

Long-Term Outcomes of Arthroplasty for Cervical Myelopathy Versus Radiculopathy, and Arthroplasty Versus Arthrodesis for Cervical Myelopathy

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Introduction

Cervical disc arthroplasty (CDA) is an effective treatment for symptomatic cervical disc disease (SCDD). Concerns remain about the appropriateness of CDA to treat patients with myelopathy. This study compares long-term safety and effectiveness of CDA in patients with myelopathy versus radiculopathy.

Methods

Retrospective analysis of prospective 84-month data from IDE clinical trial of CDA vs ACDF for SCDD at 2 adjacent levels: NDI, neck/arm pain, SF-36 PCS, neurological status, adverse events (AEs), secondary surgeries at index and adjacent levels. A total of 397 patients were enrolled: 287 radiculopathy alone and 110 myelopathy +/- radiculopathy. Two comparisons were performed: 1)CDA for myelopathy vs radiculopathy. 2)CDA vs ACDF for myelopathy.

Results

All groups significantly improved for NDI, neck/arm pain, and PCS at 84 months. Comparison#1: Myelopathy and radiculopathy groups showed similar improvement for NDI (37.8 vs 35.8,p=0.352), neck pain (12.0 vs 12.1,p=0.477), arm pain (11.6 vs 9.6,p=0.480), and PCS (14.1 vs 13.7,p=0.863). Both groups had similar maintenance or improvement in neurological status (87.2% vs 93.5%,p=0.218), serious AEs (54.5% vs 57.5%,p=0.291) secondary surgeries at index (3.7% vs 4.4%,p=0.839) and adjacent levels (3.7% vs 7.6%,p=0.367). Comparison#2: The CDA and ACDF groups showed similar improvement for NDI (37.8 vs 31.1,p=0.147), neck pain (12.0 vs 10.4, p=0.337), arm pain (11.6 vs 11.4,p=0.791) and PCS (14.1 vs 11.2,p=0.363). Both groups had similar maintenance or improvement in neurological status (87.2% vs 96.2%,p=0.409) and similar rates of secondary surgeries at the index (3.7% vs 9.4%,p=0.374) and lower rates of surgeries at adjacent levels (3.7% vs 15.4%,p=0.088). Compared to ACDF, CDA group demonstrated lower rates of serious AEs (54.5% vs 65.9%,p=0.019).

Conclusions

Long-term, CDA is safe and effective for the treatment of myelopathy. Myelopathy patients gain similar improvement from CDA to patients with radiculopathy only. Furthermore, myelopathy patients report similar levels of improvement from CDA compared with ACDF, but suffer fewer serious AEs

Learning Objectives

At the completion of this session, participants should be able to: 1) Discuss the similar outcomes between patients with myelopathy and patients with radiculopathy treated with CDA, 2) Identify CDA as a safe and effective alternative treatment to ACDF for select patients with myelopathy

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