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Opioids Consumed in the Immediate Post-Operative Period Does Not Influence How Patients Rate Their Experience of Care After Total Hip Arthroplasty

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ABSTRACT

Background: Patient perception of care, commonly measured with Press Ganey (PG) surveys, is an important metric used to determine hospital and provider reimbursement. However, post-operative pain following total hip arthroplasty (THA) may negatively affect patient satisfaction. As a result, over-administration of opioids may occur, even without marked evidence of pain. Therefore, this study evaluated whether opioid consumption in the immediate postoperative period bears any influence on satisfaction scores after THA. Specifically, this study assessed the correlation between post-operative opioid consumption and 7 PG domains: (1) Overall hospital rating; (2) Communication with nurses; (3) Responsiveness of hospital staff; (4) Communication with doctors; (5) Hospital environment; (6) Pain Management; and (7) Communication about medicines.

Methods: Our institutional PG database was reviewed for patients who received THA from 2011 to 2014. A total of 322 patients (mean age = 65 years; 61% female) were analyzed. Patient's opioid consumption was measured using a morphine milli-equivalent conversion algorithm. Bivariate correlation analysis assessed the association between opioid consumption and Press-Ganey survey elements. Pearson's *r* assessed the strength of the association.

Results: No correlation was found between total opioid consumption and Overall hospital rating ($r = 0.004$; $P = .710$), Communication with nurses ($r = 0.093$; $P = .425$), Responsiveness of hospital staff ($r = 0.104$; $P = .381$), Communication with doctors ($r = 0.009$; $P = .940$), Hospital environment ($r = 0.081$; $P = .485$), and Pain management ($r = 0.075$; $P = .536$). However, there was a positive correlation between total opioid consumption and "Communication about medicines" ($r = 0.262$; $P = .043$).

Conclusions: Our report demonstrates that PG patient satisfaction scores are not influenced by post-operative opioid use, with the exception of PG domain, "Communication about medications." These results suggest that opioid medications should be administered based solely on patient requirements without concern about patient satisfaction survey results.

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Modifications implemented by the Centers for Medicare and Medicaid Services include the utilization of several surrogate markers to determine provider reimbursement [1]. Among these markers, patient satisfaction has become an increasingly important

metric used by pay-for-performance models to gauge healthcare delivery and reimbursement rates for hospitals and orthopedic surgeons [2]. With patient experience serving as a proxy for healthcare performance, surgeons performing total hip

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arthroplasty (THA) are being held responsible for optimizing patients' perception of care [2]. However, pain perception varies among individuals, and pain in the post-operative period may cause patients to feel dissatisfied with the care received, despite a successful procedure [3,4].

Opioid pain medications have proven efficacy in the treatment of acute pain after orthopedic procedures [5]. However, with the growing opioid epidemic, efforts are being made to curtail overuse of these medications [6]. Among these efforts include the implementation of post-surgical pain protocols, which aim to administer the lowest dose of opiate medications based on patient-reported pain scores [7], yet dependence is still on the rise [6,8]. Some surgeons have investigated the effect of pre-operative administration of opiates in patients receiving THA with the hope of decreasing pain and use post-operatively; however, these patients experienced worse outcomes [9]. Furthermore, reducing opioids may be problematic for surgeons trying to optimize patients' comfort and perception of care after THA [6,10].

Patient perception of care is commonly measured by administering the Press Ganey (PG) survey, which uses similar metrics as the Hospital Consumer Assessment of Healthcare Providers and Systems survey, which is used as a reimbursement metric by the Value-Based Purchasing program [11]. The importance of PG patient satisfaction scores has been extensively reported by many medical specialties, yet few have examined the association between patient perception of care (ie, PG survey scores) and immediate post-operative opioid consumption. Therefore, this study aims to evaluate whether opioid consumption in the immediate post-operative period bears any influence on PG patient satisfaction scores after THA. Specifically, this study assessed the correlation between post-operative opioid consumption and 7 PG question domains: (1) Overall rating of the hospital; (2) Communication with nurses; (3) Response time of hospital staff; (4) Communication with doctors; (5) Hospital environment; (6) Pain management; and (7) Communication about medication.

