

Opioid Prescribing Patterns following Rotator Cuff Repair: A Multicenter Retrospective Analysis

Tuandat Nguyen, Qudratullah S. Qadiri¹, Lorraine Hutzler², Santiago Rengifo, Asif M Ilyas

¹Rothman Orthopaedics, ²NYU Hospital For Joint Diseases

INTRODUCTION: In the United States, opioid overdose accounts for roughly 75% of all drug overdose deaths, which have climbed to over 100,000 deaths annually. Worst, the 12-month period ending in April 2021 recorded a 28.5% year-on-year increase in overdose-related mortality. With recent research suggesting that opioid requirements following rotator cuff repair are generally lower than previously noted, orthopaedic surgeons are presented with a challenge to decrease inadvertent over-prescribing. The present study aims to characterize the variability in daily morphine milligram equivalents (MMEs) prescribed following rotator cuff repair, in order to identify discrepancies in opioid prescription patterns which could provide opportunities to reduce opioid prescription rates to combat the opioid epidemic.

METHODS: An electronic conglomerate database query retrospectively identified all patients who underwent rotator cuff repair at two non-profit, academic healthcare systems during a five-year period from 2017-2021. Records were reviewed for daily morphine milligram equivalents (MMEs) prescribed following rotator cuff repair surgery. These data were reported by mean, standard deviation, and range, then stratified by age, BMI, and gender. The data were also stratified by low, high, and very high MMEs (<50, 50-90, >90, respectively).

RESULTS:

A total of 2,964 rotator cuff repairs were identified during the five-year study period. In total, patients were prescribed an average of 10.48 ± 12.05 MMEs per day following rotator cuff repair, with prescriptions ranging from 0.01 to 225.00 MMEs per day. By age cohort, daily MMEs prescribed were the highest in the 21-35 year-old cohort, with lower average daily MMEs in each subsequent age cohort. The difference between daily MMEs prescribed for patients up to 65-years-old versus patients older than 65 was statistically significant (10.94 vs. 9.75, p<0.01). Men were prescribed an average of 10.81 MMEs per day, while women received a mean of 10.12 MMEs per day, a difference that did not meet statistical significance (p=0.161). With regard to BMI, the higher BMI cohorts saw higher mean MMEs prescribed, however the difference between daily MMEs prescribed for patients with BMI<30 versus BMI ≥ 30 was not statistically significant (10.98 vs. 10.13, p=0.070). Average number of prescriptions rendered was stable across subgroup analyses. When stratified by low, high, and very high MMEs, 98.6% of patients received <50 daily MMEs (n=2922), 1.1% of patients received 50-90 daily MMEs (n=33), and 0.3% of patients received >90 daily MMEs (n=9). Finally, average daily MMEs prescribed has trended downward in the five-year period assessed in this study, from a daily average of 13.77 MMEs in 2017 to 8.59 in 2021 (p < 0.01).

DISCUSSION AND CONCLUSION:

The 5-year trend in average daily MMEs prescribed following rotator cuff repair surgery shows a statistically significant decrease in opioid prescription rates between 2017 and 2021. On average, patients under the age of 65 receive more MMEs per day than patients 65-years and older. Biological sex and BMI are not associated with a statistically significant difference in average daily MMEs. The vast majority of patients receive opioid prescriptions of less than 50 MMEs, though some patients receive prescriptions in excess of 90 MMEs per day.

Table 1: Daily Morphine Milligram Equivalents

		N	Mean	SD	Min	Max
Overall		2,964	10.48	12.05	0.01	225.00
Healthcare System	Institution 1	2,634	10.17	11.60	0.01	225.00
	Institution 2	330	13.16	14.91	0.10	145.00
Age	<21	7	10.93	5.65	1.50	17.50
	21-35	51	11.89	8.79	0.30	40.00
	36-50	490	10.87	13.12	0.15	145.00
	51-65	1,546	10.72	12.53	0.01	225.00
	>65	870	9.74	10.69	0.01	100.00
Sex	Male	1,555	10.81	12.24	0.01	225.00
	Female	1,409	10.12	11.83	0.01	165.00
BMI	<18.5	12	9.90	8.33	1.07	30.00
	18.5-30	1,290	10.13	10.09	0.01	105.00
	>30	1,563	10.98	13.70	0.01	225.00

Table 2: Number of Prescriptions Rendered

		N	Mean	SD	Min	Max
Overall		2,964	2.33	2.61	1	23
Healthcare System	Institution 1	2,634	2.40	2.66	1	23
	Institution 2	330	1.79	2.10	1	10
Age	<21	7	1	0	1	1
	21-35	51	2.12	3.41	1	20
	36-50	490	2.37	2.79	1	23
	51-65	1,546	2.22	2.48	1	15
	>65	870	2.53	2.67	1	15
Sex	Male	1,555	2.37	2.57	1	20
	Female	1,409	2.39	2.65	1	23
BMI	<18.5	12	2.50	2.71	1	7
	18.5-30	1,290	2.28	2.52	1	15
	>30	1,563	2.33	2.67	1	23

Figure 1: Average Daily MMEs Between 2017-2021

