## **Neck mobility**

A common question posed by patients undergoing cervical fusion pertains to the likelihood of perceiving a postoperative limitation in neck mobility.

Patients who have had an ACDF for cervical radiculopathy will experience improved ROM 6 months postoperatively. In addition, patients can expect a decrease in pain, an improvement in neck function, and a decrease in headache frequency <sup>1)</sup>.

The aim of a study was to assess the change in neck mobility after subaxial cervical fusion using an objective range of motion (ROM) measure and patient reported assessment.

Patients older than 18 years of age, undergoing first-time anterior or posterior subaxial cervical arthrodesis for a symptomatic spondylotic process (radiculopathy, cervical spondylotic myelopathy or primary neck pain) at a single center were eligible. Assessment included: 1) neck pain on a numeric rating scale; 2) four-directional objective neck mobility using the validated cervical ROM goniometer; and 3) a novel Mobility Assessment Scale (MAS) for patient perceived neck mobility. Subjects were dichotomized by number of levels fused (1-2 levels and  $\geq$ 3 levels).

There were 25 patients with a mean of  $2.7\pm1.5$  levels fused. Neck pain was improved in both groups with mean change of -3.4 [95% CI -4.7,-2.1], p=0.004 for 1-2 levels and -3.5 [95% CI -5.4,-1.5], p=0.009 for  $\geq$ 3 levels. MAS score improved significantly in group undergoing 1-2 level fusion (-1.8 [95% CI: -3.1,-0.4], p=0.016) but not in those with  $\geq$ 3 levels fused. There was a significant positive correlation between MAS and neck pain in the 1-2 level fusion group (rs=0.667, p=0.012) but not in the  $\geq$ 3 level group. Objective neck mobility did not changed significantly in either group.

Patient reported neck mobility was significantly improved following 1-2 level cervical fusion. This change correlated significantly with patient reported improvement in neck pain. No significant difference in reported neck mobility was found in those undergoing fusion of  $\geq$ 3 levels<sup>2</sup>.

## 1)

Landers MR, Addis KA, Longhurst JK, Vom Steeg BL, Puentedura EJ, Daubs MD. Anterior cervical decompression and fusion on neck range of motion, pain, and function: a prospective analysis. Spine J. 2013 Nov;13(11):1650-8. doi: 10.1016/j.spinee.2013.06.020. PubMed PMID: 24041918.

Kasliwal MK, Witiw CD, Traynelis VC. Neck range of motion following cervical spinal fusion: A comparison of patient-centered and objective assessments. Clin Neurol Neurosurg. 2016 Oct 1;151:1-5. doi: 10.1016/j.clineuro.2016.09.020. PubMed PMID: 27710812.

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