

O-23

Assessing surgical outcomes in cervical degenerative disease: The role of intraoperative neurophysiological monitoring

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Background: Cervical degenerative disease is a prevalent condition leading to significant morbidity. The increasing incidence, particularly among the ageing population, has resulted in a rising demand for surgical interventions.

Research question: This study aims to assess surgical outcomes, focusing on the role of intraoperative neurophysiological monitoring (IONM) in preventing neurological deficits.

Design: A retrospective analysis was conducted involving patients who underwent cervical spine surgery between January 2021 and June 2024.

Methods: Data were collected on demographics, comorbidities, surgical details, and intraoperative monitoring, with outcomes measured using the modified Rankin Scale, Odom's Criteria, and the modified Japanese Orthopedic Association score. One hundred patients were included in this study, 64 males and 36 females. Mean age at operation was 60.8 years. The mean follow up was 15 months.

Results: Clinical and radiological myelopathy was found in 88% of patients. Single level surgery was performed in 60% of cases, multilevel in 40%. The patients were treated with an anterior approach in 67% of cases, posterior in 28% and circumferential in 5%. Key findings indicated that older age and the presence of preoperative myelopathy significantly correlated with poorer postoperative outcomes across all measures. In contrast, factors such as gender, surgical approach, and the number of levels treated did not significantly affect recovery. Changes in IONM were observed in 8% of cases.

Discussion: The use of IONM appears to have prognostic significance regarding long-term neurological outcomes. While it did not demonstrate an immediate impact on postoperative outcomes, it was associated with relevant prognostic value on long-term neurological outcome in terms of mJOA score, suggesting a protective role in preserving neurological function.