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# *The Medical Minute: Sleep apnea in children*

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Obstructive sleep apnea (OSA) is a common sleep problem in children. Unfortunately, OSA is under diagnosed and often missed. OSA is often seen as a disorder in elderly or obese individuals, but is quite prevalent in children. It is estimated to occur in 1-3 percent of otherwise healthy preschool children. Children in the range of 2 to 9 years of age are most affected. These children are sometimes misdiagnosed with attention deficit hyperactivity disorder (ADHD) or assessed as having behavioral problems in school.

Apnea is described as pauses in breathing of more than two complete breaths in children -- approximately five seconds. Obstructive apnea is described as repeated cessation of airflow accompanied by continued respiratory effort. In this case, the airflow is stopped or limited due to an obstruction. Parents report that they see their child struggling to breathe but no air is going in or out. The apnea usually ends with a deep breath or a choking sound. These episodes happen multiple times at night. Out of fear, some parents have awakened their child in the middle of the night to make them breathe again. Cessation of breathing also can happen without the noted struggle to breathe which is called central apnea. This may be normal to some extent.

OSA in children is most commonly due to enlarged adenoids and tonsils, although some children with huge tonsils have no problems, and others with small tonsils have severe OSA. The size of the airway and muscle tone may also play a role. Nasal congestion, hypertrophied turbinates, gastroesophageal reflux, decreased muscle tone, etc. also can contribute to the obstruction. Although most children with OSA are not obese, the child's weight may contribute to the severity of OSA. High risk groups include children with facial deformities, cerebral palsy, muscular dystrophy and Down syndrome.

Snoring is seen in 20 percent of normal children and habitual snoring in 10 percent. However, loud snoring is one of the cardinal symptoms of OSA. These children are mouth breathers and have restless sleep at night. They may

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experience increased sweating during sleep and may exhibit paradoxical movement of the chest wall and abdomen during breathing. These children also may have severe parasomnias at night like sleep walking, night terrors, etc. Bed wetting is common as well as complaints of disruptive sleep and insomnia. These children are very difficult to wake up in the morning, often complaining of being tired and sleepy during the daytime. They can be irritable, moody, and inattentive to the point of having significant academic difficulties and school absences.

The presence of OSA cannot be determined by history and physical examination alone. An overnight sleep study is the gold standard for diagnosis of OSA. Children with family members who snore and have OSA need to be carefully evaluated. X-ray of the head and neck may show the narrowing or obstruction of the airway.

TREATMENT

Careful diagnosis is essential. The management depends on the severity of the apnea and other associated risk factors. In most cases, removing the tonsils and adenoids resolves the breathing- related sleep disorder. In children who have severe nasal congestion and chronic upper respiratory tract infection, additional measures may be needed. In some obese children, weight management alone may treat the issue. Medication for nasal congestion and avoiding sedating medications can help. Avoiding cigarette smoke and other environmental pollutants are also helpful. Oral appliances and positional therapy have shown promise. In cases where removing the tonsils and adenoids does not help, a CPAP (or Bilevel Positive Airway Pressure) device may be needed. A CPAP provides continuous air at a pressure to keep the airway open to breathe, but children usually take issue with this treatment. The FDA has not approved a CPAP machine specifically for children, but it is effective for children as young as 1 year old.

PROGNOSIS

Children show a dramatic resolution of their symptoms following the successful management of OSA. They show significant improvement in attention, academic function, and behavior at home and school. They also sleep peacefully at night and awaken refreshed. More research is needed to understand the natural course

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and long-term prognosis of OSA in children.

RECOMMENDATIONS

* All children should be screened for snoring.

* Loud snoring, attention and behavioral problems, weight gain and disturbed sleep at night warrants a sleep evaluation.

* If parents witness apnea at night, the child may benefit from a sleep study.

* A sleep study is the gold standard for diagnosis.

* Complex high-risk patients should be referred to a pediatric sleep specialist.

* Family members with OSA should raise suspicion.

For information or a consultation at Penn State Children's Hospital, call (717) 531-8520 or email sleep@psu.edu [1].

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Links:
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[1] mailto:sleep@psu.edu?subject=Medical%20Minute%20Article%20Response

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