Pediatric Obstructive Sleep Apnoea

Childhood is a time of growth and development. Like adequate nutrition, adequate sleep is essential for a child to grow and develop. In cases of sleep apnoea, the child may face developmental problems not only physically but also in terms of behavior, learning, and school performance. These problems may be averted with early detection and intervention.

Early detection and intervention has been shown to reduce the morbidities associated with OSA, chronic problems like heart disease and hypertension in adulthood. In the long term it predispose the child to poor school performance, poor focus and behavioral problems. In the short term, it may result in daytime sleepiness, poor school performance, poor focus and behavioral problems. In the long term it predispose the child to chronic problems like heart disease and hypertension in adulthood.

Signs and symptoms to look out for in children with OSA

The presentation of OSA in children differs from adults. The most common complaint is snoring, mouth breathing and sleep disturbances. Parents may notice apnoeic or choking episodes and increased respiratory effort with retractions or paradoxical movement of the chest and abdomen. Unlike adults who usually present with daytime tiredness, children may present with hyperactivity, poor school performance or conduct disorders. A young child may present with failure to thrive.

Besides assessing the size of the tonsils, it is also important to establish if the child has nasal obstructive sleep apnoea. Allergic rhinitis is prevalent in the general population, and it can compound the problem in the child with OSA. It is important to address nasal obstruction in the form of enlarged turbinate, deviated nasal septum or adenoid hypertrophy in children with OSA.

However, clinical findings alone are poor predictors of the severity of OSA. Studies have also shown that there is no correlation between the intensity of snoring and severity of OSA. A normal physical examination does not exclude OSA, and conversely, not all children with large tonsils have OSA. Thus, Polysomnography or sleep study may be needed to aid in the diagnosis of OSA.

Recent advances and surgical management of pediatric obstructive sleep apnoea

Paediatric OSA is a breathing disorder caused by recurrent episodes of upper airway obstruction during sleep, which result in the disturbance of normal respiratory and sleep patterns. Common symptoms of paediatric OSA include snoring, periods of not breathing, restless during sleep, daytime sleepiness, behavioral problems and poor academic performance.

This condition is one of a group of sleep disorders, termed sleep disordered breathing (SDB), which have been shown to negatively impact patients’ quality of life. The prevalence of paediatric SDB is reported to be as high as 10%. These numbers are increasing especially with the growing incidence of obesity in our population.

Obstructive sleep apnoea (OSA) in children has been shown to negatively impact quality of life, behavior and healthcare utilization. In the short term, it may result in daytime sleepiness, poor school performance, poor focus and behavioral problems. In the long term it predispose the child to chronic problems like heart disease and hypertension in adulthood.

Early detection and intervention has been shown to reduce the mortalities associated with OSA, improve school performance and reduce healthcare costs.

Treatment options

The first-line treatment of SDB in children is adenotonsillectomy (T&A) with approximately 500,000 procedures performed per annum in the USA, and more than 600 procedures per annum in Singapore. Often, this results in a marked improvement, however, studies have shown that about 15-20% of these children still have persistent OSA or a recurrence of symptoms.

Treatment failure can result from obstruction at multiple levels, beyond enlarged tonsils and adenoids. These areas of narrowing in the nasal, retropharyngeal and retroglossal regions occur more frequently in children with craniofacial abnormalities, Down’s syndrome and obese children, but it can also occur in otherwise normal children.

Newer treatment modalities include tongue base procedures, pharyngoplasty and palate procedures. The use of such additional measures has been shown to reduce the number of tracheostomies as well as provide a surgical cure for patients who are unwilling to continue with CPAP treatment.

The tongue base is recognized as a significant site of obstruction in a many of the cases of recurrent OSA. There have been multiple treatment modalities described to address the tongue base collapse in children. Transoral robotic surgery (TORS) has gained popularity over the past decade. This treatment approach offers the surgeon unparalleled visualisation and access to the surgical site, enabling precision excision of tissue in a very limited space. Combined with optimal visualisation of the tissue planes, this allows for more complete assessment and tissue resection, translating to minimised blood loss and better post-operative outcomes.

A SPECIALIST’S POINT OF VIEW – DR DAWN TEO

DR DAWN TEO
MBBS (S’pore), MRCOS (Edinburgh), MMed (ORL), FAMS (ORL)

Dr Dawn Teo is a fellowship-trained consultant Ear Nose Throat (ENT) surgeon. She is also the Medical director of The Children’s Eye & ENT Centre and The ENT Specialist Centre, and was appointed Adjunct Assistant Professor in Duke-NUS Graduate Medical School.

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Dr Dawn completed her medical degree and ENT Specialist training in Singapore where she graduated top of her cohort and was awarded the Academy of Medicine Gold Medal for Otolaryngology. She went on to pursue a clinical fellowship in Paediatric Otolaryngology at Children’s Medical Center at University of Texas Medical Center in Dallas, USA.

Besides being proficient in all aspects of general ENT, Dr Dawn Teo has a special interest in snoring and obstructive sleep apnoea in adults and children, robotic surgery, sialendoscopy for salivary gland disorders and various aspects of paediatric ENT problems like airway problems, sinus conditions, allergies, and hearing problems.

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