Outpatient Total Hip Arthroplasty is Cost-effective compared to Inpatient Total Hip Arthroplasty

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INTRODUCTION: An increased demand for total hip arthroplasty (THA) and substantial wait times for surgery are having a significant impact on healthcare resources and patient quality of life, leading to pressure to conduct THA as an outpatient procedure. Despite this, there is a lack of high quality evidence evaluating costs and patient outcomes associated with this care pathway. The purpose of this study was to estimate the cost-effectiveness of outpatient THA to standard overnight stay in hospital.

METHODS:

We conducted a prospective randomized controlled trial among patients undergoing primary THA through a direct anterior approach. Participants were randomized to be discharged on the same day as surgery, or on day one post-surgery, using a Zelen consent model. We recorded all costs associated with each discharge model including: equipment, operating room costs, length of stay in hospital, and laboratory or other medical tests. Following discharge participants also completed a self-reported cost diary regarding any resource utilization such as emergency department visits or subsequent hospitalizations, tests and procedures, consultations or follow-up, healthcare professional services, rehabilitation, use of pain medications, informal care, productivity losses and out-of-pocket expenditures. Participants also completed the EQ-5D preoperatively and at two-, six- and 12-weeks post-surgery.

We conducted a cost-effectiveness analysis from a Canadian public health care payer (HCP) and a societal perspective. Quality adjusted life years (QALYs) derived from EQ-5D utility scores were used to calculate the incremental cost-utility ratio (ICUR). We also estimated cost-effectiveness using the net benefit regression (NBR) framework, at willingness to pay values ranging from $0 to $10,000. We included age, sex, body mass index, Charlson comorbidity index, and baseline EQ-5D scores as covariates in our regression models.

RESULTS:

Three hundred and twenty seven participants completed this study (162 outpatient, 165 inpatient). Baseline demographics were similar between groups. Thirty-five participants from the outpatient group crossed over and stayed at least one night in the hospital while 20 participants from the inpatient group crossed over and went home on the same day as surgery. Reasons for cross-over in the outpatient group included pain, inability to pass physiotherapy discharge criteria, decreased oxygen levels requiring overnight monitoring, wound concerns, and intraoperative cardiac issues. Participants crossed over from the inpatient to outpatient group because they met the discharge criteria and hospital staff, who were unaware of study group allocation, sent them home.

From both a HCP and societal perspective, inpatient THA was more costly than outpatient THA. The cost difference was $793.38 for HCP ($p<0.001$) and $1847.56 for societal ($p<0.001$) in favour of outpatient THA. ICURs were not calculated as the inpatient group was dominated by the outpatient group for both perspectives, meaning that outpatient THA was both less expensive and generated greater quality of life. Outpatient THA was also cost-effective at all values of willingness to pay in our NBR models.

DISCUSSION AND CONCLUSION:

This large randomized controlled trial found that outpatient THA results in both lower costs and greater quality adjusted life years, suggesting that outpatient THA is a cost-effective procedure from both a healthcare payer and societal perspective.