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ORIGINAL ARTICLE

Current pain prescribing habits for common shoulder operations: a survey of the American Shoulder and Elbow Surgeons membership

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Background: Orthopedic surgeons are among the highest prescribers of narcotic pills, and no guidelines currently exist for appropriate management of postoperative pain within this field. The purpose of this study was to gain understanding of the current pain management strategies used perioperatively and postoperatively among orthopedic shoulder surgeons.

Methods: Members of the American Shoulder and Elbow Surgeons were e-mailed an online survey regarding methods for managing pain in the perioperative and postoperative setting for total shoulder arthroplasty, labral and capsular stabilization procedures, and rotator cuff repair. Postoperative narcotic prescribing amounts were converted into oral morphine equivalents.

Results: The survey response rate was 25.8% (170/658), with >90% of surgeons reporting use of a standard pain management regimen in the perioperative and postoperative periods. A regional nerve block was used on the operative day by >80% of surgeons for all 3 procedures. Short-acting narcotics are prescribed for postoperative pain control by >85% of surgeons, with long-acting narcotics provided by <14%. More than 400 oral morphine equivalents of short-acting narcotic are prescribed by shoulder surgeons. Referral to a pain specialist or primary care physician is made after 12 weeks by 92.3% of surgeons if patients continue to require narcotic painkillers.

Conclusion: The majority of shoulder surgeons use a standard pain management protocol in perioperative and postoperative settings. Regimens frequently include a regional nerve block, nonsteroidal anti-inflammatory drugs, and short-acting oral narcotics. Findings from this study provide guidelines on standard pain management strategies for common shoulder operations based on expert opinion.

Level of evidence: Survey Study; Experts

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Institutional Review Board approval is not required for this survey of orthopedic specialists.

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The origins of the opioid epidemic in the United States are multifaceted and date back to the early 1990s with the instillation of pain as the “fifth vital sign” by the American Pain Society, the adoption of this designation by the Veterans Health Administration, and the ensuing stringent

assessment standards focused on pain established by the Joint Commission on Accreditation of Healthcare Organizations in 2000.^{8,27} Other factors contributing to the development of this epidemic have been litigation brought against physicians for undertreating pain,²⁰ Press Ganey scores, and reimbursement based on patient satisfaction tools.¹³

Regardless of the cause of the opioid epidemic, the ramifications have resulted in a dramatic and exponential rise in opioid abuse, addiction, and deaths due to overdose. The link between dependence on and abuse of prescription opioid painkillers and heroin abuse has been well established.^{4,5} Deaths due to narcotic overdoses have now surpassed both motor vehicle and firearm-related fatalities,^{10,29} with an estimated 530 deaths per week in the United States documented as caused by opioid overdose.^{25,33} Not only are there serious health consequences from this epidemic, but the overprescribing of narcotics has led to an estimated >\$50 billion annually in economic waste.¹⁴

Efforts to amend this problem come from medical organizations and both state and federally published guidelines and legislation. Much of these efforts have focused on recommendations for prescribing among primary care physicians,³⁰ who are the largest prescribers of opioids, and management of chronic pain.⁹ However, little emphasis and direction have been provided for postoperative pain management,^{1,2,7} and very little with relation to orthopedic procedures specifically.^{11,15,16,18} This is despite the fact that orthopedic surgeons are responsible for the third-highest prescribing of narcotics²² and whose surgical work on the musculoskeletal system is known to cause more pain than procedures done in other systems of the body.^{3,6,21,24} A recent audience survey at the American Academy of Orthopaedic Surgeons symposiums demonstrated that most orthopedic surgeons do not know how many pills to prescribe to their patients or how many pills their patients actually take after surgery.³² Within the field of orthopedic surgery, only a handful of studies have examined the opioid prescribing and consumption habits after upper extremity procedures, and few have focused on pain management in shoulder-specific operations.^{16-18,31}

One step toward making a positive impact and curbing the overprescribing and abuse of opioids is establishing the present standard pain control practices among orthopedic surgeons. The purpose of this study was to gain an understanding of the current pain management strategies used perioperatively and postoperatively among orthopedic shoulder surgeons.

Materials and methods

This was an observational study in which members of the American Shoulder and Elbow Surgeons (ASES) were e-mailed an online survey regarding their methods for managing pain in operative patients both on the day of surgery and in the postoperative period (Table S1). The electronic survey was disseminated using the standard distribution protocol for ASES in February 2017, with a reminder sent once the following month. Surgeons answered questions about the use of standardized protocols for managing pain after 3 common

shoulder operations: total shoulder arthroplasty (TSA), labral and capsular stabilization procedures, and rotator cuff repair (RCR). Post-operative narcotic prescribing amounts were converted into oral morphine equivalents (OMEs). Descriptive statistics for continuous (mean \pm standard deviation) and categorical (N [%]) data were calculated on all survey questions.

Results

Responses were received from 170 of 658 (25.8%) ASES members. Of these surgeons, 91.2% perform TSA, 96.5% perform stabilization procedures, and 99.4% perform RCR operations.

Perioperative prescribing habits

Among all responders, 92.3%, 95.8%, and 96.9% of surgeons reported having a standard pain management regimen on the day of surgery for TSA, shoulder stabilization, and RCR patients, respectively. A regional nerve block was used by 88% of surgeons for TSA, 82.8% for shoulder stabilization, and 88.0% for RCR. A short-acting oral narcotic was used by 79.7% of surgeons for patients undergoing TSA, whereas only 36.2% injected a local anesthetic at the surgical site, 42% used a nonsteroidal anti-inflammatory drug (NSAID) such as naproxen (Naprosyn) or ketorolac (Toradol), and 42.8% used acetaminophen (Tylenol).

The same pain protocol is used for RCR as for stabilization or TSA operations by 88.8% of surgeons. In those surgeons with different stabilization and RCR pain protocols compared with TSA, the most common medications prescribed were short-acting oral narcotics, local anesthetics, NSAIDs, and acetaminophen (Table I). Less than 5% of surgeons injected a narcotic (eg, morphine [Duramorph]) at the operative site. Adjuvant medications such as gabapentin (Neurontin) and dexamethasone (Decadron) were used by <15% of surgeons.

Table I Percentage of surgeons using pain management strategies on the day of surgery for differing TSA, stabilization, and RCR protocols

Order administered	TSA	Stabilization	RCR
Regional block	88.0	82.8	88.0
Local anesthetic injection	36.2	35.9	28.6
Short-acting oral narcotic	79.7	77.8	75.5
Local narcotic injection	4.2	3.1	2.0
IV narcotic	31.9	3.2	10.2
NSAIDs	42.0	46.0	34.7
Acetaminophen (Tylenol)	42.8	25.4	18.4
Gabapentin (Neurontin)	14.5	6.3	6.1
Corticosteroid	15.9	3.2	8.2
Clonidine patch	2.2	0.0	2.0
Other	13.8	9.5	10.2

TSA, total shoulder arthroplasty; RCR, rotator cuff repair; IV, intravenous; NSAIDs, nonsteroidal anti-inflammatory drugs.

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