The Impact of Innovative Technology on Patient Satisfaction and Perceptions After Shoulder Arthroplasty

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INTRODUCTION: Intraoperative navigation (NAV) and augmented reality (AR) have emerged as promising new technologies in shoulder arthroplasty (SA). Previous research in these areas have focused on the use of these technologies by surgeons, but the literature on improved understanding of patient knowledge and perceptions is lacking. Little is known whether patients are aware or understand this technology and what the impacts are on outcomes after SA. The purpose of this study was to see if direct patient education for the innovative technology used for SA would impact patient confidence in their surgeon and satisfaction following SA.

METHODS:

This was a prospective study that included 59 patients scheduled for SA with one fellowship-trained shoulder surgeon at a single institution from 2022-2023. During their preoperative visit, patients completed a survey regarding their perception of the use of technology for SA and were then shown a patient education video about the use of innovative AR technology for their surgery. Repeat survey testing was then performed to assess patient perception of this technology, the effect of this technology on patient outcomes, and patient satisfaction. The survey was again repeated postoperatively at 6 weeks and 3 months.

RESULTS: Most patients (56%) were not at all familiar with the use of 3D technology for preoperative planning and had no preference about their surgeon using it for SA surgery (61%). Additionally, most patients did think AR would lead to better results/outcomes (56%) however did not think that surgeons who utilize this technology are better than those who do not utilize it (56%). Seventy percent of the patients prefer a high-volume surgeon who does not use 3D/AR technology compared to a low-volume surgeon. The 3 main concerns about this technology included a lack of surgeon experience with 3D/AR technology (59%), increased costs (58%), and increased surgery duration (32%). Patients reported an average of 99% confidence level in their surgeon and satisfaction in knowing that their surgeon uses AR technology, which was unchanged by the patient education video. At 6 weeks, patients rated their satisfaction with knowing their surgeon used this technology at 85% and their satisfaction with their shoulder at 77%. At 3 months, these improved to 90% and 85%, and again improved at 6 months to 96% and 90%, respectively, with patients reporting they thought the use of AR technology and preoperative planning allowed for better results/outcomes.

DISCUSSION AND CONCLUSION: Our results demonstrated that patient perception of AR technology and preoperative planning was very positive, yet there are inconsistencies in how well patients understand the benefits of these technologies. Patient selection and confidence levels were more impacted by surgeon volume and not the use of these innovative technologies, with most patients having no preference on whether their surgeon utilized it. Although technology may not impact the patient selection of a surgeon, it positively impacts their confidence and satisfaction levels postoperatively.