

Respiratory Indications for Polysomnography in Children

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Evidence rating system used? Yes

Literature search described? Yes

Guideline developed by participants without relevant financial ties to industry? No

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Although assessment of sleep disorders in children relies on the history and physical examination, polysomnography (PSG) is sometimes used to aid in the diagnosis. Because the test is relatively expensive, time-consuming, and used inconsistently, it is important for physicians to understand its strengths and limitations. The American Academy of Sleep Medicine has provided recommendations regarding the use of the test in children. This guideline focuses on the assessment and management of sleep-related respiratory conditions.

The guideline recommends that physicians use PSG in accordance with the American Academy of Sleep Medicine Manual for the Scoring of Sleep and Associated Events. The test is best tolerated when the caretaker of the child is present, the caretaker and child have been oriented to the sleep laboratory and given specific guidance in advance, the administrator of the test is experienced and comfortable working with children, and the laboratory is child-friendly.

Recommendations for the Use of PSG

ASSESSING SLEEP-RELATED BREATHING DISORDERS

PSG is recommended if the clinical assessment suggests obstructive sleep apnea (OSA). High-quality evidence indicates that clinical evaluation alone does not have adequate sensitivity or specificity to diagnose OSA, and that PSG is a reliable method for detecting the presence

of the condition in children. Based on clinical consensus, the test is also recommended to evaluate congenital central alveolar hypoventilation, sleep-related hypoventilation due to neuromuscular disorders or chest wall deformities, and selected cases of primary sleep apnea in infants. Infants with evidence of a sleep-related breathing disorder after an apparent life-threatening event should also receive PSG testing.

PREOPERATIVE INDICATIONS

PSG is indicated to confirm the diagnosis of OSA before adenotonsillectomy is performed. Data show that history and physical examination alone are limited in diagnosing OSA, and that preoperative PSG has strong clinical value before adenotonsillectomy for OSA.

ASSESSING RESPONSE TO TREATMENT

PSG should be performed in children with mild OSA and residual symptoms after adenotonsillectomy. One study showed that OSA can recur one year after surgery; therefore, patients should be evaluated regularly.

PSG is also indicated in those who had preoperative evidence of moderate to severe OSA; obesity; craniofacial anomalies obstructing the upper airway; or neurologic disorders, such as Down syndrome, Prader-Willi syndrome, and myelomeningocele. These children are at an increased risk of residual sleep-related breathing disorders, and it can be difficult to evaluate them clinically.

Follow-up PSG is recommended after treatment of OSA with rapid maxillary expansion or an oral appliance, and for positive airway pressure titration in patients with OSA and noninvasive positive pressure ventilation titration in children with other sleep-related breathing disorders. It is an option following mechanical ventilation and tracheostomy, but is not usually required for oxygen therapy.

RESPIRATORY DISEASE

Based on limited data, PSG should be considered in children with chronic asthma, cystic fibrosis, pulmonary hypertension, bronchopulmonary dysplasia, or chest wall abnormality if there is clinical suspicion of an accompanying sleep-related breathing disorder. ■