J. Indian Assoc. Child Adolesc. Ment. Health 2006; 2(3): 89-88

Practice Update

Treating the Sleep Disorders of Childhood: Current Practice in the United Kingdom

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ABSTRACT

Sleep disorders are common in childhood. Their prevalence is especially high in the presence of disability or chronic illness. They cause considerable stress to the children themselves and to their parents. Sleep deprivation leads to daytime behavioral problems and educational difficulties. In assessing sleep problems thorough history taking is essential. In the majority of cases laboratory technology is not needed. Medication plays a part in the treatment of some syndromes. Behavioral management techniques, applied by the parents, can be very successful.

Key Words: Children, Sleep, Disorder, Treatment

INTRODUCTION

The last quarter century has seen a remarkable growth in our understanding of sleep, its nature, its physiology and related disorders. Studies in the Eighties revealed that, in Western countries at least, young children are particularly prone to disturbances at night. In a community survey, Richman found that 20% of normal 1-2 year olds had sleep problems.[1] Mindell suggests that about 25% of children between 1 and 5 years old experience sleep disturbance.[2] Though older children appear to have fewer difficulties, a significant proportion of school age children have nocturnal problems. It is also well known that adolescence is characterized by a change in sleep and wakefulness caused by a variety of physiological and psychological factors.[3] It suffices to say that such factors as age, maturation, temperament, neurological state, health state (especially upper respiratory infection), mental state, parental health, and environment may contribute to the etiology of child sleep disorders in childhood and adolescence.[4]

Sleep disorders need to be treated seriously. Sleep deprivation can give rise to daytime fatigue, behavioural disturbance (such as hyperactivity), educational failure, growth retardation and obesity. The impact of these problems on parents and siblings can be considerable. Marital disharmony and depression are well recognized accompaniments. Consequently treatment is in the interests of the family as a whole.

The writer's experience is in a Western context where young children are separated from their parents at night from a very young age, which is very different from India where they sleep alongside their parents. It is possibly the case that many of the

problems that Western parents face arise directly from this night time separation. Thus some of the measures and practices described below in the sections relating to sleep hygiene and treatment of the under fives would not fit the needs of Indian families.

The Nature of the Disorders

Sleep disorders in children fall into two main categories, the dyssomnias and the parasomnias. The dyssomnias include those disorders that result in difficulty in either initiating or maintaining sleep or involve sleepiness. They are disorders that are associated with disturbed sleep at night or impaired wakefulness. The parasomnias, on the other hand, are disorders that disrupt sleep after it has been initiated and are disorders of arousal, partial arousal, or sleep stage transitions. They are intrusions in the sleep process but do not usually result in complaints of insomnia or excessive sleepiness.

ASSESSMENT

If possible, both parents should be present with the child for the assessment appointment. A sleep diary should be sent to the family in advance and the child's sleep patterns recorded for a week. Such information is much more valuable that a parent's imprecise retrospective account.

The taking of a full, detailed sleep history is essential. This entails assessing the problem in depth and from all angles: associated physical, psychological and family factors; past diagnosis, advice and treatment; the child's emotional and behavioral state; developmental history; past sleep patterns; and environmental factors such as sleeping arrangements. In practice many clinics use specially designed questionnaires. The Southampton Questionnaire is one such instrument that covers the field comprehensively and takes about 40 minutes to administer (the questionnaire can be obtained from Southampton Children's Sleep Disorder Service, Ashurst Hospital, Southampton SO40 7AR, UK). In addition to providing relevant data the interview process helps establish rapport between the family and the therapeutic team. It also provides an opportunity to appraise the behavior of the child, the parents and their mutual interactions. Physical examination is sometimes indicated – for example, when upper respiratory symptoms are suspected as contributing factors. Objective technologies are required in a small percentage of cases. Home (ambulant) monitoring of EEG, EMG and EOG patterns is now possible. Limb movements yielding information about sleep-wake patterns can be measured by actometry. The actometer is a movement sensor with a computerised recording system yielding valuable data pertaining to sleep-wake problems. In this procedure a small wristwatch-like device is attached to the child's ankle or wrist. It is usually well tolerated. Full sleep laboratory polysomnography (PSG) can be useful when there are diagnostic difficulties. When parental descriptions of abnormal nocturnal events are puzzling or inadequate a parentally taken home video can sometimes be very informative.

In ordinary clinic practice a full history, observation of the child and family and well recorded sleep diary data often suffice to make a diagnosis and a therapeutic formulation.

MANAGEMENT

Sleep Hygiene

A multitude of factors affect the way children sleep, Patterns that seem odd to the clinicians should not be labeled ”problematic” without further consideration. Many parents will be helped though understanding the basic tenets of “sleep hygiene” and applying them to their own child. These are:

- The sleep environment should be quiet and comfortable.
- There should be a consistent and regular evening and bedtime routine.
- The child should learn to fall asleep without the parents being present.
- No boisterous play at bedtime.
- Food intake during the day – not at night
- Stimulant drinks should not be taken in the evening
- Bed should not be a seen as a punishment.

