

Twelve Month Patient-reported Outcomes Following Cervical Disc Arthroplasty versus Anterior Cervical Discectomy and Fusion

Anthony L. Asher MD FACS; Clinton J. Devin MD; Panagiotis Kerezoudis MD; Silky Chotai MD; Nian Hui PhD; Frank Harrell; Matthew J. McGirt MD; Kristen Archer-Swygert; Kevin T. Foley MD FACS FAANS; Praveen V. Mummaneni MD; Meic H. Schmidt MD, MBA; Steven D. Glassman MD; John J. Knightly MD; Christopher I. Shaffrey MD, FACS; Mohamad Bydon MD

Introduction

Cervical disc arthroplasty (CDA) has emerged as a viable surgical treatment for the treatment of cervical disk disease. To date, the vast majority of evidence for CDA is derived from industry funded studies. The purpose of this study is to report the 12-month patient reported outcomes (PROs) of patient undergoing CDA or ACDF utilizing a prospective, multicenter surgical registry.

Methods

Quality Outcomes Database (QOD) was queried for the years 2012 to 2016 for patients undergoing ACDF or CDA for cervical disk disease. Baseline demographic and clinical variables as well as 12-month NDI, EQ-5D, Numeric Rating Scale (NRS)-neck and -arm pain and modified Japanese Orthopedic Association (mJOA) were collected. Optimal one-to-one matching without replacement was utilized in order to balance the baseline covariates. Matched analysis was employed afterwards to compare the outcomes of interest between the two surgical groups.

Results

A total of 2199 patients (ACDF-2145, CDA-54) were identified in the registry with complete 12-month follow-up data. Following propensity score matching, 108 patients (54 in each cohort) were analyzed. Comparable rates of return to work (median: 35 vs 28 days $p=0.74$), readmission (2% vs 2%, $p > .99$) and return to activities (80% vs 60%, $p=0.56$) within 90 days were observed between CDA and ACDF patients. At 12 months, no significant difference was found between the two surgical cohorts, including NDI ($p=0.57$), EQ-5D ($p=0.52$), NRS-neck pain ($p=0.90$), NRS-arm pain ($p=0.86$) or mJOA ($p=0.11$).

Conclusions

Analyzing data from an unbiased patient population enrolled in a national, prospective surgical registry revealed CDA to have equivalent 12-month functional outcomes and similar rates of readmission, return to work and activities compared to ACDF. Longer follow-up is needed in order to provide insight into the comparative effectiveness of the procedures.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe outcomes following cervical spine surgery for degenerative disease, 2) Discuss and compare the 12-month functional outcomes, rates of readmission, return to work and activities following cervical arthroplasty and ACDF surgery.

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