



The impact of preoperative depression on quality of life outcomes after posterior cervical fusion

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Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the importance of depression, anxiety, and other psychosocial factors on postoperative quality of life outcomes after PCF and 2) Differentiate between statistical significance and clinical significance as measured by the minimum clinically important difference (MCID).

Introduction

Posterior cervical fusion (PCF) has been shown to be an effective treatment for cervical spondylosis, but is associated with a 9% complication rate and high costs. To limit such complications and costs, it is imperative that proper selection of surgical candidates occur for those most likely to do well with the surgery. Affective disorders, such as depression, are associated with worsened outcomes following lumbar surgery; however, this effect has not been evaluated in patients undergoing cervical spine surgery. Our goal was to assess the predictive value of preoperative depression and health state on 1-year quality of life outcomes after PCF.

Methods

88 patients who underwent PCF for cervical spondylosis were reviewed. Preoperative and 1-year postoperative health outcomes were assessed based on the Pain Disability Questionnaire (PDQ), the Patient Health Questionnaire (PHQ-9), and the EuroQol-5 Dimensions (EQ-5D) Questionnaire. Univariable and multivariable regression analyses were performed to assess for preoperative predictors of 1-year change in health status. No funding was received in support of this study and no relevant conflicts of interest were present.

Results

Compared with preoperative health states, the PCF cohort showed statistically significant improved PDQ (87.8 vs. 73.6), PHQ-9 (7.7 vs. 6.6), and EQ-5D (0.50 vs. 0.60) scores at 1 year postoperatively. Only 10/88 (11%) of patients achieved or surpassed the minimum clinically important difference for the PHQ-9 (5). Multiple linear and logistic regression analyses showed that increasing PHQ-9 and EQ-5D preoperative scores were associated with reduced 1-year postoperative improvement in health status (EQ-5D Index).

Conclusions

Of patients that undergo PCF, those with a greater degree of preoperative depression have lower improvements in postoperative QOL compared to those with less depression. Additionally, patients with better preoperative health states also attain lower 1-year QOL improvements.

References

1. McAllister BD, Rebolz BJ, Wang JC. Is posterior fusion necessary with laminectomy in the cervical spine? *Surg Neurol Int.* 2012;3:S225-31.
2. Rao RD, Madom IA, Wang JC, editor. Cervical laminectomy and fusion. *Advanced Reconstruction Spine.* American Academy of Orthopedic Surgeons. 2011:97-104.
3. Scioscia T, Crowl AC, Wang JC, editor. Posterior subaxial cervical fusion. *Advanced Reconstruction Spine.* American Academy of Orthopedic Surgeons. 2011:89-95.
4. Anderson PA, Matz PG, Groff MW, Heary RF, Holly LT, Kaiser MG, et al. Laminectomy and fusion for the treatment of cervical degenerative myelopathy. *J Neurosurg Spine.* 2009;11:150-6.
5. Ebersold MJ, Pare MC, Quast LM. Surgical treatment for cervical spondylitic myelopathy. *J Neurosurg.* 1995;82:745-51.
6. Hamanishi C, Tanaka S. Bilateral multilevel laminectomy with or without posterolateral fusion for cervical spondylotic myelopathy: Relationship to type of onset and time until operation. *J Neurosurg.* 1996;85:447-51.
7. Highsmith, Jason M., Dhall, Sanjay S., Haid Jr., Regis W., Rodts Jr., Gerald E., Mummaneni, Praveen V. Treatment of cervical stenotic myelopathy: a cost and outcome comparison of laminoplasty versus laminectomy and lateral mass fusion. *Journal of Neurosurgery: Spine* 2011;14:619-625.
8. Komotar RJ, Mocco J, Kaiser MG. Surgical management of cervical myelopathy: Indications and techniques for laminectomy and fusion. *Spine J.* 2006;6:252S-67.
9. Heller JG, Silcox DH, 3rd, Sutterlin CE., 3rd. Complications of posterior cervical plating. *Spine (Phila Pa 1976)* 1995;20:2442-8.