Unexpected overnight stay following ENT day-case surgery: a 5-year audit

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Key-words. Day-case surgery, unexpected admissions, otolaryngology

Abstract. Unexpected overnight stay following ENT day-case surgery: a 5-year audit. Problems/objectives: Recent decades have seen a steady reduction in the average duration of hospitalization for all surgical patients, including those undergoing ENT procedures. Correspondingly, the proportion of day surgeries relative to in-patient surgeries has progressively increased. In the present observational study, we aimed to evaluate the proportion of unplanned overnight stays following planned day surgeries in our ENT unit, and the major causes of these unexpected overnight admissions. Methods: From databases, we collected data from all patients who underwent ENT day-case surgery in Ziekenhuis Oost-Limburg between January 2008 and December 2013. Results: A total of 10,440 patients underwent ENT day-case surgery during this period. The overall rate of unexpected overnight admission was 1.86%, with these overnight admissions most commonly due to anaesthetic (46.91%), surgical (19.59%), and organizational (17.01%) reasons. The types of ENT surgery at the greatest risk for prolonged hospitalisation were hemithyroidectomy (12.50%), tympanoplasty (12.15%), and uvulopalatopharyngoplasty (UPPP) (7.81%). We further identified a clear difference in the rate of unexpected overnight stay between surgery scheduled in the morning (1.17%) versus in the afternoon (12.98%). Conclusions: Our present findings highlight the various reasons for unexpected overnight admission after day-case surgery. To reduce the rate of unexpected overnight stays, we need to better understand these different reasons to support the ongoing search for possible solutions.

Introduction

Recent decades have seen a steady reduction in the average duration of hospitalization for surgical patients, with an associated increase in the proportion of day surgeries rather than in-patient surgeries.¹ Day surgery is suitable for operations that require only brief general anaesthesia and carry a low risk of postoperative complications necessitating in-hospital management. Many ear, nose, and throat (ENT) procedures can be safely performed as day cases. Compared to in-patient surgery, day-case surgery offers substantial advantages to the patient, including a shorter wait time for surgery, lower risk of nosocomial infection, less disruption of routine, and more rapid social and emotional rehabilitation. Moreover, the hospital costs are lower for day-case surgery, and there is no evidence of adverse effects of extra patient care at home or of outcome differences compared to the same procedures performed as in-patient surgery.² Directives for day surgery allow for a 2-3% rate of unexpected admissions.³ There are presently no recent data regarding the rate and major causes of unexpected overnight admissions following day surgery. In the present observational study, we aimed to evaluate the proportion of unplanned overnight stays in our ENT unit, and to determine the major causes for such overnight admissions.

Materials and methods

Study population

We retrieved data regarding all patients who underwent ENT day-case surgery between January 2008 and December 2013 from three databases: the digital operation room schedule (2008-2013), a manually created database including all patients with an unexpectedly prolonged stay (2008-2012), and data from the invoicing service (2009-2012). For each patient, we obtained the following data: surgery type, time of admission to the recovery room, unexpected overnight admission, and reason for overnight admission.
**Day-case surgery**

In our ENT department, almost every type of surgery is performed as day-case surgery, and day surgeries comprise an estimated 97% of surgeries. The most commonly performed types of surgery include grommets, adenoidectomy, tonsillectomy, turbinate surgery, septal surgery, functional endonasal sinus surgery, rhinoplasty, obstructive sleep apnoea surgery, laryngoscopy, otoplasty, myringoplasty, tympanoplasty, submandibular gland resection, thyreoglossal duct or branchogenic cyst resection, and hemithyroidectomy. Major oncological surgery, parotidectomy, and total thyroidecomy are performed as in-patient surgeries.

If the patient’s general condition permits it, there is no age limitation for undergoing day-case surgery. Patients with an ASA classification of greater than 3 are operated on an in-patient basis. The sequence of our surgical procedures is determined based on age, with young children operated first. Another advantage of day surgery is that we can often use the hospitalisation rooms twice per day.

**Anaesthesia method**

We avoid sedative premedication in patients scheduled for day-case surgery. Anaesthesia is routinely induced using propofol and fentanyl. Anaesthetic gases are used to maintain the anaesthesia in shorter operations. For longer surgeries, and when low blood pressure is required during surgery, we use propofol in combination with remifentanil. We generally avoid centrally acting analgesics, and instead use paracetamol and non-steroidal anti-inflammatory drugs for pain relief. To prevent postoperative nausea and vomiting (PONV), we routinely administer intravenous corticosteroids. These anaesthesia methods are used in all types of surgery, except for grommets and adenoidectomy. We almost never intubate our patients; therefore, they don’t receive fentanyl, only propofol.

**Results**

**General unexpected overnight stays**

To investigate general unexpected overnight stays, we reviewed data from the operation room schedule combined with the manually created database. Between January 2008 and December 2012, a total of 10,440 patients underwent ENT day-case surgery at our hospital. The rate of unexpected overnight admissions was 1.86% (194/10,440). This population comprised 106 women and 88 men, with a mean age of 34.4 years (age range: 1-82 years). The rate of unexpected overnight admissions was steady over time, with no trend towards increase or decrease (Table 1).

