

Utilization Trends of Cervical Disk Replacement in the United States: A Population-Based Study

Panagiotis Kerezoudis; Mohammed Ali Alvi M.D.; Anshit Goyal MBBS; Daniel S Ubl BA; Sandy Goncalves MSc; Jenna Meyer; Elizabeth B Habermann PhD; Mohamad Bydon MD

[Institution]

Click To
Add Logo



Introduction

Cervical disc replacement(CDR) has emerged as a safe and viable surgical technique for the management of patients with cervical disc disease. The current consensus on the indications for CDR are patients with single-level disc disease with primarily anterior or disc-related pathology without significant facet joint arthropathy and preserved segmental motion, disc space height and sagittal alignment. This study aimed to characterize the utilization trends of CDR in the United States including off-label use in a national, administrative database.

Methods

The National Inpatient Sample (NIS) was queried for the years 2004 through 2013 for patients undergoing CDR. Off-label utilization comprised the primary outcome and was defined by(i)the presence of concurrent cervical fusion(ii)performance in the emergent setting(iii)surgical diagnosis outside of approved indications. We also recorded cases where the procedure was performed in the presence of a known contraindication. National estimates were calculated using the discharge weights for each sampled hospital.

Results

A total of 22,232 CDR cases (90% elective) were performed in the U.S. between 2004 and 2013. Seventy one percent of elective cases were stand-alone CDRs, while 29.3% were done in conjunction with a cervical fusion procedure (94.5% anterior fusion, 2.3% posterior, 3.1% both). Within emergent cases, 66.4% were stand-alone and 33.6% were done in conjunction with a fusion procedure. Overall, we observed a significant increase in CDR utilization with or without concurrent fusion between 2004/2005 and 2009 followed by a steady decline. Several cases of CDR were performed in the presence of known contraindications like morbid obesity, osteoporosis and ossification of the posterior longitudinal ligament(OPLL).

Conclusions

This population-based study revealed that the prevalence of CDR has increased over time. A significant number of CDRs were performed with anterior or posterior cervical fusion, both in the elective and the emergent setting reflecting the use of the technique in an off-label manner.

Learning Objectives

By the end of this study, participants should be able to (1) Discuss the current utilization trends of cervical disc arthroplasty in the United States including off-label use (2) Discuss appropriate use of the procedure with respect to indications and contraindications

References