

RCPCH Working Party on Sleep Physiology and Respiratory Control Disorders in Childhood

Lay Summary 2 – Obstructive Sleep Apnoea

What is Obstructive Sleep Apnoea?

Obstructive sleep apnoea/hypopnoea syndrome (OSA) is a condition in which a person stops breathing for a short time when they are asleep because of closing or narrowing of the throat. This can happen many times during the night, and causes the person to wake up for very short periods to allow normal breathing to restart (although usually the person often won't remember waking up). A child with sleep apnoea often snores, may be unusually sleepy or hyperactive during the day and may have problems in concentrating because of lack of sleep.

How common is OSA in children?

Around 1 in 10 children snores regularly, but only a minority of these have OSA – between 1 and 3% of primary school children.

Some conditions make it especially likely that a child will suffer from OSA. These are listed below.

The issues of OSA or other sleep-related breathing disorders in these conditions are dealt with separately. In addition, obesity increases the risk of OSA.

<i>Conditions at high risk of OSA or other breathing problems during sleep</i>			
Condition	Prevalence of condition	Abnormal breathing in sleep	Other comments
Down's syndrome	1 in 1,000 children	70-100%	High risk of pulmonary hypertension, especially if co-incident heart disease
Neuromuscular Disease	1 in 3,000	42%	Difficult to detect clinically. Reduced life expectancy, reversible by treatment
Craniofacial abnormalities	1 in 7,000	Depends on severity; 100% in severe cases	
Achondroplasia	1 in 25,000	48%	
Mucopolysaccharidoses	1 in 40,000	more than 90%	Difficult to detect clinically
Prader-Willi syndrome	1 in 52,000	25-75%	Hypoxaemia common. Abnormal central ventilatory responses co-exist

What are the risks of OSA?

OSA can cause impaired growth and development, and is associated with poorer academic performance. It can also put extra strain on the heart, and occasionally causes pulmonary hypertension, a very dangerous condition with elevated blood pressure in the lungs.

How can OSA be detected in children without underlying problems?

In addition to snoring, symptoms of OSA in children may include the following:

<i>Symptoms and signs associated with OSA.</i>	
During sleep	In the day
Snoring or snorts	Behaviour problems
Gasping or laboured breathing	Poor concentration
Witnessed pauses in breathing	Excessive tiredness (symptoms may be subtle)
Odd sleeping positions	Poor growth
Sweating	Morning headaches
Bedwetting	Mouth breathing and nasal speech
	Misshapen chest

Obviously, many of these symptoms are found in children who have normal breathing during sleep. If OSA is suspected because of a combination of other symptoms associated with snoring, then a preliminary test can be done with an overnight oxygen recording. In a child with typical symptoms, an abnormal oxygen recording is strongly suggestive of OSA, but a normal test does not rule it out. If the only symptoms are night-time breathing noises, but there are no apparent daytime consequences, this may be an adequate test. If there are concerns about daytime symptoms then a more detailed sleep study should be performed. This should be done in a centre with appropriately trained staff and a set-aside cubicle, and will involve a minimum of recordings of the electrocardiogram, breathing effort, breathing effectiveness, oxygen levels, and video and sound recording.

What can be done about OSA?

In most cases removal of the tonsils and adenoids will stop the breathing problems in the night. Medical treatment, such as nasal steroids have been used as short-term treatment but do not offer a long-term solution. Oxygen can be used to prevent the development of pulmonary hypertension, but it should only be started with careful monitoring of its effect on breathing.

Adenotonsillectomy can usually be done safely in a District General Hospital. However, there are some risk factors in children with OSA who face an increased risk during anaesthesia, and should only have an operation in a specialist unit with intensive care facilities available.

These risk factors are listed below:

Children who should only have adenotonsillar surgery for OSA in a centre with intensive care facilities.

- Age less than 2 years old
- Severe heart or lung disease
- Neuromuscular disease
- Craniofacial abnormalities
- Severe neurodisability
- Severe obesity

If adenotonsillectomy is not effective, then alternative treatments are orthodontic procedures such as mandibular advancement, or Continuous Positive Airway Pressure (CPAP) where a device is fitted to the nose during sleep to prevent the collapse of the airway.