

Opioid Prescribing Practices Following Otologic and Neurotologic Surgery

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Abstract

There is no consensus on the appropriate quantity of opioids to prescribe for acute postoperative pain. Recent publications have found the number of pills prescribed by otolaryngologists following common ear, nose, and throat procedures varies widely and patients typically do not consume the entirety of their prescription. This study aims to provide insight into opioid prescribing practices at Aurora Health Care by retrospectively examining the medical records of patients that underwent an otologic or neurotologic surgery. Over 85% of postoperative opioid prescriptions were written for 30 tablets of 5-325 mg hydrocodone-acetaminophen. Refills of postoperative opioid medications were requested by 16% of patients. Our findings suggest opioid use following surgery may be influenced by surgery type, quantity of opioids given in the PACU, pain during PACU recovery, and patient age. A future prospective study of patients undergoing otologic and neurotologic procedures will be conducted to better understand how these patients use opioid pain medication to manage postoperative pain.

Introduction

Surgeons have the second highest rate of opioid prescribing among medical specialties, accounting for nearly 37% of opioid prescriptions between 2007 and 2012.[1] The overprescribing of opioids is a topic of concern in the medical community due to the role of opioids in drug overdose deaths. In 2018, nearly 70% of the 67,367 reported drug overdose deaths were attributed to opioids.[2] Several systematic reviews have identified a general trend of overprescribing of opioids following surgical procedures, leading to an estimated 42% to 71% of postoperative opioids remaining unused by the patient.[3,4]

Recent reports have begun to highlight prescribing practices following common ear, nose, and throat procedures. Otologic (ear) surgeries tend to have the lowest postoperative pain of all otolaryngologic procedures and surgeons tend to prescribe a lower number of opioids following otologic surgery compared to other otolaryngologic procedures.[5-7] Two recent studies by Mahairas et al. [8,9] found otologic surgery patients were prescribed 36 pills on average per opioid script; three other studies report otologic surgery patients use 10 pills or less, on average, to control postoperative pain.[10-12] The evidence of opioid overprescribing following otologic procedures warrants additional studies describing opioid prescribing and use practices following otologic and neurotologic surgeries to supplement the sparse, but growing, body of knowledge.

Methods

This is a retrospective medical record review study. The medical records of patients that underwent an otologic or neurotologic surgery performed by a board-certified neurotologist at any Aurora Health Care facility between October 1, 2018 and August 24, 2020 were examined for inclusion. Records were excluded if the patient was admitted to the hospital or had any other surgeries (except for Thiersch graft procedures following tympanomastoidectomies) in the two weeks before and after the qualifying procedure. Data extracted for this study include demographics; details of opioid prescriptions written from 60 days prior to surgery to 28 days after surgery; opioid, non-opioid analgesic, and corticosteroid medications given on day of surgery; duration of surgery; and pain scores reported during PACU recovery. For patients that were admitted for overnight observation following the qualifying otologic/neurotologic procedure, details of opioid and non-opioid analgesics administered during the inpatient stay were also extracted.

References

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Results

Patient Characteristics

A total of 235 patient records met eligibility criteria. Patient demographics, surgery types, and initial postoperative opioid prescriptions are described in Table 1. The mean patient age was 52.2 years (range 14-93), mean BMI was 30.7 (range 18.1-64.7), and 55.3% of patients were female. More than half of the patients had a procedure that included a mastoidectomy: there were 85 tympanomastoidectomies, 41 cochlear implantations, and 14 other. Procedures without a mastoidectomy included 45 tympanoplasties, 23 stapedectomies, and 10 other. Seventeen patients underwent BAHA implantation. All but five patients received a postoperative opioid prescription. Eighty-five percent of patients received an initial prescription written for 30, 5-325 mg hydrocodone-acetaminophen tablets. Patients received an average of 152.4 morphine milligram equivalents (MME) for the initial opioid prescription.

Table 1. Patient Demographics and Opioid Prescribing Details

Patient Characteristics	All Patients (n = 235)
Age in years, mean (range)	52.2 (14-93)
BMI, mean (range)	30.7 (18.1-64.7)
Female, n (%)	130 (55.3%)
Surgery Type, n (%)	
Mastoidectomy (excl. Tymp-Mastoid)	55 (23.4%)
Tympanomastoidectomy	85 (36.2%)
No Mastoidectomy	78 (33.2%)
BAHA Implantation	17 (23.5%)
Postoperative Opioid, n (%)	
Hydrocodone-Acetaminophen (30 tablets)	200 (85.1%)
Hydrocodone-Acetaminophen (other amt.)	13 (5.5%)
Oxycodone-Acetaminophen	8 (3.4%)
Acetaminophen-Codeine	6 (2.6%)
Tramadol	2 (0.9%)
None	5 (2.1%)

Refill and No Refill Cohorts

Refills of opioid pain medication were requested by 38 patients (16%). Males and females requested refills at the same rate. Requests were made, on average, 7 days after surgery and all requests were made within 18 days of surgery. The characteristics of the patient cohort that requested refills and the patient cohort that did not request refills are described in Table 2. The cohort that requested refills was younger, reported higher pain scores during PACU recovery, and received significantly more intravenous fentanyl and oral opioids during the perioperative period compared to the patient cohort that did not request a refill. BMI was not significantly different between the "refill" and "no refill" cohorts.

