantly reduced improvement in HRQOL scores (P<.001) 6 months postoperatively (fig. 1), warranted secondary ISF in nine patients (12.7%) within 12 months of index surgery, without evidence of progressive SIJ arthrosis, pseudarthrosis or hardware issues. Eight of nine patients undergoing secondary ISF reported at least 70% pain reduction at 24 months, rendering HRQOL scores equal to those of patients unaffected by PSIJS (fig. 1). Logistic regression/ROC analysis revealed close association between PSIJS and non-harmonious postoperative L4-S1 fractional lordosis (>10% deviation from target values; fig. 2), pelvic incidence (PI)>53°, hip arthrosis and preexistent advanced SIJ arthrosis (P<.01).

Conclusions

PSIJS may negatively impact clinical outcome of ASDS. Recurrent preoperative SIJ-syndrome requiring interventional treatment, preexistent hip and SIJ arthrosis, insufficient restoration of L4-S1 fractional lordosis and high PI predispose to PSIJS. PSIJS may potentially be avoided by restoring physiological lumbosacral geometry and S2/sacral ala-iliac (SAI) screw fixation during index surgery. Secondary ISF

References

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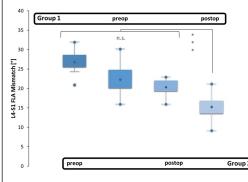
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Mismatch between actual and target L4-S1 Fractional Lordosis

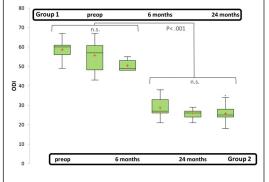


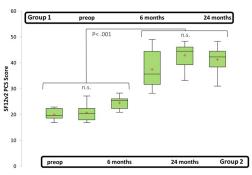
Mismatch between actual postoperative and individual target L4-S1 fractional lumbar lordosis angle (L4-S1 FLA) in patients with PSIJS (group 2) and without (group 1). While L4-S1 FLA mismatch was equivalent between groups before surgery, significant reduction of L4-S1 FLA mismatch (P<.0001) was observed only in patients without PSIJS (group 1).

Learning Objectives

To outline the relationship between clinical/morphometric parameters and PSIJS following ASDS with pelvic fixation.

Impact of PSIJS on Clinical Outcome





Significant improvement of HRQOL scores (ODI and SF12v2 PCS scores) demonstrated in patients without PSIJS (group1) at 6 months FU, independent of sex, age, and number of instrumented segments (p<0.0001), persisting to 24 months FU. Mean ODI and SF12v2 PCS scores in patients with PSIJS (group 2) had not improved at 6 months FU. Following secondary iliosacral fusion, HRQOL scores at 24months equaled those of group 1.