

Narcotic Usage Following Shoulder Arthroplasty is Low with the Use of a Multimodal Approach to Pain

Purpose: Optimization of postoperative pain control with opiate minimization is an essential component of shoulder surgery. Despite this principle, there is a paucity of data to guide surgeons on how much pain medication to prescribe post operatively. Surgeons are forced to rely on inconsistent training protocols. The purpose of this study was to prospectively determine opioid requirement in patients recovering from shoulder arthroplasty to create evidence based guideline for opiate prescription.

Methods: This multicenter prospective study enrolled 50 patients undergoing total and reverse shoulder arthroplasty. All patients were given a multimodal combination of pain medications prior to surgery and following surgery (Table 1). In addition to a general anesthetic, based on patient preference 33/50 received an interscalene block and 17/50 had a field block. Following surgery, patients were given postoperative “pain journals” to document visual analog scale (VAS) pain scores and to track their daily opioid consumption for the first 14 postoperative days.

Suggested Multimodal Anesthetic Protocol for Shoulder Arthroplasty	
Preoperatively:	gabapentin 600mg
	celebrex 400mg
	acetaminophen 1000mg PO
	25cc interscalene nerve block with IV decadron 10mg
Postoperatively:	acetaminophen 1000mg Q8 x 72hrs, then PRN
	gabapentin 300mg PO QHS x 5 nights
	ibuprofen 600mg Q8 x 72hrs
	15-25 oxycodone 5mg (as needed)

Table 1. Suggested multimodal anesthetic protocol for use in Shoulder Arthroplasty

Results: All patients consumed less than 15 pills. The median amount of opioids consumed following SA was 21.25 oral morphine equivalents (OMEs) or 2.83 5mg oxycodone pills. 85% (29/34) of patients consumed 10 or fewer pills, 64% (22/34) consumed 5 or fewer, and 32% (11/34) consumed no opioids (Figure 1). There was no difference in pain scores or opiate consumption between patients who received a nerve block and those that received a field block.

Conclusions: The use of a multimodal approach to pain is associated with a very low need for opioid use after shoulder arthroplasty. The requirement of less than fifteen 5mg oxycodone pills observed in this study may serve as a guideline for surgeons prescribing narcotics following shoulder arthroplasty. This conclusion contrasts with previously published studies using expert consensus-based methods, which recommend 40 pills for the same procedure.¹

References:

1. Stepan JG, Lovecchio FC, Premkumar A, Kahlenberg CA, Albert TJ, Baurley JW et al. Development of an Institutional Opioid Prescriber Education Program and Opioid-Prescribing Guidelines: Impact on Prescribing Practices. J Bone Joint Surg Am 2019;101:5-13. 10.2106/jbjs.17.01645

Figure 1. Distribution of Patients' Opioid Consumption Over 14 Postoperative Days Following Shoulder Arthroplasty

