No Significant Differences in Complications between Outpatient and Inpatient Single-Level and Multi-Level Cervical Disc Replacement

William Travis Stoll1, Alisa Malyavko1, Alex Gu2, Seth Stake1, Savyasachi C Thakkar1, Shalin Patel1, Tushar C Patel3

1Department of Orthopaedic Surgery, 2Department of Orthopaedic Surgery, George Washington University School of Medicine An, 3Washington Orthopaedics and Sports Medicine

INTRODUCTION:
Cervical disc replacement (CDR) is becoming a more desirable option for patients undergoing cervical spine procedures. Unlike anterior cervical discectomy and fusion (ACDF), CDR is motion-preserving and has been shown to reduce rates of adjacent segment disease. Continuing to assess safety and efficacy of CDR in different settings is crucial to provide evidence-based recommendations to patients. Current literature investigating outpatient versus inpatient CDR has shown a similar safety profile among the two cohorts, however, most of these studies have relatively small sample sizes with short-term follow up. Our study aimed to investigate the safety profile of outpatient versus inpatient single-level and multi-level CDR by analyzing short-term and long-term outcomes using a large patient database.

METHODS: A retrospective cohort study was done using a large insurance patient database between 2010 and 2019. Patients who underwent single-level and multi-level CDR with a follow up of at least 2 years were identified. Patients within each procedure cohort were subdivided into an outpatient and an inpatient group. Univariate and multivariable analysis were performed to identify 1-year and 2-year surgical complications including anterior revision, posterior revision, incision and drainage, decompression laminectomy, and dural tear as well as 90-day postoperative complications.

RESULTS: In total, 2,294 patients underwent single-level CDR and 236 patients underwent multi-level CDR. Of the patients who underwent single-level CDR, 506 patients underwent outpatient CDR and 1,788 underwent inpatient CDR. Of the patients who underwent multi-level CDR, 49 patients underwent outpatient CDR and 187 underwent inpatient CDR. In the single-level CDR cohort, patients undergoing outpatient CDR were found to have lesser odds of decompressive laminectomy at 1-year following the initial procedure (OR: 0.471; CI: 0.205 to 0.945; p=0.05). No other significant differences in 1-year or 2-year surgical or 90-day postoperative complications were found for the single-level CDR cohort. No significant differences in 1-year and 2-year surgical complications as well as 90-day postoperative complications were found on multivariable analysis of outpatient versus inpatient multi-level CDR.

DISCUSSION AND CONCLUSION: As more patients are undergoing CDR, performing the procedure in an outpatient setting is gaining traction to reduce costs and improve patient satisfaction. Our study found that performing single-level and multi-level CDR on an outpatient basis has a similar safety profile to performing these procedures in an inpatient setting. These findings can help support physician recommendations for patients undergoing cervical spine procedures.