Does Colonoscopy Increase the Rate of Revision in the Setting of Reverse Shoulder Arthroplasty?: An Insurance Database Study

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INTRODUCTION:

Reverse shoulder arthroplasty (RSA) is increasingly utilized in the United States for the treatment of several different degenerative and traumatic pathologies. It is performed predominantly in the elderly population with a reported mean age of 72 years old. The United States Preventive Services Task Force (USPTF) currently recommends routine screening colonoscopy for those aged 45 through 75 years old. Colonoscopy has been shown to be associated with a risk of transient bacteremia which is an established risk factor for developing prosthetic joint infection (PJI).[2] Therefore, the purpose of this study was to determine if diagnostic or invasive colonoscopy is a risk factor for all-cause revision or the diagnosis of PJI in the setting of RSA.

METHODS:

The PearlDiver All Payer Claims Database was assessed to access health care utilization data for patients undergoing RSA. PearlDiver has unique patient identifier codes allowing for longitudinal follow-up and includes claims billed to all payer types. Current Procedures Terminology (CPT) and International Classification of Diseases Ninth and Tenth (ICD-9/10) diagnosis and procedure codes were used to identify the study cohort, comorbidities, and outcomes. Patients were included if they underwent RSA with at least 3 years of follow up. Patients who underwent diagnostic or invasive colonoscopy within 1 year after RSA were compared to a control cohort who did not undergo colonoscopy. Invasive colonoscopy was defined as any colonoscopy that invades the colonic mucosa. Age and sex alongside the Elixhauser Comorbidity Index (ECI) were utilized in a multivariable logistic regression to explore significant univariate outcomes expressed as odds ratios (OR). The primary outcomes of this study were all-cause revision rate and diagnosis of PJI at 3 years after the index procedure.

RESULTS:

A total of 1,244 individuals were identified who underwent diagnostic colonoscopy within 1 year after RSA. A total of 2,973 individuals were identified who underwent invasive colonoscopy within 1 year after RSA. These cohorts were compared to a cohort of 74,309 patients who underwent RSA and did not undergo colonoscopy. At 3 years post-operatively the diagnosis of PJI was not significantly different in either the diagnostic (3.94% vs 3.29%, p=0.20) or invasive colonoscopy (3.8% vs 3.29%, p=0.13) cohort as compared to the control cohort who did not undergo colonoscopy. The rate of all-cause revision was not significantly different in the diagnostic colonoscopy cohort (7.32% vs 7.53%, p=0.78), however, was significantly different in the invasive colonoscopy cohort (8.48% vs 7.53%, p=0.05) as compared to the control cohort at 3 years post-operatively (Figure 1). Multivariate analysis also revealed significance in comparing all-cause revision in the invasive colonoscopy cohort compared to the control cohort (OR=1.63, p=<0.01).

DISCUSSION AND CONCLUSION:

This study demonstrated that diagnostic or invasive colonoscopy performed within 1 year after undergoing RSA did not increase the diagnosis of PJI at 3 years post-operatively. The rate of all-cause revision was not significantly different in the diagnostic colonoscopy cohort, however, there was a significant difference in the invasive colonoscopy cohort at 3 years post-operatively as compared to the control cohort. The results of this study can help physicians with counseling of patients and encouraging them to not defer their regular screening colonoscopy in the setting of RSA given the lack of increased risk of PJI. However, further research is needed to determine why there was an increased risk of all-cause revision in the invasive colonoscopy group.

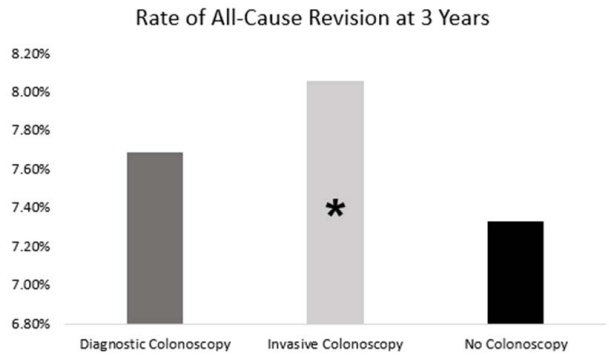

Figure 1. The rate of all-cause revision in the diagnostic colonoscopy, invasive colonoscopy, and control cohorts. The "*" demonstrates a significant difference as compared to the control cohort that did not undergo colonoscopy.