**Reasons for unexpected overnight stay**

Among the 194 patients who were unexpectedly admitted overnight following ENT surgery, the three main reasons for prolonged stays were anaesthesia-related PONV (39.18%), afternoon surgery (15.45%), and postoperative bleeding (12.37%). Table 2 summarizes the reasons for unexpected overnight admissions. We further classified these reasons into groups, finding that unexpected overnight admissions were most commonly due to anaesthetic (46.91%), surgical (19.59%), and organizational (17.01%) reasons (Table 3).

**Unexpected readmission relative to type of surgery**

Analysis of data from the invoicing service revealed that 6948 patients underwent ENT day-case surgery between January 2009 and December 2012. Within this population, the general rate of overnight stay was 1.79% (124/6948), which is comparable to the findings from the operation room schedule (2008-2012). The types of surgery at the highest risk for unexpected overnight admission included hemithyroidectomy (12.50%), tympanoplasty (12.15%), UPPP (7.81%), excision of the subman-

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**Table 1**

Overall unexpected overnight admissions following ENT day-case surgery according to year

<table>
<thead>
<tr>
<th></th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of procedures</td>
<td>1920</td>
<td>2001</td>
<td>2105</td>
<td>2199</td>
<td>2215</td>
<td>10,440</td>
</tr>
<tr>
<td>Number of unexpected overnight admissions</td>
<td>36</td>
<td>28</td>
<td>45</td>
<td>50</td>
<td>35</td>
<td>194</td>
</tr>
<tr>
<td>Percentage</td>
<td>1.88%</td>
<td>1.34%</td>
<td>2.13%</td>
<td>2.27%</td>
<td>1.58%</td>
<td>1.86%</td>
</tr>
</tbody>
</table>
Unexpected overnight stay after ENT surgery

The procedures frequently performed after 2:00 pm included septal surgery (53/405, 13.09%), rhinoseptoplasty (63/299, 21.07%), tympanoplasty (26/61, 42.62%), and hemithyroidectomy (12/38, 31.58%). Table 5 summarizes the rates of unexpected overnight readmission in relation to surgery timing.

Discussion

Our present observational study provides a broader insight into the occurrence of unexpected overnight admissions following ENT day-case surgery. Current directives for day surgery state that a 2-3% rate of unexpected readmission is acceptable. In our department, most ENT surgery is performed in the day-surgery setting, and our general rate of unexpected readmission was low (1.86%) (Table 1).
admission following these types of surgery. Firstly, they are most common in young children, who usually undergo operation early in the morning. Secondly, there is no need for intubation and, thus, we don’t use fentanyl during anaesthesia induction.

Similar to our present findings, the literature relating to tonsillectomy describes several types of otologic surgery, rhinologic surgery, and hemithyroidectomy as being safe to perform in a day-case setting due to their relatively low complication rates.

The most organizational factor that led to unexpected overnight admission was the performance of surgeries after 2:00 pm. As shown in Table 5, 94% of patients in our department were scheduled for surgery in the morning. The determination of whether a patient can return home after day surgery depends on the time available for post-operative recovery, especially in ENT surgery,

We highlight the major reasons for unexpected overnight admissions in Table 3. The most common reasons were PONV and other anaesthesia-related postoperative causes. In this respect, reliable cooperation with your anaesthetist is indispensable. PONV risk can be reduced by using an established protocol for anaesthesia and PONV management.

The next most common reasons for unexpected overnight admissions were surgical complications or extensive surgery. The surgeon’s experience is crucial for avoiding unplanned admission. In our department, we deliberately perform as many types of surgery as possible in the day-case setting. Day surgery offers substantial advantages to the patient, despite the higher rates of unexpected admission for some procedures. Notably, our general readmission rate is low, with no prolonged stay after grommet insertion or adenoidectomy. There are two obvious explanations for the absence of required overnight admission following these types of surgery. Firstly, they are most common in young children, who usually undergo operation early in the morning. Secondly, there is no need for intubation and, thus, we don’t use fentanyl during anaesthesia induction.

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which carries a common risk of haemorrhage and vomiting.\textsuperscript{1} Within our population, the overall rate of unexpected overnight admission was significantly higher among procedures performed in the afternoon (12.98\%) compared with those performed earlier in the day (1.17\%). This difference likely results from the timing of the surgery, but may also be partly explained by the types of surgery more commonly performed in the afternoon, which included septal surgery, rhinoseptoplasty, tympanoplasty, and hemithyroidectomy. Our comparison of the unexpected admission rates between the morning and afternoon procedures revealed a clear difference, with less readmissions in the morning surgery group, with the exception of rhinoseptoplasty. These results indicate that the main explanation for this difference is the time allowed for post-operative recovery.

Societal factors were also identified as a minor reason for unexpected overnight admission in our present study. This category included reasons such as lack of transport, lack of supervision at home, etc. This component of the unexpected admission rate could easily be reduced by taking a thorough patient history during the intake consultation.

**Conclusion**

Our present results highlight the different reasons for unexpected overnight admissions after day-case surgeries. Improving our understanding of these different reasons and further investigations to develop possible solutions are critical for reducing the prevalence of unexpected overnight stays.

**References**


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