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Newer **R**esearch and recommendations **I**n **C**hild **H**ealth

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Management of Sleep disorders in children and young adults with neurodevelopmental disorders

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BASED ON ARTICLE

Ogundele MO, Yemula C. Management of sleep disorders among children and adolescents with neurodevelopmental disorders: A practical guide for clinicians. World J Clin Pediatr. 2022 Mar 15;11(3):239-252. doi: 10.5409/wjcp.v11.i3.239. PMID: 35663001; PMCID: PMC9134149.

ABSTRACT

There is a complex relationship between sleep disorders and childhood neurodevelopmental, emotional, behavioral and intellectual disorders (NDEBID). NDEBID include several conditions such as attention deficit/hyperactivity disorder, autism spectrum disorder, cerebral palsy, epilepsy and learning (intellectual) disorders. Up to 75% of children and young people (CYP) with NDEBID are known to experience different types of insomnia, compared to 3% to 36% in normally developing population. Sleep disorders affect 15% to 19% of adolescents with no disability, in comparison with 26% to 36% among CYP with moderate learning disability (LD) and 44% among those with severe LD. Chronic sleep deprivation is associated with significant risks of behavioural problems, impaired cognitive development and learning abilities, poor memory, mood disorders and school problems. It also increases the risk of other health outcomes, such as obesity and metabolic consequences, significantly impacting on the wellbeing of other family members. This narrative review of the extant literature provides a brief overview of sleep physiology, aetiology, classification and prevalence of sleep disorders among CYP with NDEBIDs. It outlines various strategies for the management, including parenting training/psychoeducation, use of cognitive-behavioral strategies and pharmacotherapy. Practical management including assessment, investigations, care plan formulation and follow-up are outlined in a flow chart.

COMMENTARY

Sleep disorders have been found to be associated with various behavioural disorders, inattention, disruptive behaviors mood, and concentration problems, and increased risk of depression, psychiatric symptoms, and suicidal tendencies. Sleep disorders have been seen in 3-36% of children and young adults while the incidence is as high as 75% in children and young adults (CYP) with Neurodevelopmental emotional, behavioral, and intellectual disorders (NDEBIP). This group contains but is not limited to children with Autism, ADHD, Learning disabilities, tic disorder etc. Studies have also shown a poor quality of life of caregivers and parenting stress in children with insomnia.

Pediatric Insomnia is defined as repeated difficulty with sleep initiation, duration, consolidation or quality that occurs despite the age-appropriate opportunity for sleep and results in daytime functional impairment for a child or family. The appropriate sleep duration for Preschoolers is 8-14 hours, for school children is 7-12 and for teenagers is 7-11 hours. Chronic sleep deprivation, Insomnia, and delayed sleep phase disorders are the most common sleep disorders in children.

In autism sleep disorders are the most common physical co-morbidity, while in ADHD the incidence of sleep disorders can be as high as 70%. With the increasing incidence and recognition of children with NDEBIP, all pediatricians should include questions regarding sleep in their routine health assessments. History can include questions on the sleep-wake cycle, bedtime routine, abnormal movements or behaviour during sleep, daytime effects of sleep deprivation, sleep onset latency, number of night awakenings, and sleep efficiency should be assessed. History should be followed up by a physical examination of obvious physical reasons like obesity, deviated nasal septum or tonsillar hypertrophy, etc,. and if found to be managed accordingly. Clinical assessment should be supplemented by a sleep diary which contains details of sleep for at least a 2-week period and additional questionnaires can be used.

This review gives a very comprehensive guideline on managing sleep disorders. As per evidence and recommendations from major bodies behavioural interventions are the cornerstone of managing sleep disorders. Easy-to-follow tips and having good sleep hygiene like ensuring consistent bedtime routines avoiding late naps or excessive vigorous exercise, avoiding the use of stimulant substances, arousing or disturbing mental, emotional, or physical activities close to bedtime, and exposure to TV, computers, and other electronic screens at least one hour before bedtime should be practiced. Caregivers should be asked to maintain a conducive sleep environment with minimal light and noise exposure. Eating within half an hour from bedtime and not consuming caffeinated or energy drinks after midday should be advised. Practicing self-relaxation (eg. Meditation, mindfulness, paced breathing) has also been shown to be beneficial in avoiding and managing sleep disorders.

The article also describes in detail various behavioral interventions which can be advised to follow for at least one month. In children who do not respond pharmacologic treatments can be used. While antihistaminics have been widely used even though research evidence is limited. Clonidine has been shown to improve total sleep time and reduce sleep onset latency. Clonidine has limited evidence despite being prescribed commonly in children with ADHD. Benzodiazepines, Zolpidem and Tricyclic antidepressants have not been recommended in children for sleep disorders.

Melatonin is an endogenous neurohormone secreted by the pineal gland. It has shown efficacy in reducing sleep latency and improving total sleep time, especially in children with Autism and other NDBEIP by robust quality evidence. A trial of melatonin should be the second line after behavioral interventions fail. Melatonin is not recommended in children with galactose intolerance lactase deficiency, glucose-galactose malabsorption, and in patients with lymphoproliferative disorder or on immunosuppressive treatment.

MENDS trial recommends it to be started in children who take > 1 hour to fall asleep after lights out or who sleep for less than 6 hours continuously. Most of the children respond best to a low or moderate dose of 2.5-6 mg.

IMPLICATIONS

1. Neurodevelopmental disorders are frequently associated with sleep disorders and treating sleep disorders can bring significant improvement in QoL in patients and caregivers
2. Behavioural interventions are the effective and first line of management.
3. In cases where behavioral interventions fail Melatonin in low to moderate doses may be helpful.

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