NAMS Regional Symposium on Sleep Medicine
Speaker ***: Dr. Rajeshwar Dayal***

CHILDHOOD OBSTRUCTIVE SLEEP APNEA

SYNOPSIS

Sleep apnea forms a part of the spectrum of sleep disordered breathing. It may be Central, Obstructive or of the Mixed Variety.

Obstructive Sleep Apnea is a sleep disorder characterized by recurrent episodes of narrowing or collapse of pharyngeal airway during sleep despite ongoing breathing efforts. It's incidence varies from 1-3% in children of preschool age in most western studies. Very few studies have been conducted in our country. In an Indian study among urban pre-school children, the incidence was found to be 4.7% of all sleep disorders (Suri et al,2008).

Upper airway obstruction can be either partial (Snoring) or Complete (OSA). This leads to decreased alveolar ventilation, decreased alveolar& arterial PO2 and increased PCO2 which stimulates arterial chemoreceptor's leading to arousal/ partial awakening. Obstruction occurs during supine position due to lack of "wakefulness" drive, decreased tone of pharyngeal muscles, intercostals and accessory muscle and depressed reflexes, minute volume and response to hypoxia.

Various anatomic factors (e.g. adenotonsillar hypertrophy) and functional factors (e.g. obesity) cause OSA .

The classic presentation of children with OSAS as underweight children with adenotonsillar hypertrophy is being substantially replaced by young patients who are either overweight or obese. In obese, upper airway narrowing results from fatty infiltration of upper airway structures promoting pharyngeal collapsibility. Obesity reduce the intrathoracic volume and diaphragmatic descent during inspiration, particularly in the supine position, resulting in lower oxygen reserves and increased work of breathing during sleep which decrease airway stiffness. Obesity also results in blunted ventilatory responses to hypoxia and hypercapnia. Further, reduced bioavailability of leptin (an adipocyte derived hormone) resulting in altered ventilatory responses may also play a role in the interaction between obesity and OSAS.

Clinically, the patient may present with sleep related symptoms (e.g.snoring,breathing pauses, choking or gasping arousal, restless sleep, nocturnal diaphoresis, enuresis) ,daytime symptoms (e.g. morning headaches, excessive daytime sleepiness, dry mouth, chronic mouth breathing ,poor appetite and failure to thrive) and neurobehavioural symptoms (e.g. .deficits in attention, memory deficits, mood disturbance, subjective sleepiness, poor school performance) Typically no respiratory abnormality occurs while the child is awake. In longstanding cases, patient may develop systemic or pulmonary hypertension, polycythemia, corpulmonale and bradycardia.

The gold standard diagnostic test is polysomnography. Treatment modalities range from lifestyle modifications, pharmacological treatment like topical nasal steroids (*for nasal obstruction)* steroids & antibiotics (*infected pharyngeal tissue*) and nasal decongestants (*for allergic rhinitis*) to surgical therapies.