Not All Patients Benefit Equally from Spinal Anesthesia in Total Joint Arthroplasty

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INTRODUCTION:

There is growing pressure for wider adoption of spinal anesthesia (SA) with concomitant elimination of general anesthesia (GA) in the ambulatory setting despite a lack of clear consensus regarding optimal anesthetic technique for all primary, elective, total joint arthroplasty (TJA) patients. The purpose of this study was to perform a head-to-head comparison of the two anesthetic options to elucidate if reported benefits of SA are present in all TJA patients or if there has been an unfounded push for ubiquitous adoption of SA in TJA.

METHODS:

This was a retrospective cohort study using the Michigan Arthroplasty Registry Collaborative Quality Initiative (MARCQI) registry database. Stringent inclusion and exclusion criteria were combined with robust propensity score matching, based on 14 unique covariates, resulting in a cohort of 437 primary, elective, TJA patients that underwent only GA and 437 who only underwent purely SA. Multivariate analysis was used to compare differences between hospital length of stay (LOS), discharge destination, 90-day adverse events, and patient-reported outcome measures (PROM). Subgroup analyses were then performed to interrogate how SA and GA differentially impacted different patient subgroups. RESULTS:

Overall, across all TJA, SA patients had shorter hospital LOS (p<0.0001) and decreased rates of discharge to SAR/SNF (p<0.0001). When patients were stratified based on TJA-type, BMI, and ASA, however, many of the detected advantages of SA over GA were lost (p >0.05). Furthermore, the study was adequately powered to detect statistical differences in 1year postoperative PROM scores between SA and GA groups, yet score differences failed to achieve the magnitudes which would translate into clinical significance based on published thresholds for questionnaire MCIDs. DISCUSSION AND CONCLUSION:

The reported benefits of SA may be dependent on patient characteristics and TJA-type. These findings suggest that SA may not be the optimal anesthetic approach for all primary, elective TJA patients and that there may still be a role for planned GA in ambulatory TJA practice to maintain efficiency without compromising on long term patient satisfaction.

