Sleep in Children with an Autism Spectrum Disorder

Sleep, the amount of it and the quantity of it, is a major determinate of our day-to-day function. However, not only does it recharge the batteries but it is a time of learning. During sleep the information absorbed from the day before is 'hardwired' to become a more permanent source of knowledge, or of structuring in behavioural changes we have found to produce positive rewards. Just as staying up all night to cram for exams has been shown to be counterproductive, sleep deprived animals are more likely to revert to negative behaviour patterns despite rewards having being offered for positive behaviours before. It's as if sleep in appropriate quantity and quality is required for short-term memory to convert to long-term memory.

The appropriate quantity of sleep required is very varied from individual to individual. We all know, or have heard of, people who seem to thrive on 4-5 hours, whereas many of us know we need around 7-9 hours (average for adults) and some need more. As described above having appropriate quantity of sleep should never be considered a waste of time. The quality of sleep is better defined, as there is a fairly consistent pattern, which allows for deep sleep and waves of lighter dreamtime sleep. Without going into the proposed reasons for such a sleep pattern, for the average 8 hour sleeper, the pattern is: rapid descent into the most prolonged period of very deep sleep of the night for about 4 hours (the old adage 'the best sleep is before midnight'), followed by a brief awakening – often not remembered but you may just shuffle your pillow or pull the rug back off your partner. This is followed by another period of deep sleep, about 2 hours, brief awakening, then a fluctuating light dreaming sleep till eventually waking for the day. This pattern is called sleep architecture.

Appropriate sleep is essential for all but especially important for children with autism spectrum disorders – to store knowledge and to consolidate positive behaviour patterns. Although sleep problems are reported by parents as prevalent in the wider childhood community particularly with younger children (less than 3 years), and adolescents who often have sleep cycle problems (difficult to get off and difficult to wake up), there is clear evidence that sleep problems in children with autism spectrum disorders are more common than the general population. This fits with the observations made by many if not most of the parents I see.

Studies of children with autism show that at least two thirds of the children have problems with sleep onset, fragmented sleep (abnormal sleep architecture), and early awakenings.

A recent study from Finland compared sleep in children with Asperger Syndrome with a control group finding significantly greater problems in the Asperger group in:

Sleep onset
Abnormal sleep architecture and sleep maintenance
Sleep related fears
Negative attitudes towards sleeping and
Daytime tiredness

Short sleep duration was twice as common, trouble getting off to sleep five times as common, and children's own reporting of having a sleep problem eight times more common. As poor sleep quantity and quality also predisposes to anxiety, depression, agitation and proneness to aggressive behaviours, there is a double whammy effect of these documented sleep problems: poorer learning capacity and poorer psychological health.

As such regularisation of sleep patterns can have a profound influence on the child and those associated with the child.
The focus of most study as to why these differences exist is on a substance called meltonin. Melatonin is released in the brain in a cyclical manner. Melatonin regulates the sleep-wake cycle. Its release is to some extent based on light and on the season – why some parents bemoan the impact of daylight savings on the child's sleep!

In Asperger Syndrome anxiety is very common and anxiety may play a role in problems getting off to sleep. With poor sleep promoting anxiety it is difficult to know what is the chicken and what is the egg.

In terms of management there are a few options that may be tried.

1. **<u>Basic Sleep Hygiene</u>**

   That is having a good bedtime routine/structure such that the body gets into a regular habit. Being relaxed at the time of going to bed. I.e. Away from stimulatory sources such as TV's or playstations, minimising distractions – although some may find certain things such as music, or certain sounds to be relaxing, avoidance of stimulatory substances like coffee, tea or coke, relaxation exercises.

2. **<u>Anxiety Management Techniques</u>**

3. **<u>Melatonin</u>**

   This is available in many countries as an over the counter preparation and has been shown to be useful for such things as jet lag. There is also evidence of the positive impact of melatonin on sleep in children with autism spectrum disorders. It is a safe and 'natural' product; the only reported side effects (in a very small minority) being irritability and vivid nightmares. Melatonin is available from selected pharmacies (at widely varying prices!) on prescription.

You may also note it as a component in some sleep or calming agents in health food stores or chemists but the doses in these preparations are very very low compared to the doses that are shown to be effective (usually about 3 mg per night). Melatonin is available in droplet, liquid, or capsule form.

4. <u>Anxiety Reducing Medications</u>

Medications such as Lovan (fluoxetine) may be useful if they reduce anxiety although many of this class of drug can have a negative effect on sleep as one of their side effects.

5. <u>Other Medical Interventions</u>

Drugs that may be being used for other purposes (eg risperdal for aggression, catapres for ADHD) have sedating properties and generally help in getting off to sleep. It would not be my practice to use such medications primarily for sleep purposes as, although they promote the onset of sleep their effects on the quality of sleep is uncertain & they do have the potential for side effects.

Medications such as Phenergan, valergen, the 'azepams' (eg temazepam (normison), diazepam (valium)), and stilnox, should be avoided because of potential adverse effects including hyper stimulation, daytime somnolence, addiction and psychiatric symptoms. The short-term use (less than 2 weeks) of temazepam for specific purposes like a school camp may be acceptable.

6. <u>Herbal Medications</u>

The value of various herbal preparations or valerian is uncertain but unlikely to create harm.

So, what are the basic take home messages?

- Sleep is very important for learning
- Quantity and quality of sleep are both important
- Poor sleep predisposes to anxiety states, depression, irritability and anger
- Sleep problems are more common in children with ASD's
- Your child's sleep pattern is vitally important
- There are proven ways to try to regulate abnormal sleep patterns.

Any professionals you are dealing with (eg Paediatrician, counsellor, and educationalist) need to know of your child's sleep pattern particularly if it is problematic. There is usually some light at the end of the tunnel. (Is that the correct analogy I wonder?)

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