SUMMARY

Sleep is defined as a state of unconsciousness from which a person can be aroused by appropriate sensory or other stimuli.

Normally, there are two different types of sleep : Slow Wave Sleep (Non Rapid Eye Movement Sleep), and Paradoxical Sleep (Rapid Eye Movement Sleep). (Mangold et al., 1955; Hartmann, 1970).

Stimulation of some specific areas of the brain can produce sleep as :

the raphe nuclei in the pons and medulla, serotonin is assumed to be the major transmitter substance associated with production of sleep,
stimulation of the rostral part of the hypothalamus, and
stimulation of an occasional area in the diffuse nuclei of the thalamus (Hobson & McCarley, 1971).

The brain as a whole does not rest during sleep, but sleep restores both normal sensitivities of and normal balance between the different parts of the CNS.

In sleep, the heart rate, blood pressure, and metabolic rate are reduced. Also, the respiratory rate is reduced. There is a reduction in salivary and lacrimal secretions, and in the volume of urine formed.

The plasma levels of growth hormone, prolactin, and luteinizing hormone are raised during sleep, but the plasma level of cortisol decreases quickly in the morning and more slowly towards midnight but increases sharply about 2 a.m. (Parker, 1969).

In newborns, REM sleep is the first phase of sleep, but by 3 months age and over, NREM sleep is the first phase of sleep. This is an indicative of the development after birth (Shibagaki & Kiyono, 1983).

The principal rhythm approximating 1 cycle/hour is reached by 3 to 4 months of age. This sleep stage organization may be utilized as a benchmark of CNS development (Harper et al., 1981).

The sleep wake process in humans is a dynamic system that changes continuously throughout the life cycle. Full term neonates spend 50% of total sleep time in the REM state, while adults spend about 20% of a night in REM sleep (Thomas et al., 1980).

Age specific patterns of sleep and bedtime behaviors may have a neurophysiologic base that undergo maturational change during the preschool period (Antonio et al., 1983).

The average total duration of sleep on the first day of life is 17 hours. The average longest sleep period on the first day is 4.8 hours.

The type of feeding received did not seem to influence the total duration of sleep per day. But infants have a significant greater probability of entering active sleep after feeding than after waking periods without feeding (Harper et al., 1977).

It is clear that the circadian rhythm of secretion of growth hormone and prolactin are sleep dependent, and children considered GH deficient had concordantly low GH levels during sleep (King & Price, 1983).

There are observations of the lack of the normal nocturnal rise of plasma GH and prolactin in patients with Cushing's disease (Krieger & Glick, 1974).

The EEG is used in neonatal research concerned with the assessment of physiologic functions which are dependent on the child's sleep state (Prechtl, 1974).

Infants with mild degree of birth trauma, infants born to diabetic mothers and to toxaemic mothers, and infants born to heroin-addicted mothers have all demonstrated abnormalities in their quiet sleep state organization (Schulte et al., 1971).

The absence or decrease of sleep spindles during NREM sleep is a criterion for the diagnosis of hypothyroidism (Schultz et al., 1968). Also there is some sleep spindles shorter than 0.4 seconds in duration in the EEGs of mentally retarded children (Shibagaki et al., 1982_b).

Disorders of breathing during sleep may underlie : sudden infant death syndrome (SIDS), Pickwickian syndrome, certain types of insomnia, and excessive daytime sleepiness (Guilleminault & Dement, 1977).

In normal human infants, respiratory pauses of 3-10 seconds are common during sleep (Stein et al., 1979).

Obstructive sleep apnea has been described in patients with mandibular malformation,laryngeal stenosis, hypertrophy of tonsils and adenoids, mxyedema, and obesity (Conway et al., 1977).

On a study on eight children aged 5-14 years, excessive daytime sleepiness, decrease in school performance, abnormal daytime behavior, recent enuresis, morning headache, abnormal weight, and progressive development of hypertension should suggest the possibility of a sleep apnea syndrome (Guilleminault et al., 1976).

The essential features of the Pichwickian syndrome are obesity, daytime somnolence, and cardiorespiratory failure (Walsh et al., 1972).

Nocturnal asthma appears to be related to sleep itself (Clark & Hetzel, 1977).

Sudden infant death syndrome (SIDS) is death without sufficient pathology, but it is suggested to be related to recurrent or chronic hypoxiae, perhaps caused by insufficient regulation of alveolar ventilation (Shannon & kelly, 1982).

Insidence of SIDS varies between 0.67 to 4.40 per 1,000 babies (Kulkarni et al., 1978).

Keens et al., (1985) concluded that DTP immunization does not increase abnormalities of the ventilatory pattern in infants at increased risk for SIDS .

Difficult settling a child to sleep or frequent night waking may seriously disrupt the family life, and it is reported that 30% of children between 6 months and 4 years of age have night waking or bedtime struggles (Lozoff et al., 1985).

Nightmares were described in 5% of one year old-children and 38% of five year olds (Beltramini & Hertzig, 1983).

Insomnia and nightmares are reflections of normal phase of development, so medication is not recommended as a treatment (Anders & Weinstein, 1972).

In some patients, the first symptoms of narcolepsy, usually consisting of excessive daytime sleepiness and sleep attacks, develop during childhood or adolescence (Kales et al., 1982).

The sleep in hypersomniacs, is not irresistible but usualy is much longer than in narcoleptics, lasting from many hours to several days (Roth & Lehovsky, 1967).

Disorders of arousal are episodic disturbances of NREM sleep, they include; night terrors, sleepwalking, sleeptalking, and certain types of enuresis. These disorders have certain common features (Anders et al., 1980).

Psychopathology is not characteristic of children who sleepwalk or experience night terors (Kales et al., 1980), and the use of any psychotropic medication for treatment of these disorders is not recommended (Weissbluth, 1984).

The relationship between enuresis, sleep arousal, and depth of sleep, is not yet clear (Doleys & Dolcet, 1982). It is probable that early in the night when most enuretic events occur, the sleep of the enuretic child is quiet sleep and it is difficult for the child to arouse (Kales et al., 1977).

About treatment of nocturnal enuresis, drugs should not be prescribed in children under eight years of age (Schmitt, 1982).
