

Introduction

- The United States is suffering from an opioid crisis.
- 91 Americans die from an opioid overdose everyday.¹
- Victims are often not recipients of opioid prescriptions and people who use opioids for nonmedical reasons frequently report obtaining them from family and friends.¹
- Functional endoscopic sinus surgery (FESS) is among the commonest surgeries performed in the United States, with >250,000 surgeries performed annually.²
- The most common indication for FESS is chronic rhinosinusitis (CRS), which affects 12% of the adult population.²
- Hydrocodone combination analgesic products are commonly prescribed after FESS, but were involved in almost 100,000 abuse-related emergency department visits in the U.S. in 2011.³
- When evaluating postoperative pain after sinonasal surgery, Wise *et al.* found that pain level was low with little analgesic use needed.⁴
- Becker *et al.* found that the number of narcotic pain pills prescribed to patients after sinonasal surgery could be reduced without altering patient care.³
- Kempainen *et al.* conducted a clinical trial that concluded acetaminophen is a highly effective pain treatment after FESS.⁵
- There is a paucity of studies in the literature assessing pain levels after FESS and non-narcotic pain management alternatives.
- This study aims to quantify pain after routine FESS and determine the most commonly used pain management regimen.

Material and Methods

- Retrospective chart review of 63 patients who underwent FESS between October 2017 to May 2018 performed at a single tertiary care facility.
- Inclusion criteria: patients with CRS with or without sinonasal polyposis (SNP). Additional patient information collected included patient demographics, extent of surgery, intraoperative nasal packing and its type, and use of pre- and post-operative steroids.
- Exclusion criteria: concurrent sinonasal neoplasms or extensive surgery, such as nasal valve repair or anterior cranial base surgery.
- Patients completed a daily pain diary up to 10 post-operative days (POD) (**Figure 1**). Data from POD 7-10 were excluded from analysis due to a <25% response rate.
- Primary outcome measures: patient-reported pain levels using a visual analog scale (range 0-10) before and after analgesic use, and type and frequency of analgesic used.
- Patients were classified into two groups irrespective of POD
 - Group A: those who required analgesics for post-operative pain management
 - Group B: those who did not require analgesics

Please bring this form with you to your first post-operative appointment and give to provider

Patient Name: _____ DOB: _____ Date of Surgery: _____ Surgeon name: _____
Which narcotic medication(s) are you taking? Circle one
Norco (5-325mg) Tylenol #3 (300-30mg) Ultram (50mg) Other _____

Post-Op Day	Pain Level (0-10) (refer to visual analog scale below)	Narcotic Taken? Y/N	How many times a day?	How many tablets per day?	Pain level (0-10) after narcotic use	Other pain medication taken instead or in addition? Y/N	If so, what type of pain med & dose?	How many times a day?	How many tablets per day?	Pain level (0-10) after pain med use
0 (day of surgery)										
1 (first day after surgery)										
2 (second day after surgery)										
3 (third day after surgery)										
4 (fourth day after surgery)										
5 (fifth day after surgery)										
6 (sixth day after surgery)										
7 (seventh day after surgery)										

****If pain persists after day 7 prior to your first follow up appointment, please continue to fill out below****

0	1	2	3	4	5	6	7	8	9	10
No pain	Mild, annoying pain	Nagging, uncomfortable, troublesome pain	Distressing, miserable pain	Intense, dreadful, horrible pain	Worst possible, unbearable, excruciating pain					

Figure 1. Patient pain diary

Post-op Day	Overall mean pain score	Mean pain score		Median pain score	
		Group A	Group B	Group A	Group B
Day 1	4.2	5.2	2.9	5.5	2
Day 2	3.5	4.7	2.7	4.5	3
Day 3	2.9	5.0	2.1	5	2
Day 4	2.3	5.1	1.5	4.7	1
Day 5	2.1	5.2	1.3	6	1
Day 6	1.6	5.5	1.1	5.5	0

Table 1. Mean pain scores POD1-6 and comparison of pain scores between groups A and B

Results

- 50 patients with CRS who underwent FESS were included
- Mean age was 45.8 years. Male to female ratio was 0.85:1
- SNP or polypoid material was present in 94% patients
- Majority of patients used pre-op (62%) and post-op (90%) steroids.
- All patients used narcotics, some in combination with non-narcotics.
- Hydrocodone was the most frequently used narcotic (86%) and Acetaminophen monotherapy was the most commonly used non-narcotic
- Pain scores reduced each post-op day, with the highest mean pain score of 4.2 on POD 1 and the lowest score of 1.6 on POD 6 (**Table 1**).
 - Minimum mean and median pain scores for group A (minimum post-op pain threshold for analgesic usage) was 4.7 and 4.5 respectively.
 - Highest mean and median pain scores for group B (maximum post-op tolerable limit of pain score for analgesic non-usage) was 3.6 and 3 respectively (**Table 1**).
 - As early as POD1, 48% of patients were not using any form of analgesics
- The proportion of patients who required analgesics reduced gradually over the first six post-op days (**Figure 2**).

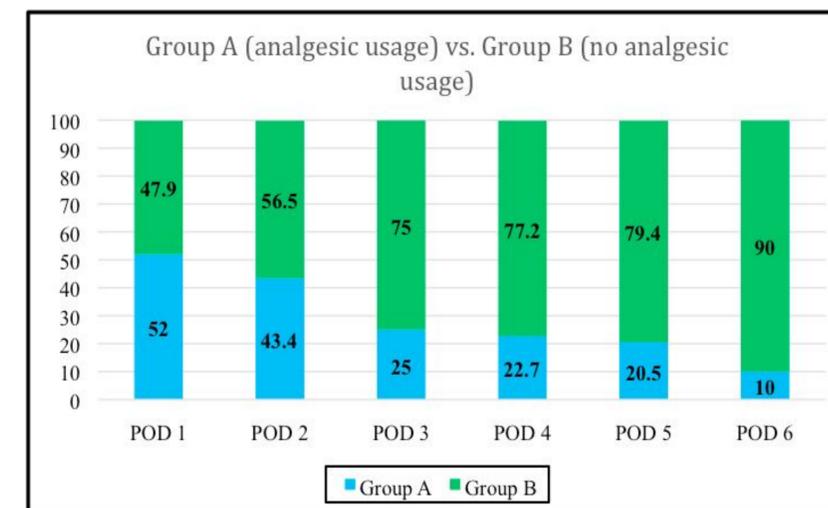


Figure 2: Proportion of patients who required analgesic usage (group A) and patients who did not require analgesic usage (group B) over the first 6 post-operative days.

Conclusions

- Post operative pain after FESS is relatively less intense in nature regardless of analgesic used
- Narcotics are mostly used only in the first two post-operative days, suggesting most patients need only two days worth of narcotics
- Non-narcotics such as Acetaminophen can be used to effectively manage post-operative pain after FESS

References

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3. Becker, S.D. and D.G. Becker, *Review and update on postoperative opioid use after nasal and sinus surgery*. Curr Opin Otolaryngol Head Neck Surg. 2018; 26(1): p. 41-45.
4. Wise, S.K., J.C. Wise, and J.M. DeGaudio, *Evaluation of postoperative pain after sinonasal surgery*. Am J Rhinol. 2005; 19(5): p. 471-7.
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