Medical Device Surveillance and Assessment (MDSA) | Newsletter

No Difference in Reoperation Rates for Adjacent Segment Disease in Posterior Cervical Fusions Stopping at C7 Versus T1/T2

The challenges of posterior cervical fusions (PCFs) at the cervicothoracic junction (CTJ) are widely known. Two recent publications in Spine and the Journal of Neurosurgery, supported by MDSA research scientists, Neurosurgeons, and Orthopedic Spine surgeons, reported on the implications of crossing the CTJ. The authors sought to investigate whether there is a difference in operative adjacent segment disease (ASD) or operative nonunions by comparing PCFs that stop at C7 versus T1/T2.

> Sometimes evidence from biomechanical studies do not always translate into clinical practice and these two papers are examples of that. I have frequently stopped my PCFs at C7 over the past 20 years and have not seen a significant number of ASD and nonunions. The literature has been controversial on its recommendations. The KP spine registry study puts that to rest.
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> – Kern Guppy, MD, PhD, Department of Neurosurgery, The Permanente Medical Group, Sacramento, CA | Study Author

Study Details

875 patients with PCFs beginning at C3, C4, C5, or C6 and stopping at either C7 (n = 470) or T1/T2 (n = 405) with follow up time of 4.6 ± 3.3 years were included.

Operative Nonunion Outcome Findings

- Similar incidence rates between constructs stopping at C7 and those that extended to T1/T2 (C7: 1.91% vs. T1/T2: 1.98%).
- No difference in risk of operative nonunion for constructs extended to T1/T2 compared to those stopping at C7 was found (adjusted Hazard Ratio (HR) = 1.09 [95% confidence interval (CI) 0.42–2.84], p = 0.86).

Operative Adjacent Segment Disease Findings

- Comparable crude overall incidence rates between fusions stopping at –C7 and –T1/T2 (C7: 2.12% vs –T1/T2: 2.48%).
- No statistical difference in risk of operative ASD (adjusted HR = 1.47, 95% CI = 0.61–3.53, p = 0.39).

Practice Considerations

In one of the largest cohort of patients with PCFs stopping at C7 or T1/T2 with an average follow-up of > 4 years, the authors found no statistically significant difference in reoperation rates for symptomatic nonunions or for ASD. These findings suggest that there is no additional benefit of extension to T1/T2 and surgeon choice is the deciding factor on fusions crossing the cervicothoracic junction.