Fibromyalgia Patients Have Markedly Greater Postoperative Opioid Use and Emergency Department Visits Following Bunionectomy

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INTRODUCTION:

Fibromyalgia is a chronic disorder characterized by widespread body pain, localized areas of hyperesthesia, and pervasive fatigue. Worldwide, it affects 2.7% of the population, yet the disorder is disputed due to the absence of specific laboratory findings. Current diagnostic criteria include pain spanning from the head to the lower extremities but, notably, exclude the feet and ankles. While research has shown that fibromyalgia can lead to poor surgical outcomes, limited research has been conducted on how a fibromyalgia diagnosis affects outcomes following foot surgery. This is surprising given the prevalence of fibromyalgia in foot surgery patients is estimated to be 13.9%.

One of the most common foot conditions is hallux valgus, a chronic orthopedic deformity characterized by lateral deviation and protonation of the great toe. While this deformity typically has favorable surgical outcomes after bunionectomy, left untreated, it can cause significant pain, functional limitations, and decreased quality of life. This study aims to determine whether patients with fibromyalgia experience worse postoperative outcomes, as measured by opioid usage and emergency department (ED) visits following bunionectomy.

METHODS:

We conducted a retrospective cohort analysis using a comprehensive national insurance database, Pearldiver. This database contains deidentified, longitudinal data on 161 million individual patients through most private and government insurance products. We identified patients who underwent bunionectomy between 2017 and 2019 using the CPT code 28296 and stratified these patients by preoperative fibromyalgia diagnosis using the ICD-10 code M797. For each patient, preoperative and postoperative opioid use within 90 days of surgery was measured using mean morphine equivalents (MME). The number of patients visiting the ED within a 6-month postoperative period was collected, and the number of visits made by each patient was noted. Fibromyalgia patients were compared to those without a diagnosis using Chi-squared tests for categorical variables and independent t-tests for continuous variables. Odds ratios (OR) were calculated for frequency data, and $p<0.01$ was used for statistical significance.

RESULTS:

We identified 45,648 patients who underwent bunionectomy between 2017 and 2019; of those, 1,854 patients had a diagnosis of fibromyalgia before bunionectomy. Patients who had fibromyalgia were more likely to take opioids in the 90-day preoperative period, OR 3.2 (CI 2.9-3.5 $p<0.0001$), and took 7.6 times more opioids per day (67.1 vs. 8.8MME). These patients were also more likely to take opioids in the 90-day postoperative period, OR 5.6 (CI 5.0-6.2, $p<0.0001$), and took 5.6 times more opioids per day (61.3 vs. 10.8MME). Fewer patients in both groups took opioids one year after surgery. During the six-month post-operative period, fibromyalgia patients were more likely to present to the ED, OR 5.1 (CI 4.6-5.6, $P<0.0001$). A more granular analysis of these visits revealed that, among fibromyalgia patients, 12.7% of patients had only one visit, 10.5% had two visits, 5.6% had three visits, 3.4% had four visits, 2.4% had five visits, and 8.9% of patients had more than five visits. Not a single non-fibromyalgia patient visited the ED more than once within a six-month postoperative period. A summary of this data is found in Table 1.

DISCUSSION AND CONCLUSION:

This study shows that patients with fibromyalgia are 3.2 times more likely to use opioids 90 days before surgery, 5.6 times more likely to use opioids 90 days after surgery, and 5.1 times more likely to visit the emergency department following a bunionectomy. Additionally, fibromyalgia patients consume a higher quantity of opioids both before and after surgery. Comparing the utilization of opioids prior to and after surgery, a greater percentage of fibromyalgia patients used opioids, whereas a lesser percentage of non-fibromyalgia patients used opioids within 90 days. The proportion of patients taking opioids one year postoperatively decreased in both groups.

While these trends might be expected, the scale of these findings is surprising. Previous research looking at total hip arthroplasty outcomes indicated that fibromyalgia patients were 1.3 times more likely to take opioids 90 days after surgery and 1.3 times more likely to visit the emergency room. The significant difference between the magnitudes of these studies suggests that pain management after bunionectomy can be particularly challenging. Therefore, careful patient selection and comprehensive pre-operative counseling are crucial to ensure patients have realistic expectations about postoperative recovery.

While this study looked at several proxies for postoperative pain, future research could consider utilizing validated pain surveys to quantify how postoperative bunionectomy pain compares to baseline pain in fibromyalgia patients. In addition,

because fibromyalgia patients may visit the emergency room more at baseline, non-database studies would be better equipped to ascertain what proportion of emergency visits and opioid use is due to bunionectomy versus other healthcare needs.

To our knowledge, this is the first large study to look at postoperative pain in fibromyalgia patients receiving a common foot surgery. Our data suggests that these patients have significantly more opioid use and emergency visits in the postoperative period. Given the reported coincidence of fibromyalgia in bunion patients, those considering this operation should be informed of the possibility of exacerbations of postoperative pain. Future patient counseling may consider if these challenges outweigh a patient's preoperative condition.

Table 1. Healthcare utilization for patients undergoing bunionectomy between 2017 and 2019, stratified by fibromyalgia diagnosis.

N=45,648	Fibromyalgia N=1,854	No Fibromyalgia N=43,794	Odds Ratio	95% CI	P-value
Number of patients with opioid use 90 days before bunionectomy	1,182 (63.8%)	15,691 (35.8%)	3.2	(2.9-3.5)	**<0.0001**
Mean morphine equivalents taken per person per day	67.1±164.6	8.8±28.6			**<0.0001**
Number of patients with Opioid use 90 days after bunionectomy	1,330 (71.7%)	13,681 (31.2%)	5.6	(5.0-6.2)	**<0.0001**
Mean morphine equivalents taken per person per day	61.3±154.4	10.8±31.8			**<0.0001**
Number of patients with Opioid use 365 days after bunionectomy	728 (39.3%)	7,939 (18.1%)	2.9	(2.7-3.2)	**<0.0001**
Number of patients with emergency department visit, 6 months postoperative period	807 (43.5%)	5,768 (13.2%)	5.1	(4.6-5.6)	**<0.0001**
Number of patients with…					
1 visit	236 (12.7%)	5,768 (13.2%)			
2 visits	194 (10.5%)	0 (0%)			
3 visits	104 (5.6%)	0 (0%)			
4 visits	63 (3.4%)	0 (0%)			
5 visits	45 (2.4%)	0 (0%)			
>5 visits	165 (8.9%)	0 (0%)			