

**FACET JOINT TROPISM AND DEGENERATIVE SPONDYLOLISTHESIS — A STUDY FROM THE AOSAP (AOSPINE ASIA PACIFIC) RESEARCH COLLABORATION**

*Samartzis D,<sup>1</sup> Rajasekaran S,<sup>2</sup> Kawaguchi Y,<sup>3</sup> Acharya S,<sup>4</sup> Mamoru K,<sup>5</sup> Williams R<sup>6</sup>*

<sup>1</sup>Department of Orthopaedics and Traumatology, The University of Hong Kong, Hong Kong

<sup>2</sup>Department of Orthopaedics, Ganga Hospital, Coimbatore, India

<sup>3</sup>Department of Orthopaedic Surgery, University of Toyama, Toyama, Japan

<sup>4</sup>Department of Orthopaedics, Sir Ganga Ram Hospital, New Delhi, India

<sup>5</sup>Department of Orthopaedic Surgery, Wakayama Medical University, Kihoku Hospital, Ito-gun, Japan

<sup>6</sup>Department of Orthopaedics, Princess Alexandra Hospital, Brisbane, Australia

**INTRODUCTION:** The role of facet joint (FJ) tropism (i.e. asymmetry between facet joint orientations) in L4-L5 degenerative spondylolisthesis (dSpl) remains inconclusive, particularly in Asian population, which possibly attributed to nonstandardised definitions of tropism. Thus, this study aimed to examine the role of FJ tropism in relation to L4-L5 dSpl in the Asia-Pacific region.

**METHODS:** A multi-national, multi-ethnic cross-sectional image-based study was performed in 34 Asia-Pacific region institutions, which consisted of slip displacement magnitude, spondylolisthesis level, and left / right L4-L5 FJ angulations. Patients with single-level dSpl were included. Patients were further stratified into those with (Group A) or without (Group B) L4-L5 dSpl. Sensitivity and specificity analyses of FJ tropism were performed.

**RESULTS:** The study included 351 patients (63.1% females; mean age, 61.8 years). Statistically significant difference between right-left L4-L5 FJ angulations between Group A (right mean: 57.5 degrees; left mean: 55.4 degrees) and Group B (right mean: 48.4 degrees; left mean: 46.5 degrees) was observed ( $p < 0.001$ ). On age-adjusted multivariate analysis, FJ tropism with critical value of  $\geq 15$  degrees' angulation difference noted an odds ratio of 2.34 (95% confidence interval: 1.17-4.67,  $p = 0.016$ ) associated with dSpl. Slippage was noted with increased FJ tropism, but the effects could not be discerned.

**CONCLUSIONS:** Greater sagittal FJ orientation was associated with dSpl, as was joint tropism. A critical value of 15 degrees' FJ angle difference produced a two-fold increased likelihood of dSpl.