Methods

Database

Our institutional PG database (Press Ganey Performance Solutions, Wakefield, MA) was queried for all patients who received a THA between the years 2011 and 2014. This yielded a total of 33% of patients who received THA between the years 2011 and 2014 and had completed and returned the PG survey. Information such as patient demographics, American Society of Anesthesiology scores, and answers to PG questions are contained within the database. This study was based on 7 question domains: (1) Overall rating of the hospital; (2) Communication with nurses; (3) Response time of hospital staff; (4) Communication with doctors; (5) Hospital environment; (6) Pain management; and (7) Communication about medication. Each domain consisted of 1-3 questions and was rated on a scale from 1 to 4 (1-10 for overall rating of hospital) with 4 (or 10) being the most satisfactory response (Table 1).

Patient Selection and Endpoint Data Collection

Inclusion criteria included patients over the age of 18 years who received a primary THA. Patients who had a history of drug or alcohol abuse, methadone use, inflammatory arthropathy, schizophrenia or psychotic disorders, peripheral neuropathy, pain syndromes necessitating long-term analgesic therapy, bilateral THA, received a patient controlled analgesia pump post-operatively, or received spinal anesthesia were excluded. This yielded 322 patients (mean age 65 years, 61% female) (Tables 2 and 3). A

standardized peri-operative pain protocol is utilized by our institution, which takes patients' past medical history, co-morbidities, and drug allergies into consideration. All patients undergoing THA at our institution receive peri-articular infiltration before final closure, consisting of a combination of 30 mL 0.25% bupivacaine, 1:200,000 parts epinephrine, 8 mg of dexamethasone, 2 mg of morphine, and 30 mg of ketorolac mixed in 50 mL of normal saline and injected utilizing a multi-site moving needle technique. Patients are assessed post-operatively every 3 hours by nursing staff using the visual analog scale pain score (0 = no pain, 10 = worst pain) and patient perception of pain to adequately administer appropriate doses of analgesics. Patients who report a score of 0-3 on visual analog scale are given Tylenol; a score of 4-7 receives administration of 5 mg oral oxycodone; and a patient who scores an 8-10 receives 10 mg oral oxycodone. Opioid consumption was tabulated via retrospective chart review. A morphine milli-equivalent (q) algorithm utilizing internationally accepted conversion values developed by the World Health Organization Collaborating Centre for Drug Statistics Methodology was used to measure opioid consumption [12].

Data Analysis

A descriptive analysis was conducted to demonstrate patient demographics.

Bivariate correlation analysis was conducted to assess the association between opioid consumption and PG survey elements. Pearson's *r* was utilized to assess the strength of the association. A 2-tailed *P*-value of .05 was set as the threshold for statistical significance. All analyses were performed using SPSS version 24 (IBM corporation, Armonk, NY).

Results

Analysis demonstrated no correlation between total opioid consumption and Overall Hospital rating ($r = 0.004$, $P = .710$) (Table 4).

Table 1
Press Ganey Domains With Questions.

Category	Question	Answer
Communication with doctors	Doctors listen carefully to you	(least satisfied) 1. Never
	Doctors treat you with courtesy/respect	2. Sometimes
	Doctors explain in a way you understand	3. Usually 4. Always (most satisfied)
Communication with nurses	Nurses treat you with courtesy/respect	
	Nurses listen carefully to you	
	Nurses explain in a way you understand	
Responsiveness of hospital staff	Help toileting as soon as you wanted	
	Call button help as soon as you wanted it	
Pain management	Pain well controlled	
	Staff do everything to help with pain	
Communication about medicines	Staff describes medicine side effect	
	Staff tell you what new medicine was for	
Hospital environment	Cleanliness of hospital environment	
	Quietness of hospital environment	
	Rate hospital	(least satisfied) 0-10 (most satisfied)

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