Postoperative Opioid Use Following Elective Endonasal Skull Base Surgery

Gregory J. Watson, BA\textsuperscript{a}, James W. Manor, MS\textsuperscript{b}, Nevan D. McCabe, MS\textsuperscript{b}, and Anne E. Getz, MD\textsuperscript{b}

\textsuperscript{a} University of Colorado School of Medicine at Anschutz Medical Campus, 13001 E. 17th Pl, Aurora, CO 80045

\textsuperscript{b} Department of Otolaryngology, University of Colorado, 12631 E. 17th Ave, 8225, Aurora, Colorado 80045; P: 303-724-1950; F: 303-724-1951

Introduction

- Postoperative analgesic protocols following Endonasal Skull Base Surgery (ESBS) are not well defined.
- Within the fields of otolaryngology and neurosurgery it is generally accepted that ESBS, performed by either a microscopic or endoscopic approach, is less painful compared to an open craniotomy approach.
- There remains a paucity of data on opioid prescribing patterns and use following these types of procedures.
- Recent studies have demonstrated that age, pre-existing history of mood or chronic pain disorders, and smoking status are independent variables that can predict increased opioid requirements.
- We sought to define opioid prescription patterns and identify demographic factors, comorbidities, and surgical complications associated with increased opioid prescribing patterns following ESBS.

Methods

- We performed a retrospective review of 500 patients who underwent ESBS between October 2015 and November 2020.
- Postoperative opioid refill rates were calculated based on anonymized Electronic Medical Record data and converted into Oral Morphine Milligram Equivalents (MMEs).
- Individual demographics, comorbidities, and intraoperative complications were analyzed independently.
- Odds Ratio and Chi-Squared analyses were performed to identify patient characteristics associated with increased postoperative opioid prescription rates.

Results

- Odds Ratio and Chi-Squared analyses were performed to identify patient characteristics associated with increased postoperative opioid prescription rates.
- Odds Ratios were performed to identify patient characteristics associated with increased postoperative opioid prescription rates.

Table 1. Patient Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Odds Ratio</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age &lt; 50</td>
<td>2.19</td>
<td>1.50 - 3.19</td>
</tr>
<tr>
<td>Headache/Migraine</td>
<td>1.90</td>
<td>1.33 - 2.69</td>
</tr>
<tr>
<td>Depression</td>
<td>1.86</td>
<td>1.32 - 2.59</td>
</tr>
<tr>
<td>Anxiety</td>
<td>1.83</td>
<td>1.21 - 2.76</td>
</tr>
<tr>
<td>Male Gender</td>
<td>1.60</td>
<td>1.01 - 2.55</td>
</tr>
<tr>
<td>Smoking Status</td>
<td>1.60</td>
<td>1.01 - 2.55</td>
</tr>
<tr>
<td>History of Headache/Migraine</td>
<td>1.40</td>
<td>0.98 - 2.02</td>
</tr>
<tr>
<td>History of Depression or Anxiety</td>
<td>1.40</td>
<td>0.98 - 2.02</td>
</tr>
<tr>
<td>Surgery Type</td>
<td>1.37</td>
<td>0.92 - 1.99</td>
</tr>
<tr>
<td>Meningioma vs Adenoma</td>
<td>1.27</td>
<td>0.87 - 1.87</td>
</tr>
</tbody>
</table>

Figure 1. Opioid refill odds ratio forest plot by patient characteristics.

Figure 2. Opioid refill odds ratio forest plot by decade of birth.

Figure 3. Percentage of patients who received an opioid prescription by year (bar) and mean MME per prescription (line).

Conclusion

- Smoking status, intraoperative CSF leak, age less than 50, history of mood disorders, and chronic headache or migraine were all associated with increased rates of opioid prescription refills in patients undergoing ESBS.
- Tumor pathology (adenoma versus meningioma), surgical approach (microscopic versus endoscopic), and patient gender analyses did not result in statistically significant differences in opioid refill rates.

Discussion

- Our research largely reaffirms findings from prior similar studies.
- Of the 96 patients within our study population who received an opioid refill during the postoperative period, 78 (81.3%) had at least one of the following: history of chronic headache or migraine, history of anxiety or depression, age less than 50 years old, or current smoking status.
- This suggests that most patients who demonstrate heightened pain experiences postoperatively may be predicted in the preoperative setting.
- This presents a valuable opportunity to reduce unnecessary opioid prescriptions and improve preoperative patient counseling.

Disclosures

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References