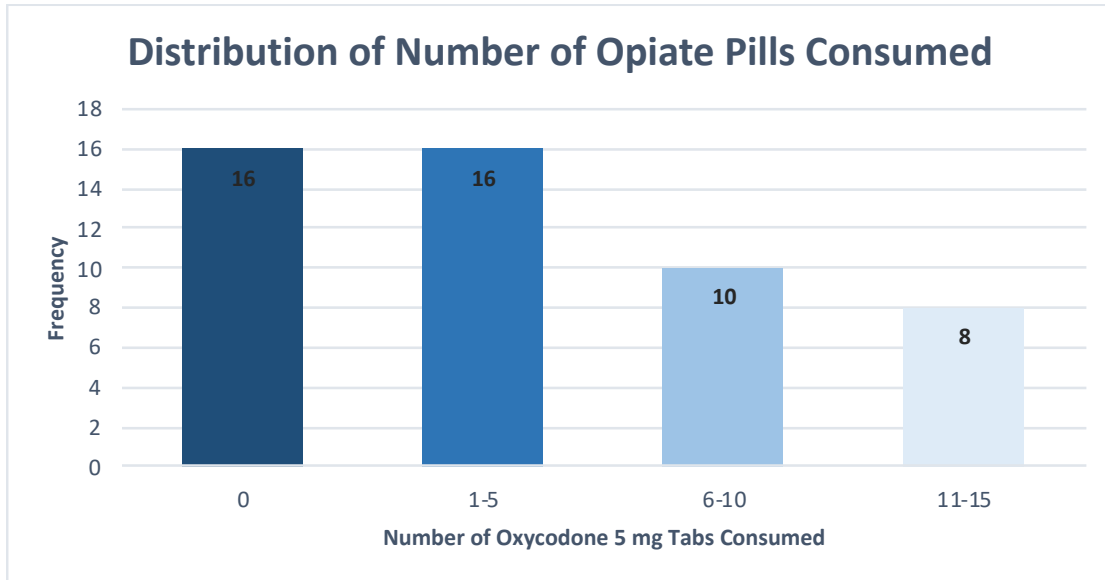


Figure 2. Average Daily Postsurgical Pain Visual Analog Scale (VAS) Ratings for Postoperative Days 0-5, 7, 14 Following Shoulder Arthroplasty

