Is Formal Physical Therapy Necessary After Reverse Shoulder Arthroplasty? A Single-Blinded, Randomized Controlled Trial

Andrew B Rees, Joseph Michael Burger, Nady Hamid INTRODUCTION:

Formal physical therapy is a mainstay in the postoperative rehabilitation protocol after reverse shoulder arthroplasty. However, it has seldom been compared to alternatives. The global COVID-19 pandemic restricted access to these resources to many patients undergoing shoulder arthroplasty. The purpose of this study was to compare, in a randomized controlled trial, the effectiveness of an unsupervised home exercise program vs outpatient physical therapy in terms of restoring function for patients undergoing unilateral reverse shoulder arthroplasty. METHODS:

The study was designed as a prospective, single-center, 2-arm, parallel-group, randomized controlled trial. Patients undergoing planned primary reverse shoulder arthroplasty between the ages of 60-85 were recruited to the study. Patients with a history of ipsilateral shoulder infection, autoimmune or neuromuscular disease, or who required post-discharge stay in an acute rehabilitation center or skilled nursing facility were excluded. A power analysis was completed to determine the number of patients needed in each arm. Patients were randomized to either formal outpatient physical therapy (standard of care) or self-directed ("unsupervised") home exercise program based on a detailed PT manual that was provided to patients prior to discharge. The primary outcome was the American Shoulder and Elbow Society (ASES) score at 1 year post-operatively. Range of motion (ROM) at 3 months and 1 year post-operatively was a secondary outcome and was evaluated by an independent examiner blinded to group assignment. Complications and reoperation rates were also assessed for both groups. Student's t-test was used to test the differences in means between groups. RESULTS:

A total of 59 patients were recruited to the study, 30 in the formal physical therapy group and 29 in the home exercise group. At 1 year post-operatively, there was no difference between ASES scores in the physical therapy group (mean 77.6) and the home exercise group (mean 81.1) [p=0.501]. There was no difference in forward flexion (p=0.489), external rotation (p=0.319), or internal rotation (p=0.942) at 3 months post-operatively. No significant difference in range of motion developed at 1 year post-operatively for forward flexion (p=0.696), external rotation (p=0.345), or internal rotation (p=0.184). There were no reoperations in either group.

DISCUSSION AND CONCLUSION:

This single-blind randomized controlled trial showed no significant difference between a home exercise program and formal physical therapy with regards to ASES scores at 1 year post-operatively and ROM at 3 months and 1 year post-operatively. There was no difference in reoperation rates. In cases where circumstance, cost, or comorbidities make access to formal physical therapy difficult—this study would support the possibility of a noninferior outcome with a self-guided home exercise program.