Total Shoulder Arthroplasty in Patients with Classic Hemophilia:
Greater Incidence of Bleeding and Thromboembolic Adverse Events but Equivalent 5-year Implant Survival

Stephen M. Gillinov, AB[1], Maxwell Modrak, MD[1], Nancy Park, BS[1], Christopher V. Wilhelm, MD, MHS[1], Ronak J. Mahatme, BS[2], Michael S. Lee, BA[3], Jonathan N. Grauer, MD[1], Andrew E. Jimenez, MD[1]

[1]Department of Orthopaedics and Rehabilitation, Yale School of Medicine, New Haven, CT, USA
[2]University of Connecticut School of Medicine, Farmington, CT, USA
[3]Medical University of Wisconsin, Milwaukee, WI, USA
stephen.gillinov@yale.edu

DISCLOSURES: Jonathan N. Grauer (North American Spine Society Journal, Editor in Chief; North American Spine Society and Lumbar Spine Research Society, Board of Directors)

INTRODUCTION: Patients with classic hemophilia can develop joint hemarthroses, degenerative changes, and eventually require total shoulder arthroplasty (TSA). Little data exist concerning TSA outcomes in this population. The purposes of the present study were to determine (1) if classic hemophilia is associated with a greater incidence of bleeding and thromboembolic adverse events relative to matched controls and (2) if 5-year TSA prosthesis survival reduced in patients with classic hemophilia relative to matched controls.

METHODS: The 2010-2022 PearlDiver M161 database was used to identify patients undergoing primary anatomic or reverse TSA. TSA patients with classic hemophilia were matched 1:10 with non-hemophilia patients based on age, sex, and Elixhauser Comorbidity Index (ECI). Ninety-day local, systemic, and any adverse events (LAE, SAEs, and AAEs, respectively) were compared with multivariate analysis. Reoperation at five years was assessed using Kaplan-Meier analysis.

RESULTS: In total, 202 classic hemophilia TSA patients were matched 1:10 with 2,012 non-hemophilia patients. On multivariate analysis, patients with classic hemophilia had greater odds of AAEs (OR=1.48; P=0.044) and SAEs (OR=1.50; P=0.033). Specifically, patients with classic hemophilia had greater odds of bleeding issues (hematoma, OR=3.47, P<0.001; anemia, OR=1.78, P<0.001, transfusion, OR=2.70, P<0.001), VTE (DVT, OR=2.50, P<0.001; PE, OR=2.82, P<0.001), prosthetic loosening (OR=2.10), and nerve injury (OR=1.77). Five-year implant survival was not significantly different in hemophilia patients (95.8%) relative to matched controls (94.6%; P=0.4).

DISCUSSION: Hemophilia patients undergoing TSA had elevated risks of both 90-day bleeding complications (hematoma, anemia, and transfusion) and VTE (DVT and PE) relative to matched controls. These findings emphasize the need to balance factor replacement and VTE prophylaxis. Five-year implant survival was not significantly different between hemophilia patients versus matched controls, suggesting that TSA remains durable in this population.

SIGNIFICANCE/CLINICAL RELEVANCE: These findings emphasize the need to balance factor replacement and VTE prophylaxis. Furthermore, these five-year implant survival data suggest that TSA remains durable in this population.