Table 2. Refill and No Refill Cohort Characteristics

	Refill (n = 38)	No Refill (n = 197)	P value
Age in years, mean (SD)	47.7 (13.8)	53.1 (16.9)	$p < 0.05$
BMI, mean (SD)	31.7 (7.1)	30.5 (7.0)	$p = 0.36$
Perioperative Fentanyl mcg, mean (SD)	190.8 (76.5)	145.4 (82.0)	$p < 0.01$
PACU Oral Opioid MME, mean (SD)	5.9 (4.6)	3.5 (4.3)	$p < 0.01$
Highest PACU Pain 0-10 scale, mean (SD)	6.6 (2.3)	4.3 (2.9)	$p < 0.0001$

Factors Influencing Refill Requests

Patient demographics and surgical characteristics were investigated further to determine if any patient or surgical factors were associated with higher rates of opioid refill requests. Figure 1 illustrates the percentage of refill requests from patients based on decade of age, BMI classification, PACU pain score, and surgery type. Patients in their 40s requested refills at the highest rate of all decades at 32% (Figure 1A). Refill request rates were similar between BMI categories; 13% of patients with a BMI under 30 requested a refill, while 18% of patients with a BMI of 30 or higher requested a refill (Figure 1B). Patients with more postoperative pain during PACU recovery requested refills at a higher rate. Forty-one percent of patients rating their pain as an 8 out of 10 or higher requested a refill, compared to just 11% of patients rating their pain as a 7 or lower (Figure 1C). Refills requests were highest for patients that underwent a tympanomastoidectomy or BAHA implantation: 22% of tympanomastoidectomy patients and 24% of BAHA implantation patients requested a refill, compared to 15% of mastoidectomy patients and 9% of non-mastoidectomy patients (Figure 1D).

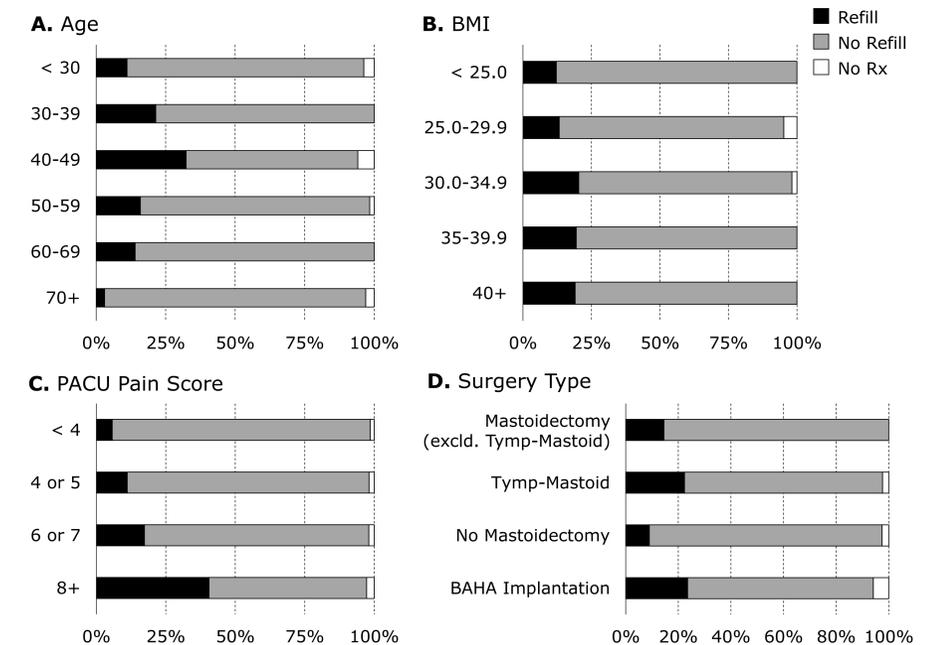


Figure 1. Refill Requests by Age, BMI, Pain Score, and Surgery Type. Percentage of patients requesting a refill of opioid pain medication by A) decade of age; B) BMI; C) highest pain score recorded during PACU recovery; and D) surgery type. Black bars indicate percentage of patients that requested a refill; grey bars represent percentage of patients that did not request a refill; white bars indicate percentage of patients that did not receive an initial opioid prescription for postoperative pain.

Conclusions

This retrospective study of opioid prescribing practices for otologic and neurotologic surgery patients found over 85% of patients received the same type and quantity of postoperative opioids, despite large variations in patient demographics and surgery characteristics. Refills of postoperative opioid medications were requested by 16% of patients; the patients requesting refills were significantly younger, reported significantly higher pain scores during PACU recovery, and received significantly more opioids during the perioperative period compared to patients that did not request a refill. BMI does not appear to significantly impact the rate of refill requests. Patients that underwent a tympanomastoidectomy or BAHA implantation requested a refill more often than patients that underwent other otologic/neurotologic procedure types. A prospective study of otologic and neurotologic surgery patients will be conducted in the future to collect additional data on opioid consumption in this patient group with the goal of refining prescribing practices to limit opioid overprescribing.