

Obstructive Sleep Apnoea (OSA)

Definition of obstructive sleep apnoea (OSA)

- A sleep disorder characterised by recurrent episodes of apnoea and hypopnoea caused by collapse of the upper airway during sleep.
- These episodes are associated with recurrent desaturations and arousals from sleep.

Epidemiology of obstructive sleep apnoea (OSA)

- High prevalence of undiagnosed OSA
 - Estimated that 5% of adults in Western countries have symptomatic OSA and 20% have asymptomatic/ mild symptoms
- 2-3 fold greater risk for men compared to women
- Prevalence increases 2-3 times in >65 year old group

Causes and risk factors of obstructive sleep apnoea (OSA)

- Structural
 - Nasal Obstruction
 - Polyps
 - Septal deviation
 - Tumours
 - Trauma
 - Stenosis
 - Pharyngeal Obstruction
 - Adenotonsillar hypertrophy
 - Mandibular hypoplasia
 - Micrognathia
 - High arched palate
 - Syndromes – Downs, Marfans, Prader-Willi, Acromegaly
- Non-Structural
 - Obesity – especially central fat distribution and large neck circumference (>17 inches)
 - Alcohol and sedative use
 - Smoking
 - Age and male sex
 - Postmenopausal state
 - REM sleep
 - Supine sleep position

Presentations of obstructive sleep apnoea (OSA)

- Snoring
- Witnessed apnoeas
- Nocturnal gasping and choking sensations that wake patient from sleep
- Non-restorative sleep and excessive daytime sleepiness
- Morning headaches
- Reduced libido
- Personality and mood changes
- Cognitive deficit

Differential diagnosis of obstructive sleep apnoea (OSA)

- Narcolepsy
- Obesity-Hypoventilation Syndrome (Pickwickian Syndrome)
- Paroxysmal nocturnal dyspnoea (PND) associated with cardiac failure
- Central sleep apnoea
- Periodic limb movement disorder

Investigation of obstructive sleep apnoea (OSA)

- Sleep studies and Polysomnography
 - Body position, snoring, abdominal, thoracic and leg movements
 - Oximetry
 - EEG
 - EMG
 - ECG
 - Electro-oculogram
 - Respiratory air flow

Staging of obstructive sleep apnoea (OSA)

- Apnoea hypopnoea index (AHI – number of apnoeas/hypopnoeas per hour)
 - Mild: AHI 5-14/hr
 - Moderate: AHI 15-30/hr
 - Severe: AHI 30/hr
- Epworth Sleepiness Scale (ESS)
 - Validated method(questionnaire) of assessing the likelihood of falling asleep in a variety of situations. Maximum score is 24.
 - Normal range – ESS < 11
 - Mild – ESS 11-14
 - Moderate – ESS 15-18
 - Severe – ESS > 18

Management of obstructive sleep apnoea (OSA)

- Behavioural interventions
 - Weight loss
 - Avoidance of alcohol, sleeping tablets and sedatives
 - Smoking cessation
- Non-Surgical
 - CPAP
 - BiPap in patients with ventilatory failure
 - Intra-oral devices
- Surgical
 - Palatal surgery
 - Use with MDT advice - may preclude future CPAP use

Complications of obstructive sleep apnoea (OSA)

- Hypertension
- Cardiovascular disease/ Coronary artery disease (IHD)
- Insulin-resistance and diabetes

- Depression
- Sleepiness-related accidents
 - Patients with OSA have 2-7 times increased risk of motor vehicle crashes

Prognosis of obstructive sleep apnoea (OSA)

- Short term prognosis in relation to symptoms is good with regular use of CPAP
 - Benefits seen within 4-6 weeks of use
- Independent risk factor for the development of and mortality related to cardiovascular disease

References

1. Terry Young, Paul E. Peppard, and Daniel J. Gottlieb "Epidemiology of Obstructive Sleep Apnea", American Journal of Respiratory and Critical Care Medicine, Vol. 165, No. 9 (2002), pp. 1217-1239.
2. Sassani A, Findley LJ, Kryger M, Goldlust E, George C, Davidson TM. Reducing motor-vehicle collisions, costs, and fatalities by treating obstructive sleep apnea syndrome. *Sleep*. May 1 2004;27(3):453-8.
3. SIGN National Guidelines on Management of OSA/Hypopnea Syndromes in Adults.

Common questions concerning obstructive sleep apnoea (OSA)

What are risk factors for obstructive sleep apnoea (OSA)?

- Structural
 - Nasal Obstruction
 - Polyps
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What are the complications of obstructive sleep apnoea (OSA)?

- Hypertension
- Ischaemic heart disease (IHD)
- Diabetes
- Depression

- Sleepiness-related accidents (patients with OSA have 2-7 times increased risk of motor vehicle crashes compared to controls)

When should people with obstructive sleep apnoea (OSA) be treated?

- Symptomatic patients with AHI ≥ 15 or a 4% oxygen desaturation rate at the level of > 10 /hour

What are the possible treatments in obstructive sleep apnoea (OSA)?

- Behavioural interventions
 - Weight loss
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 - Smoking cessation
- Non-Surgical
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