

## **SPINAL FUSION FOR ADOLESCENT IDIOPATHIC SCOLIOSIS: DOES FUSION AT T2, T3 OR T4 AFFECT THE RANGE OF MOTION OF CERVICAL SPINE AND THE FUNCTIONAL OUTCOME AT THE CERVICAL SPINE?**

Kesavan Ramachandran<sup>1</sup>, Kamalnizat Ibrahim<sup>1</sup>, Mohd Hisam Muhammad Arrifin<sup>1</sup>, Azmi Baharudin<sup>1</sup>, Sabarul A. Mokhtar<sup>1</sup>

<sup>1</sup>Hospital Universiti Kebangsaan Malaysia

**Introduction:** This study aimed to evaluate the relationship between upper instrumented vertebra (UIV) level and correlate with cervical range of motion and its functional outcomes in Adolescent Idiopathic Scoliosis (AIS) patients, treated with posterior instrumentation.

**Methodology:** Forty-nine AIS patients that underwent posterior fusion with pedicle screw instrumentation were retrospectively evaluated. Patients were divided into three groups according to UIV level (T2, T3, T4). Patients seen during clinic visit and range of motion (ROM) of neck including flexion, extension and lateral bending were measured using the cervical range of motion (CROM) device. Clinical outcomes were assessed using scoliosis research society (SRS)-22, questionnaires.

**Discussion:** Between groups, post-operative measurements of the range of movement for the cervical region shows less degree of flexion (55.93), extension (45.21), right lateral bend (37.79) and left lateral band (37.43) of UIV at T2 compared at T3 flexion (61.27), extension (53.80), right lateral bend (40.67) and left lateral band (41.60) and T4 flexion (60.85), extension (52.65), right lateral bend (39.40) and left lateral band (39.40). For the assessment of SRS22R, there was no statistically significant difference between the vertebrae instrumentation groups.

**Conclusion:** AIS patients that were treated with UIV selected at T2 are more likely to develop reduction in cervical ROM. However, this reduction did not affect the clinical outcome scores. Hence, extending the fusion to appropriate level for shoulder balance seems reasonable.