Post-Tonsillectomy Hemorrhage: A National Perspective

Shankar K Sridhara, MD (1); Rahul K Shah, MD (2); Lina Lander, ScD (3)

(1) Otolaryngology Head & Neck Surgery, National Capital Consortium, Washington, DC
(2) Division of Otolaryngology, Children’s National Medical Center, George Washington University School of Medicine, Washington DC
(3) Department of Epidemiology, University of Nebraska Medical Center College of Public Health, Omaha, NE

OBJECTIVE
To characterize patients nationwide admitted for control of post-tonsillectomy hemorrhage.

STUDY DESIGN
Descriptive study of data from a publicly available national database.

METHODS
• The Nationwide Inpatient Sample (NIS) is a publicly available database developed as part of the Healthcare Cost and Utilization Project, a Federal-State-Industry partnership sponsored by the Agency for Healthcare Research and Quality. The NIS is the largest all-payer inpatient care database in the United States
• The NIS 2006 was searched using the International Classification of Disease, Ninth Revision (ICD-9) procedure code 28.6 (control of post-tonsillectomy hemorrhage).
• No exclusion criteria were applied.
• Demographic data and concurrent procedure and diagnosis codes were analyzed for these admissions.
• Subgroup analysis was performed for those that received transfusion.
• Weighted data were reported.

RESULTS
• There were 3505 admissions for control of post-tonsillectomy hemorrhage in 2006
• Mean age was 18.3 years (SE 0.6), 49.2% were male
• Mean total charges were $11,833 (SE $659), mean length of stay was 1.47 days (SE 0.07).
• There were no mortalities
• The majority of patients were 19 years old or younger
• 3.5% had tobacco use disorder, 4.5% dehydration, 7.7% asthma, and 14% anemia
• 7.4% received transfusion of packed cells
• Total hospital charges were more than double ($22,445 (SE $3,602) vs $10,941 (SE $623) for those not transfused, p = 0.002)
• Mean age was 21.9 years (SE 2.5)
• Mean length of stay was 3.21 days (SE 0.54)

DISCUSSION

DEMOGRAPHICS
• Admission for control of post-tonsillectomy hemorrhage most commonly occurred in younger patients (under age 19)
• This is expected because the vast majority of tonsillectomies are performed in children
• There was no gender predilection

CONCURRENT DIAGNOSES
• 7.7% of admitted patients had asthma
• 3.5% had tobacco use disorder
• Further research is necessary to determine if these are independent risk factors for post-tonsillectomy hemorrhage

TRANSFUSION
• 14% had anemia and 7.4% of patients received transfusion of packed cells
• This is higher than the authors expected based on anecdotal experience
• Expectedly, these admissions were associated with higher hospital charges and length of stay

LIMITATIONS
• The use of a national database precludes in depth study of each patient encounter
• The validity and authenticity of the data presented relies on accurate reporting from numerous and varied institutions
• Because the NIS accounts only for hospital admissions, comparison to all patients undergoing tonsillectomy could not be performed since most tonsillectomies are performed as outpatient procedures

CONCLUSIONS
• This study is the first to characterize patients admitted for control of post-tonsillectomy hemorrhage on a national level in the United States
• Because tonsillectomy is most commonly performed in children, the majority of admissions for control of post-operative hemorrhage occurred in patients aged 19 years or younger
• Average total charges were $11,833
• Mortality was 0% from this dataset
• Surprisingly, 7.4% required blood transfusion, which was associated with significantly increased total hospital charges and length of stay

Table 1. Most Common Diagnoses in Admissions for Control of Post-Tonsillectomy Hemorrhage in 2006

<table>
<thead>
<tr>
<th>ICD-9 Code</th>
<th>Diagnosis</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>998.11</td>
<td>Hemorrhage complicating a procedure</td>
<td>99.3</td>
</tr>
<tr>
<td>285.1</td>
<td>Acute posthemorrhagic anemia</td>
<td>8.8</td>
</tr>
<tr>
<td>493.9</td>
<td>Asthma, unspecified</td>
<td>7.7</td>
</tr>
<tr>
<td>327.23</td>
<td>Obstructive sleep apnea (adult/pediatric)</td>
<td>6.2</td>
</tr>
<tr>
<td>401.9</td>
<td>Unspecified</td>
<td>4.6</td>
</tr>
<tr>
<td>276.51</td>
<td>Dehydration</td>
<td>4.5</td>
</tr>
<tr>
<td>305.1</td>
<td>Tobacco use disorder</td>
<td>3.5</td>
</tr>
<tr>
<td>474.00</td>
<td>Chronic tonsillitis</td>
<td>3.2</td>
</tr>
<tr>
<td>285.9</td>
<td>Anemia, unspecified</td>
<td>2.9</td>
</tr>
<tr>
<td>280.0</td>
<td>Anemia secondary to blood loss (chronic)</td>
<td>2.2</td>
</tr>
</tbody>
</table>

FIGURE 1: Frequency of Admission for Control of Post-Tonsillectomy Hemorrhage in 2006 by Decade of Life

* Admissions > 60 years old were negligible