Sleep Challenges in Children with Neurodevelopmental Differences (NDDs)

Children with neurodevelopmental differences (NDDs) are at increased risk of sleep problems. A provincial survey reveals that 78% of children with NNDs have sleep difficulties compared to 25-40% in children who are neurotypical. Sleep problems are one of the most burdensome challenges for children with NDDs and their families. Sleep issues also affect emotional regulation and can create challenging daytime behaviours like aggression and self-injury.

Sleep difficulties in children with NDDs can have many causes, some of the more common ones are genetics, environmental causes, abnormal melatonin production, seizures, ADHD, medications and sleep hygiene.

1. UNDERSTANDING SLEEP DISORDERS

INSOMNIA
Can include bedtime resistance, difficulty falling asleep, difficulty staying asleep, frequent night awakenings, waking up too early and not being able to get back to sleep.

PARASOMNIA
Unwanted physical experiences during sleep or sleep arousal, including night terrors (screams, sweats, confusion), sleepwalking, sleep talking, bedwetting and frequent nightmares.

CIRCADIAN RHYTHM SLEEP DISORDER
The child’s sleep-wake cycle is not properly aligned and the desire to fall asleep does not match typical nighttime sleeping. Difficulty in starting sleep but once fallen asleep the sleep architecture is normal.

SLEEP RELATED BREATHING DISORDERS
Abnormal respiration during sleep which disrupts sleep patterns. These disorders are grouped into apnea, central sleep apnea and obstructive sleep apnea.

SLEEP RELATED MOVEMENT DISORDERS
Repetitive, rhythmic movements occurring during sleep. Can include periodic limb movement disorder, repeated limb jerking, restless leg syndrome and myoclonic jerks.

2. IDENTIFYING SLEEP PROBLEMS

Understanding the BEARS method
The BEARS method is a sleep screening tool used by specialists to help identify specific sleep issues. Using this tool can be useful to understand sleep problems and can lead to sleep investigations and plans. The screening questions are divided into five major sleep domains:

1. Bedtime problems
2. Excessive daytime sleepiness
3. Awakenings during the night
4. Regularity and duration of sleep
5. Snoring

Other questions during the screening process can include details about your child’s pre-sleep activities, bedtime routine, physical activity, parental response to nighttime awakenings, movements during sleep and medical

*Note: answering all these questions can be a bit overwhelming for caregivers but they are important to identify problems and create a consistent plan.

You’re not Alone!

Sleep difficulties in children with NDDs can have many causes, some of the more common ones are genetics, environmental causes, abnormal melatonin production, seizures, ADHD, medications and sleep hygiene.
Although causes and types of sleep problems in children with NDDs vary greatly, evidence shows that behavioural strategies to address sleep problems can be very beneficial to children with NDDs and usually result in improved total sleep time, a faster sleep onset and better sleep efficiency.

### Sleep Hygiene Education

A recent study found that any type of sleep hygiene education whether it’s through cognitive behavioural therapy (CBT), self-education or a health care professional providing education, can help improve sleep in children with NDDs.

#### Bedroom Environment

- Making the bedroom environment comfortable can also be beneficial and help your child relax. Here are some ideas:
  - Use comfortable bedtime clothing and fabrics your child likes
  - Arrange the blankets to provide the right amount of pressure
  - Use white noise such as a fan or noise blocking curtains
  - Keep the temperature consistent, 18.3 C (65F) is ideal
  - Avoid screens at night if possible (screens may also be calming for some children so a nightshift setting can be used)

#### Sleep Doctor

A doctor specialized in sleep, sleep disorders, and sleep health. A sleep doctor can have background in different medical specialties (ie. pediatrics, neurology, respirology) giving different approaches and ideas.

### Sleep Clinic and Studies

Sleep clinics and research studies can help investigate the causes of sleep problems and outline interventions. They can also provide educational opportunities in behavioural strategies to address sleep problems.

### Blood Test

One of the main reasons to do a blood test is to investigate iron levels. Iron plays an important role in sleep quantity, quality, and timing. Iron deficiency could cause restless leg syndrome and periodic limb movement disorder.

### Sleep Diary

A sleep diary is a tool to collect important sleep related information over time. Although not all sleep diaries are identical, they commonly include details about pre-sleep activities, sleep time, awakenings and more.

### Actigraphy

A device that measures the amount and frequency of limb movement and records motion. The data is recorded over multiple nights and is used to estimate sleep and wake patterns. It can be worn while sleeping at home.

### Polysomnography

A sleep study to investigate multiple sleep disorders including sleep-related breathing disorders parasomnias, sleep-related seizure disorders and restless leg syndrome. It measures sleep stages, breathing functions and more.
Creating a bedtime routine is one of the most important behavioural strategies. This routine does not have to be a traditional bed routine and can be anything that is calming, consistent and bedtime-specific. The goal is to make the transition to bedtime more seamless. Make it visual with pictures or schedule boards can be very helpful.

MEDICATIONS FOR TREATING SLEEP PROBLEMS

There are different types of medications used to treat sleep problems. Some are prescription medications and others are over-the-counter drugs and dietary supplements. Before trying any sleep medication please consult with your doctor. Some common medications to treat sleep problems in children with NDDs are:

**MELATONIN**
Melatonin is a hormone found naturally in the body. Melatonin’s main job in the body is to regulate sleep-wake cycles. Melatonin can help improve sleep efficiency, decrease awakening at night, resettling and less early awake time.

**IRON**
Iron is essential for many biological functions. Low levels of iron in the brain results in a decreased production of dopamine (an important neurotransmitter). Iron deficiency could cause restless leg syndrome and periodic limb movement disorder.

**GABAPENTIN**
Gabapentin is a medication to treat insomnia, restless leg syndrome and prolonged sleep onset in children who have sleeping difficulties. It can be very effective for increasing sleep efficacy and decreasing the amount of spontaneous arousal.

**CLONIDINE**
Clonidine is used to treat insomnia and behavioural challenges for children with NDDs. It can be effective in reducing onset time to sleep and decreasing night awakenings and could also improve mood instability and aggression.

**TRAZODONE**
Trazodone increases natural neurotransmitters in the central nervous system. Although trazodone was designed to treat depression and anxiety disorders, the medication is now prescribed as a nighttime sleep aid.

Every child is unique and can react differently to medications. Ask your physician to discuss doses, potential side effects as well as drug interactions and potential withdrawal symptoms associated with these medications.