

Opioid Prescribing Practices after Thumb Carpometacarpal Arthroplasty: Patterns, Trends, and Risk Factors for Additional Refills



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Objectives

- The goal of postoperative pain control is to alleviate the patients' pain while minimizing their exposure to the risk of narcotics
- The purpose of this study was to:
 1. Examine risk factors associated with requiring additional opioids.
 2. Determine the number of pills necessary for adequate pain control without increasing patients' risk for dependency.
- We hypothesized that patients with a higher number of comorbidities would be at an increased risk for requiring more pain medication.

Methods

- We queried the Truven Marketscan™ database from 2010 through 2016 for all CMC arthroplasty patients.
- Prescription opioid data was collected using National Drug Codes (NDC).
- Only included patients who were "opioid naïve", having not filled an opioid prescription in the 6 months prior to their injury.
- Patients were grouped into two separate cohorts:
 1. Patients who did not fill any opioid prescription after 7 days post surgery.
 2. Patients who filled an opioid prescription after 7 days through 6 months postoperatively.

Results

Table 1. Patient Demographics and Clinical Characteristics

	Opioid Naive
Number	20,713
Age at injury in yrs, mean ± SD	59.7 ± 8.8
Sex¹	
Male	4643 (22.4%)
Female	16,070 (77.6%)
Comorbidities¹	
Obesity	1908(9.2%)
Renal Disease	490 (2.4%)
Smokers	1347 (6.5%)
Hyperlipidemia	9854 (47.6%)
Hypertension	9543 (46.1%)
Coronary Artery Disease (CAD)	1758 (8.5%)
Congestive Heart Failure	375 (1.8%)
Rheumatoid Arthritis	872 (4.2%)
Diabetes	2709 (13.1%)
Depression	3336 (16.1%)
Anxiety	1100 (5.3%)

¹Variables presented as N (%);

Table 2. Univariate Comparison of Original Script Prescription

	Refill Status		p value
	No Refill	Refill	
Original Prescription¹			
# of Pills Prescribed	27.9 (27.5-28.4)	48 (47.0-48.4)	<0.0001
Morphine Equivalents	220 (216-224)	379 (373-386)	<0.0001

¹Variables presented as N (95% CI); Significant p values highlighted in bold

Table 3. Univariate Comparison of Prescribing Trends

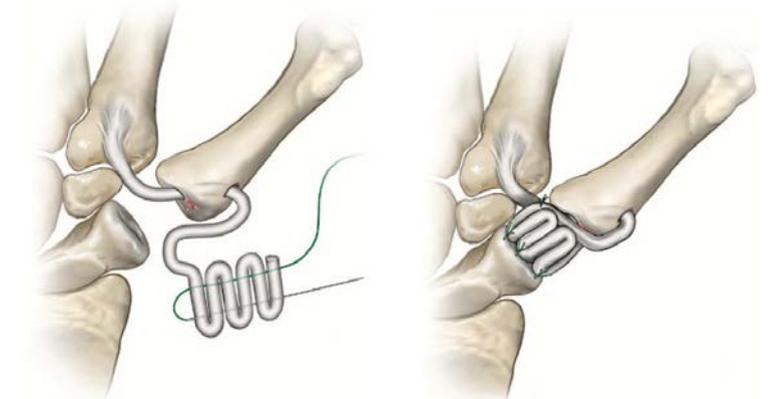
	Time Period		p value
	2010-2013	2014-2016	
Original Script Characteristics¹			
# of Pills Prescribed	30.5 (30.0-31.0)	38.8 (38.2-39.4)	<0.0001
Morphine Equivalents	242 (237-246)	305 (299-311)	<0.0001

¹Variables presented as N (95% CI); Significant p values highlighted in bold

Table 4. Multivariate Analysis of Increased Risk to Opioid Refill following CMC Arthroplasty

	Odds Ratio (95% CI)	p value
Age		
45-54 vs. 55-64	1.10 (1.02-1.20)	<0.05
45-54 vs. >65	1.21 (1.09-1.33)	<0.001
Sex		
Female	1.10 (1.02-1.17)	<0.05
Comorbidities		
Obesity	0.92 (0.83-1.03)	0.14
Renal Disease	1.16 (0.95-1.42)	0.14
Smoking	1.18 (1.05-1.34)	<0.01
Hyperlipidemia	0.88 (0.83-0.94)	<0.001
Hypertension	1.09 (1.02-1.17)	<0.05
CAD	1.02 (0.90-1.15)	0.77
Congestive Heart Failure	1.24 (0.99-1.56)	0.06
Rheumatoid Arthritis	1.01 (0.86-1.17)	0.93
Diabetes	1.18 (1.07-1.30)	<0.001
Depression	1.13 (1.04-1.23)	<0.01
Anxiety	1.02 (0.89-1.17)	0.77
Injection		
Steroid	1.13 (1.04-1.23)	<0.01
Hyaluronic Acid	1.11 (0.90-1.36)	0.33
Year of surgery		
2014-2016>2010-2013	1.25 (1.17-1.34)	<0.0001

Significant p values highlighted in bold



Conclusions

- Patients who required an additional opioid refill were originally prescribed an average of 20 more pills than those who did not require a refill.
- Patients undergoing surgery from 2014-2016 were prescribed more opioids than those who had surgery between 2010-2013.
- Significant risk factors associated with additional opioid requirement were: older age, female gender, smoking, hypertension, diabetes, depression, and steroid injection in the 6 months prior to surgery.
- Despite strong attention towards the opioid epidemic there has been an increase in the amount of opioids prescribed after CMC arthroplasty in recent years.
- Overprescribing after CMC arthroplasty may lead to dependence and an increased necessity for a second prescription.
- From our findings, patients should not be prescribed more than 28 opioid tablets following their CMC arthroplasty, and even less if possible, with increased attention to those patients with significant risk factors