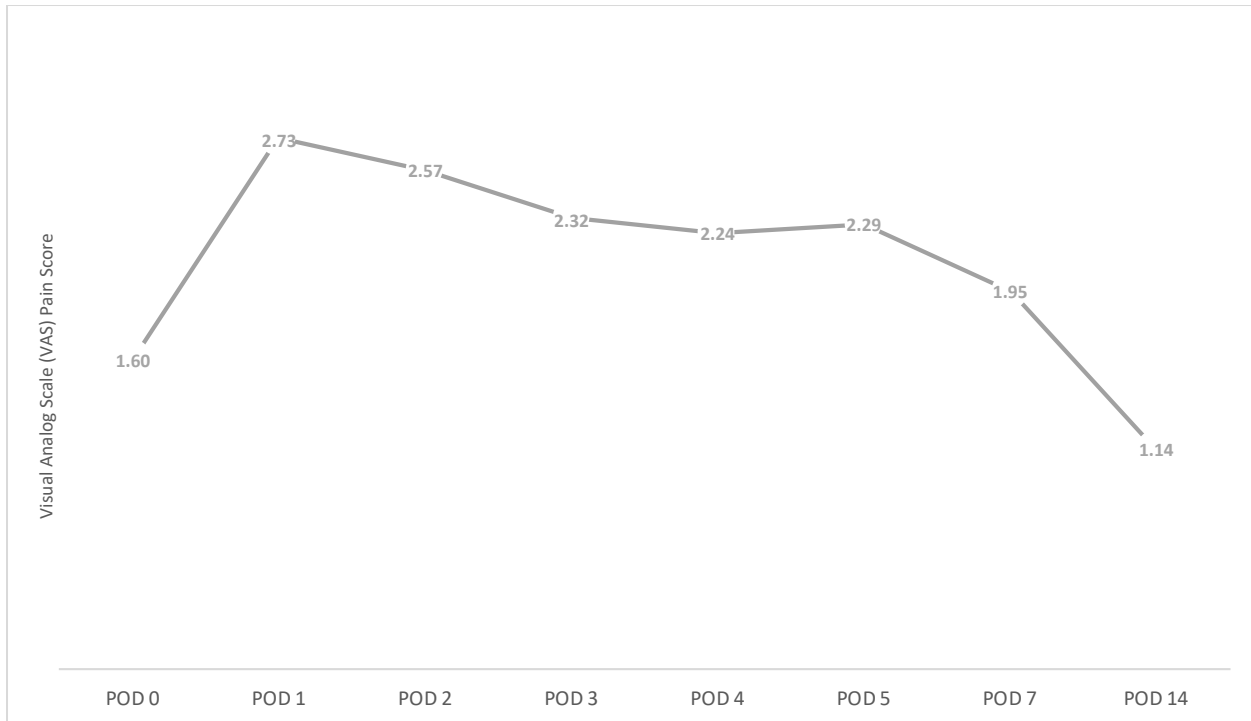
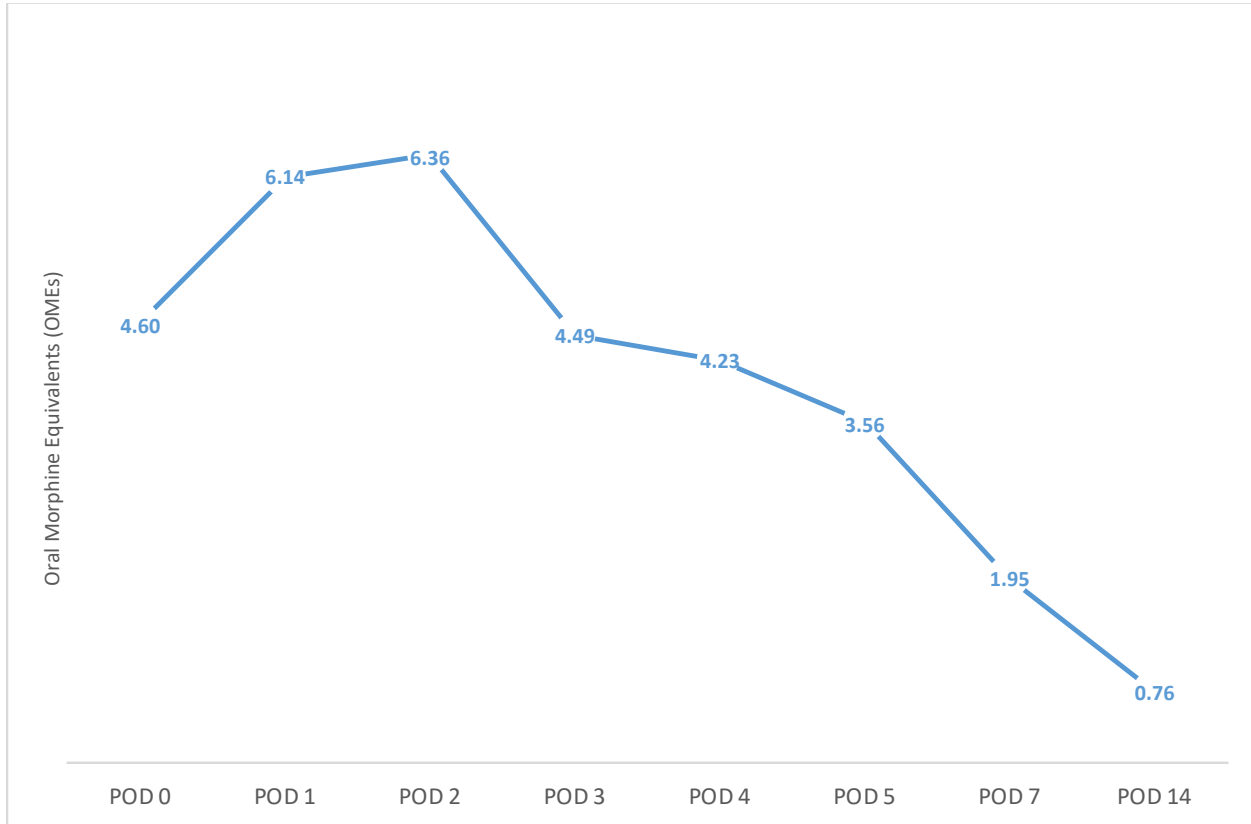


Figure 3. Average Daily Opioid Intake in for Postoperative Days 0-5, 7, 14 Following Shoulder Arthroplasty, Measured in Oral Morphine Equivalents (OMEs).



Note: One oxycodone 5 mg tab = 7.5 OMEs

Table 2. Cumulative and Average Daily Narcotic Consumption (OMEs), Visual Analog Scale Pain Scores over the 14 Postoperative Days Following Shoulder Arthroplasty

Group	Total OME (incl Day 0)	Total OME (Excl Day 0)	Avg. Daily Opioid Use (OMEs)	Avg. Daily Opioid Use (pills)	Total VAS	Average VAS
LB	26.72	24.69	3.34	0.45	11.06	1.38
SB	39.09	33.98	4.89	0.65	21.29	2.66
NB	32.68	23.04	4.08	0.54	19.14	2.39