Treatment

Age, development and maturation are of prime importance in considering the treatment of children’s sleep disorders. For that reason the following account will be on an age group basis.

The Under Fives

Cultural factors such as rearing practices, sleeping arrangements and proximity of other family members affect the behavior of young children at night. Consequently, problems may be less common in an Indian context but are certainly widespread in Western societies. Settling problems, repeated night wakings and early morning wakings can prove very stressful. Furthermore, they can lead to daytime behavior disturbance and parental fatigue.

These disorders are mainly behavioral and respond well to behavioral management. The clinic team, with parental participation, needs to work out from a behavioral perspective exactly what happens at night. A functional analysis looking at the antecedents, the aberrant sleep patterns and the consequences of these behaviors is required. Ways of reducing or eliminating these patterns are considered. Then a written plan is drawn up. It is essential that the parents find the plan acceptable and within their own potential to carry out – they, not the clinic team, are about to become the plan managers. Some behavioral strategies that are commonly used are mentioned in Table 1.

Table 1: Behavioural strategies used in managing sleep disorders

Strategy	Psychological Term
Good bedtime routine	Cueing, Stimulus Ccontrol
Ignoring crying	Non-reinforcement, Extinction
Returning child to room	Non-reinforcement, Extinction
Cutting out refreshments at night	Non-reinforcement, Extinction
Keeping the child out of the parental bed	Non-reinforcement, Extinction
Parent sits by child’s bed but moves away slowly on successive nights	Graded change
Rewarding good night time behavior	Positive reinforcement
Maximising parental strengths	
Diary keeping	
Timing	

This list is not exhaustive but illustrates some of the most commonly used strategies. With experience therapists can become very skilled in helping parents use these strategies. Sensitivity to parents' strengths and weaknesses is most important. For example, an anxious, naturally overprotective mother is unlikely to agree to, or succeed with, the "cry it out" approach. She is more likely to achieve good results with the graded change method. Once again it needs to be said that it is the parents, not the clinic workers that become the therapists. This is a stressful role and good telephonic support from the clinic team can make the difference between success and failure. In the U.K. most of the routine therapeutic work is managed – very effectively – by nurses.

Hypnotics are of very limited value in this age group. There use in a routine way is not to be recommended. While they may help a child sleep, their discontinuance is commonly followed by a return of the old aberrant patterns. Occasionally they may be used as an adjuvant to a behavioral programme that is proving stressful to the parents. For example, a degree of sedation that results in a child waking three times a night rather than ten times a night might make it possible for the parents to return the child to its bed every time. Of course, if the child is "knocked out" completely there is no learning and the behavioral programme does not operate and no progress is made. The most frequently employed hypnotics in the UK are the phenothiazines (such as Trimeprazine).

The non-REM parasomnias are of considerable importance in this age group. Here the focus is on disturbances within slow wave (deep) sleep itself. Young children may manifest confusional arousals, nightmares, night terrors, sleep talking or walking. These usually occur about two hours after sleep onset at the end of the first sleep cycle. Most of these events can be regarded as developmental and not requiring treatment. But night terrors, which are common, can become problematic. The child appears restless and agitated and to the parents looks distressed. Efforts on their part to reassure the child are unsuccessful as the child is still asleep. Here anticipatory waking is the treatment of choice. Through diary keeping, parents need to establish the time the disturbance usually occurs. Thereafter they should waken the child about 30 minutes before the expected occurrence. The child is spoken to quietly and then allowed to return to sleep. This procedure carried out for a few nights, is often enough to break the pattern. In resistant cases a benzodiazepine such as diazepam, in age appropriate dosages, taken at bedtime can be effective. Children that sleep walk can endanger themselves in their wanderings. The same strategies (as in night terrors) should be used here.

Nightmares occur in REM sleep and are experienced by most children between three and eight years of age. The often persist into later childhood. In very young children dream content may relate to monsters; in older children to more reality based matters such as school bullies. Parents are often unaware of their children's nightmares as many children find the act of disclosing them painful. When nightmares are severe children wake and need parental reassurance. If possible, these children should be resettled in their own beds.

Children Five to Twelve Years

Children in the middle years have fewer problems than their younger peers. Even so, some children in this age group suffer stressful nocturnal experiences. Children traumatized by war, catastrophe or family breakdown are particularly at risk in this

respect. Night-time fears, sometimes linked to nightmares, can be troublesome. The child fights sleep. The fears may relate to imagined intruders, ghosts, creaking furniture or similar nebulous sources of anxiety. Psychotherapeutic help, behavioral, dynamic or both may be needed to eliminate these problems.

