



Learning Objectives

To evaluate the clinical impact of fusion in ACDF procedures

Methods

From 2008-2012, a prospective, double blinded placebo-controlled trial was performed to evaluate the effects of dexamethasone in management of airway edema and fusion rates.

Introduction

Anterior cervical discectomy and fusion is a common procedure utilized by surgeons to treat cervical spondylotic conditions, including radiculopathy and myelopathy. Its advantages over posterior approaches are numerous, including improved pain control postoperatively, improved sagittal balance alignment, and lower infection rates. Nevertheless, few prospective randomized controlled trials exist studying the true benefits of cervical surgery. This study evaluates a prospectively randomized placebo controlled database in context of outcomes related to fusion status.

Methods (CONTINUED)

One hundred twelve patients were blinded and patient-reported outcomes were collected at regular intervals with fusion being assessed at 12-months, with SF-12 surveys, VAS, Oswestry scores, and myelopathy scores evaluated preoperatively and postoperatively. Fusion status was evaluated by computed tomography and evaluators were blinded. After data was successfully collected, those without complete data, erratic follow-up, or incomplete imaging were removed. Changes in each parameter were calculated from pre-op to one year out were then calculated and analyzed. Data was then split into fused and unfused categories to allow for comparison. T-tests were performed to evaluate for significance.

Results

At the one year mark, a total of 67 patients had complete data, including preoperative characteristics, functional status, fusion outcomes, and follow-up data. Fifty-two patients of the 67 attained fusion, whereas 15 did not (77.8% vs 22.2%).

Results (CONTINUED)

These were then compared to evaluate for any clinically significant difference in pain or functional outcomes. Of the parameters studied, there were no significant differences between the fused and unfused groups, including functional outcome, swallowing function, pain, smoking status, BMI, extremity, or neck pain (see Table 1). Changes in myelopathy score improved slightly in the unfused group, approaching significance. Of note, axial pain, right and left extremity pain, Oswestry Disability Indices, and myelopathy scores improved post-operatively, although the degree of improvement was insignificant between the two groups.

Table 1 - Results:

Parameter	Fusion	Non-union	P-value
mJOA Score	1.59	3.18	0.053
FOSS	0.14	0.13	0.94
Oswestry	-10.7	-12.13	0.78
SF-12 PCS	3.14	5.99	0.48
SF-12 MCS	1.83	1.09	0.89
Axial Pain	-19.5	-27.75	0.29
Right arm pain	-12.3	-25.75	0.16
Left arm pain	-11.5	-16.56	0.57

Comparison of Outcomes

Conclusions

In this blinded, randomized, placebo-controlled study, patient-reported outcome measures involving functionality and pain were not significantly affected by fusion-status.

References

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Conclusions (CONTINUED)

This supports the use of dexamethasone for airway edema as its inhibitory effect towards fusion appears to lack clinical differences. Furthermore, this study may place emphasis on the decompression behind cervical surgery rather than fusion, and that nonunion may not be of significant concern in otherwise healthy postoperative patients. More patients are needed to fully evaluate the data. Of note, pain and functional outcomes improved after surgical intervention, regardless of attainment of fusion.

References (CONTINUED)

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