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Intervertebral angles increase proportionately to activity level in patients with spinal instrumentation

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Introduction: Many recent studies report postoperative complications and adjacent intervertebral segments following spinal instrumentation, but few have focused on postoperative patient activity levels. In this study, life-space assessment (LSA) scores and intervertebral angles in patients after spinal instrumentation were investigated.

Methods: 19 patients who underwent lateral functional spinal radiography after spinal instrumentation were studied. Each subject's amount of activity was scored using an LSA, and the patients were divided into Group A (70 points; n = 11) and Group B (70 points; n = 8). Intervertebral angles were measured for the segments superior and inferior to the fused segment with the limbs in the basic, anterior flexed, and posterior flexed positions. A Mann-Whitney U test was used for the statistical comparisons, with values of p0.05 considered significant.

Results: In Group A, with the limbs in the basic position, the mean superior and inferior intervertebral angles were 9.9º4.4º and 17.1º 12.4º, respectively. In the anterior flexed position, the mean superior and inferior intervertebral angles were 5.0º 4.6º and 11.4º 9.0º, respectively. In the posterior flexed position, the mean superior and inferior intervertebral angles were 13.2º 5.7º and 21.9º 11.7º, respectively. In Group B, with the limbs in the basic position, the mean superior and inferior intervertebral angles were 5.1º 5.0º and 16.6º 6.2º, respectively. In the anterior flexed position, the mean superior and inferior vertebral angles were 4.6º 4.7º and 10.5º 8.2º, respectively. In the posterior flexed position, the mean superior and inferior vertebral angles were 6.4º 5.0º and 20.9º 6.2º, respectively. Statistical analysis revealed significant differences between both groups in the superior intervertebral angle with the limbs in the basic and posterior flexed positions. The other values showed no significant differences.

Conclusions: The results of previous studies and the current study show that the load on the adjacent vertebrae increases after spinal instrumentation. Patients with a high postoperative activity level require monitoring of and guidance about activities of daily living (ADL), whereas patients with a low postoperative activity level require functional and ADL training.

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