Adolescence

Adolescents need more sleep than their prepubertal peers and are more prone to sleep difficulties, which are often associated with psychological issues.[5] There is a trend, partly youth cultural, to stay up late. Stress and anxiety related to school work or social difficulties may come into play. Late settlers tend to be late risers. In severe cases this pattern amounts to be Delayed Sleep Phase Syndrome (DPPS). Sleep deprivation may result from this disturbance of the sleep/wake cycle; this, in turn, may lead to emotional disturbance and fall-off in school performance. Muddled use of hypnotics and stimulants such as amphetamine and caffeine can make matters worse. Early recognition of DPPS on the part of the adolescent or the family should lead to the institution of the principles of Sleep Hygiene. If this approach proves inadequate, melatonin 3-5 mg taken at the desired bedtime for two to three weeks will often restore the normal sleep/wake cycle.

Other Important Dyssomnias

Obstructive Sleep Apnea Syndrome

This disorder is characterized by repetitive episodes of upper airway obstruction during sleep, often causing a reduction in blood oxygen saturation. These apnoeic events cause frequent arousals and brief awakenings throughout the night. Snoring may be an indicator though most snoring in childhood is normal and benign. Obesity and abnormalities of the upper air passages sometimes contribute to the syndrome. Chronic upper respiratory infection is probably the commonest underlying cause. The sleep deprivation resulting from this syndrome can give rise to daytime behavior problems and hyperactivity. Reduction in slow wave sleep can affect growth hormone production and impair growth. Tonsillectomy and/or adenoidectomy can relieve the symptoms in about 70% of cases.[2] Continuous Positive Airway Pressure (CPAP) is rarely employed in childhood.

Narcolepsy

The clinical features of narcolepsy are largely the result of intrusions of REM sleep into the waking state, namely, hypnagogic hallucinations (dream phenomena at sleep onset), sleep paralysis and cataplexy (muscular paralysis due to REM depolarization). Nocturnal sleep is often disorganized with frequent waking leading to daytime lethargy. The condition is in part genetically determined and tends to run in families. It is uncommon. When suspected, a full laboratory assessment is indicated. Sleep hygiene is important in its management. Midday naps sometimes reduce narcoleptic episodes. Medication with stimulants such as methylphenidate can be helpful but are often associated with troublesome side effects. Modern drugs such as modanifil look very promising.

Rhythmic Movement Disorders

Stereotyped movements such as head banging, rocking and rolling at bedtime and through the night are common in young children, particularly one to three year olds. Beyond the age of five such movements are rare but can then constitute a problem for the

child and the family. They tend to occur at sleep onset or during nocturnal arousals. Although an association with REM sleep has been described it is undoubtedly the case that the pattern is usually associated with sleep/wake transitions. Stereotypies occurring during the day and unrelated to sleep may well be indicative of autism or other serious pathology. Many treatment strategies have been devised without much success.[6]. Behavioral management has been shown to work but the programmes used were complex and difficult to organize. A recent report suggests that a controlled programme of sleep restriction combined with hypnotic administration can be effective.[7]

Nocturnal Enuresis

This condition used to be considered a deep sleep disorder. Wetting commonly occurs in the first half of the night. Its relationship to sleep physiology is complex. The problem is better managed in a general paediatric framework than a sleep clinic.

Disabled and Chronically Ill Children

Children with developmental, physical and mental problems are particularly prone to sleep disorders. Studies in the last twenty years have found this to be the case with reference to the following conditions: learning disorder, autism, cerebral palsy, epilepsy, ADHD, eczema, asthma, depressive disorder, and visual impairment. This is by no means an exhaustive list. Neurophysiological factors play an important role in many of these disturbances. Emotional factors such as parental anxiety and communication problems also contribute to unsettled behavior at night. Consequences of such problems include daytime behavioral disturbance, educational underachievement and parental exhaustion leading to depression. In the presence of neurological damage medication such as melatonin can be helpful. But there is an over-riding need in this group as a whole for skilled behavioral therapy which can produce good results. Unfortunately, adequate therapeutic services are rarely available outside specialist centres. A project in Scotland – called Sleep Scotland – is trying to meet needs in this field. It seeks to impart sleep therapy skills to educational, health and social workers already in the community. Results so far look promising.

DISCUSSION

Assessing and managing sleep problems in standard pediatric and child mental health clinics are difficult. A case can be made out for small, part-time "special" clinics within the organization of larger children's facilities – these clinics staffed by professionals taking a special interest in this field. Much of the work can be carried out by non-medical personnel – psychologists and nurses in particular. On the diagnostic side there is scope for fruitful collaboration between child neurologists, child psychiatrists and pediatricians. For the majority of referrals sleep laboratory facilities are unnecessary.

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