Day care adenotonsillectomy in sleep apnoea

<table>
<thead>
<tr>
<th>Title of Guideline (must include the word “Guideline” (not protocol, policy, procedure etc))</th>
<th>Day care adenotonsillectomy in presence of sleep apnoea</th>
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</thead>
<tbody>
<tr>
<td>Contact Name and Job Title (author)</td>
<td>Tawakir Kamani and Mat Daniel ENT Consultants</td>
</tr>
<tr>
<td>Directorate &amp; Speciality</td>
<td>Surgery, ENT</td>
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<tr>
<td>Date of submission</td>
<td>Oct 2018</td>
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<td>Date when guideline reviewed</td>
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<td>Guideline Number</td>
<td>(Allocated by Guideline Lead)</td>
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<td>Explicit definition of patient group to which it applies (e.g. inclusion and exclusion criteria, diagnosis)</td>
<td>Children with mild / moderate sleep apnoea undergoing adenotonsillectomy</td>
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<tr>
<td>Abstract</td>
<td>Children with mild/moderate sleep apnoea diagnosed on sleep study are suitable for day-case adenotonsillectomy if they are aged 3 years or older and otherwise completely healthy.</td>
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<tr>
<td>Key Words</td>
<td>Paediatrics. Children. Sleep apnoea, tonsil, adenoid</td>
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</table>

Statement of the evidence base of the guideline – has the guideline been peer reviewed by colleagues?

1a meta analysis of randomised controlled trials

2a at least one well-designed controlled study without randomisation

2b at least one other type of well-designed quasi-experimental study

3 well –designed non-experimental descriptive studies (ie comparative / correlation and case studies)

4 expert committee reports or opinions and / or clinical experiences of respected authorities

5 recommended best practise based on the clinical experience of the guideline developer

Consultation Process

Team leaders on D34 and Ambulatory care. Pre-assessment nurses. Dr Thomas and Dr Hurley. Paediatric ENT Anaesthetists: Dr Leong, Dr Poulose, Dr Wake, Dr Sudarshan. Staff at Nottingham Children’s Hospital via the Guidelines E-mail process. ENT consultants.

Target audience

Staff at the Nottingham Children’s Hospital

This guideline has been registered with the trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt contact a senior colleague or expert. Caution is advised when using guidelines after the review date.
Document Control

Document Amendment Record

<table>
<thead>
<tr>
<th>Version</th>
<th>Issue Date</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1</td>
<td>3rd Nov 2014</td>
<td>Daniel</td>
</tr>
<tr>
<td>V2</td>
<td>21st Dec 2015</td>
<td>Daniel</td>
</tr>
<tr>
<td>V3</td>
<td>27th April 2018</td>
<td>Daniel</td>
</tr>
<tr>
<td>V4</td>
<td>16th Oct 2018</td>
<td>Kamani</td>
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</table>

General Notes:

This guideline does not describe OSA diagnosis or criteria for PHDU admission.

Summary of changes for new version:

V1: This is the first version.

V2: Changes to analgesia regimen

V3: Age reduced from 4 to 3 years, in keeping with American Academy of Otolaryngology Guidelines on day case adenotonsillar surgery. Weight limit reduced from >16 kg to 15 kg or more. Consultation process text revised to mention the paediatric ENT anaesthetists and Surgeons involved in v3 by name, and removing staff that have now left. Guideline reviewed by Paediatric ENT consultants, Paediatric ENT Anaesthetists, Paediatric Sleep Medicine Consultants, and Ambulatory Care Unit Sister.

V4: Time post-tonsillectomy stay as day case patient has been reduced to 4hrs from 6hrs (following an audit of 12 months tonsillectomies showing all primary bleeds occurred before 4 hrs). Oramorph is no longer required in the case of tonsillotomy/partial tonsillectomy/subtotal tonsillectomy. Guideline reviewed by ENT consultants, Ambulatory care sister, Paed anaesthesia group
Background
Obstructive sleep apnoea (OSA) has been associated with increased risk of respiratory complications after adenotonsillectomy in children. Recent American and French guidelines, as well as Nottingham University Hospitals local work, have clarified the need for overnight admission in these children. Not all children require admission, and same-day surgery is appropriate for some patients.

Selection of those that are suitable for same day discharge relies on accurate identification of OSA severity, so this policy only applies to those children that had a sleep study performed as part of their work up.

Grading of sleep studies
The typical sleep study at NUH involves at-home overnight oximetry. The degree of sleep-disordered breathing is typically graded as follows:

Guidance for Interpreting Oximetry studies (Nixon et al 2004)

<table>
<thead>
<tr>
<th>Grading</th>
<th>Baseline</th>
<th>No. of drops &lt;90%</th>
<th>No. of drops &lt;85%</th>
<th>No. of drops &lt; 80%</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal/inconclusive for OSA oximetry</td>
<td>Normal with mean saturation &gt;92%</td>
<td>&lt;3</td>
<td>0</td>
<td>0</td>
<td>&lt;3 clusters of desaturations and sats &gt;95%</td>
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<tr>
<td>Mild OSA</td>
<td>Clusters of desaturations (≥3) with increase in heart rate</td>
<td>≥ 3</td>
<td>≤ 3</td>
<td>0</td>
<td>3 or more clusters of desaturation events</td>
</tr>
<tr>
<td>Moderate OSA</td>
<td>Clusters of desaturations (≥3) with increase in heart rate</td>
<td>≥ 3</td>
<td>&gt;3</td>
<td>≤3</td>
<td>3 or more clusters of desaturation events</td>
</tr>
<tr>
<td>Severe OSA</td>
<td>Clusters of desaturations (≥3) with increase in heart rate</td>
<td>≥ 3</td>
<td>&gt;3</td>
<td>&gt;3</td>
<td>3 or more clusters of desaturation events</td>
</tr>
</tbody>
</table>

Admission criteria
The following patients should be admitted overnight for observation following adenotonsillectomy for OSA:
- Severe OSA on sleep study
- Age <3 yrs at time of surgery
- Presence of one or more of the “increased-risk” criteria which are:
  - Craniofacial or upper airway malformation
  - Neuromuscular problems or hypotonia
  - Right heart failure or increased pulmonary artery pressure
Morbid obesity
Lower airway infiltration (e.g., mucopolysaccharidosis)
Respiratory disease, bronchial hyperreactivity, current upper/lower respiratory tract infection

- Haemostasis abnormality
- Respiratory difficulties at induction on waking from anaesthesia

Day-case surgery criteria
The following patients would be suitable for same day discharge following adenotonsillectomy for OSA:

- Mild/moderate OSA on sleep study
- Aged 3 years or older
- Completely fit and well apart from OSA
- Weight 15 kg or more
- Lives within 45 minutes drive of QMC or 30 minutes from a secondary care provider with emergency services
- 2 adults available to care
- Working phone
- Access to transport
- Fulfils standard day-case surgery criteria

Pre-assessment
- Check whether child fulfils criteria for day-case or overnight surgery
- If sleep study was not performed but history indicates OSA, the child should be kept overnight
- FBC and G+S are not routinely required
- If personal or family history suggests a haemostatic abnormality (unusual or heavy bleeding/bruising), a haematology review should be obtained prior to surgery
- ECG

Ambulatory care
- Ideally first on list
- Continuous oxygen saturation monitoring
- If saturation <93% on air, contact operating surgeon/anaesthetist or ENT SHO/registrar on call
- Check temperature and HR as for routine post-tonsillectomy
- Encourage oral intake
- Give analgesia including oramorph unless Tonsillotomy/Intracapsular tonsillectomy
- They should stay in hospital for 4 hours
- Discharge should be performed by a nurse at band 6 or above

- Patients can be discharged if all the following are met:
  - Oxygen saturation is 93% in air or better
  - Child has had oramorph (except intracapsular tonsillectomy, in which case go home without oramorph)
  - Child has slept
  - Child has passed urine
Child has mobilised
Child is drinking and taking analgesia
(It is not required for a child to eat in order to be discharged)

- On discharge, parents should be given the following advice:
  - Analgesia, for example
    - Paracetamol: 15 mg/kg/dose, QDS, 5 days
    - Ibuprofen: 5 mg/kg/dose, QDS, 5 days
    - Oramorph: 100 mcg/kg/dose, PRN, maximum every 4 hrs, supply enough for 3 days (not in patients having undergone intracapsular tonsillectomy/ tonsillotomy)

| Codeine is contra-indicated in children having tonsil/adenoid surgery for OSA and MUST NOT be prescribed |

  - (Analgesia regimen may differ in some children if there are allergies or specific contra-indications)
  - (In normal circumstances, children should be given their first dose of opiates while still in theatre, or should be given Oramorph in recovery if they have not had opiates in theatre. Oramorph should only be given in recovery if the child is in pain; so if they have had IV morphine in theatre and are comfortable, they should not need Oramorph in recovery.

  - Encourage oral intake. Parents should make sure that the child is eating within 24 hours of surgery; if they are not they should contact Ambulatory care or D34, as below.
  - Return to Emergency Department if there is any bleeding at all
  - Attend Emergency Department or General Practitioner if the child is not eating / drinking, or has a fever
  - Telephone numbers for Ambulatory care (with opening times) and D34 (for other times) should be provided in case parents have queries. If nursing staff cannot deal with the query, they should contact the ENT F2/CT on call; ENT on call will also see any patients that attend ED and / or require admission. If a readmission is arranged by ENT, the patient should be advised to attend ED, the ENT doctor will call ED to inform them of planned attendance, and ENT will see the patient in ED.

- Children in whom same day discharge was planned should be admitted for overnight monitoring if
  - Child is not able to drink or take medication
  - Oxygen saturation is <93%

- Medical review should be sought if
  - There is concern about bleeding post-op
  - Oxygen saturation is <93% on air
  - Child is unable to drink or take medication
  - Uvula is noted to be swollen
NOTES
Desaturation during overnight Oxygen saturation monitoring in inpatients
Adenotonsillectomy does not cure every child, so some continue to desaturate when asleep. Desaturations that are self-correcting within 10 seconds and with lowest Oxygen level no worse that 85% do not require any intervention, and are not a reason to keep the patient in hospital another night; but such children should have a follow up sleep study organised at no earlier than 6 weeks post-op. If desaturations are lower than 85% or last more than 10 seconds, the medical team should decide whether keeping a child in for a second night is warranted (it is likely that another night of monitoring is appropriate for at least some children in this category).