QUICK REFERENCE FOR HEALTHCARE PROVIDERS

MANAGEMENT OF OBSTRUCTIVE SLEEP APNOEA

Ministry of Health Malaysia

Academy of Medicine Malaysia

KEY MESSAGES

1. Obstructive Sleep Apnoea (OSA) is a common sleep-related breathing disorder caused by repetitive upper airway collapse resulting in partial or complete breathing cessation. It affects both children & adults. It is associated with significant morbidity.
2. In general, the common risk factors for OSA include age, male gender, morbid obesity, adenotonsillar hypertrophy, craniofacial anomalies, prematurity & neuromuscular disorder.
3. STOP-BANG Questionnaire should be used for screening adults with clinical suspicion of OSA. Epworth Sleepiness Scale (ESS) may be used to assess daytime sleepiness.
4. In paediatric patients, Paediatric Sleep Questionnaire (PSQ) should be used as a screening tool for OSA.
5. Upper airway assessment is important in OSA patients to identify the level & degree of obstruction.
6. Diagnosis of OSA should be confirmed with polysomnography (PSG). In children, nocturnal oximetry may be used as an alternative diagnostic tool if PSG is not available.
7. The aim of treatment in OSA is to relieve upper airway obstruction, improve symptoms & prevent complications.
8. Ideally, a multidisciplinary team approach, consisting of respiratory physicians and paediatricians, otolaryngology-head and neck surgeons, oral maxillofacial surgeons, orthodontists etc. should be involved in managing OSA.
9. Follow-up of OSA patients following surgical or non-surgical interventions is important to monitor response & adherence to therapy.
10. Definitive management of OSA in children should be individualised based on the clinical findings e.g. adenotonsillectomy (AT) is the treatment of choice in children with OSA due to adenotonsillar hypertrophy (refer to Algorithm 2 & 3).

This Quick Reference provides key messages & a summary of the main recommendations in the Clinical Practice Guidelines (CPG) Management of Obstructive Sleep Apnoea.

Details of the evidence supporting these recommendations can be found in the above CPG, available on the following websites:

Ministry of Health Malaysia: www.moh.gov.my
Academy of Medicine Malaysia: www.acadmed.org.my
Sleep Disorder Society Malaysia: https://sleepsocietymalaysia.org
Malaysian Thoracic Society: https://www1.mts.org.my/

CLINICAL PRACTICE GUIDELINES SECRETARIAT
Malaysian Health Technology Assessment Section (MaHTAS)
Medical Development Division, Ministry of Health Malaysia
Level 4, Block E1, Precinct 1,
Federal Government Administrative Centre
62590 Putrajaya, Malaysia
Tel: 603-88831229
E-mail: htamalaysia@moh.gov.my

CLINICAL PRESENTATION

OSA in Adults

Daytime symptoms	Night-time symptoms
• Excessive daytime sleepiness • Unrefreshed sleep • Tiredness/fatigue • Early morning headache • Dry mouth • Poor attention/concentration span • Memory impairment • Mood disturbance or irritability • Decrease libido/erectile dysfunction	• Snoring • Witnessed apnoea (cessation of breathing) • Gasping/choking • Nocturia • Difficulty initiating and maintaining sleep • Fragmented sleep (frequent awakening)

OSA in Children

Symptoms of upper airway obstruction	Complications of OSA
• Snoring • Witnessed apnoea • Difficulty in breathing • Abnormal sleep posture • Mouth breathing • Excessive sweating	• Elevated blood pressure • Enuresis • Excessive daytime sleepiness • Inattention/hyperactivity • Cognitive deficits • Academic difficulties • Failure to thrive

DIAGNOSIS

OSA in Adults

- Diagnostic criteria for adult OSA - **(A & B) or C** satisfy the criteria
  - A. Presence of 1 or more of the following:
    1. Patient complains of sleepiness, non-restorative sleep, fatigue or insomnia symptoms
    2. Patient wakes with breath-holding, gasping or choking
    3. Bed partner or other observer reports habitual snoring, breathing interruptions or both during the patient's sleep
    4. Patient has been diagnosed with hypertension, a mood disorder, cognitive dysfunction, coronary artery disease, stroke, congestive heart failure, atrial fibrillation or type 2 diabetes mellitus
  - B. PSG or out-of-centre sleep testing (OCST) demonstrates:
    1. ≥5 predominantly obstructive respiratory events [obstructive & mixed apnoeas, hypopnoeas or respiratory effort-related arousals (RERAs)] per hour of sleep during a PSG or per hour of monitoring (OCST)

  OR

  - C. PSG or OCST demonstrates:
    1. ≥15 predominantly obstructive respiratory events (apnoeas, hypopnoeas or RERAs) per hour of sleep during a PSG or per hour of monitoring (OCST)
- The third edition of the International Classification of Sleep Disorders (ICSD)-3 defines OSA as:
  - AHI ≥5/hour associated with the typical symptoms of OSA or associated medical/psychiatric disorder
  - AHI ≥15/hour (even in the absence of symptoms or disorders)

OSA in Children

- OSA in children is diagnosed in the presence of symptoms with:
  - AHI ≥2 or obstructive apnoea index ≥1
    OR
  - AHI ≥1 (including central events)

UPPER AIRWAY ASSESSMENT

- Upper airway assessment is important in OSA patients.
- If Drug-induced sleep endoscopy (DISE) is unable to be performed prior to surgery, Fiber-optic nasal endoscopy with Muller's Manoeuver (FNMM) may still be offered as an alternative procedure to identify the level & degree of obstruction.

TREATMENT

OSA in Adults

- Lifestyle intervention for weight reduction should be advocated in OSA.
- Positive airway pressure (PAP) therapy should be offered to patients with OSA upon diagnosis especially in moderate to severe OSA.
- Upper airway surgery may be considered in selected OSA patients.
- Maxillomandibular advancement may be considered in certain patients with moderate to severe OSA.
- Mandibular advancement appliance may be considered for adult patients with OSA.
- In obese OSA patients (body mass index ≥35 kg/m^2), bariatric surgery may be considered.

OSA in Children

- Oral montelukast &/or nasal corticosteroids may be considered in children with obstructive sleep apnoea.
- Adenotonsillectomy (AT) is the treatment of choice in children with OSA due to adenotonsillar hypertrophy.
  - In those with post-AT residual disease, upper airway & multilevel obstruction should be reassessed & ruled out.
- Continuous positive airway pressure (CPAP) should be offered in children with OSA if they have persistent symptoms or signs after surgery or in whom surgery is contraindicated.
  - Nasal CPAP is the preferred option.
  - CPAP should be managed by experienced & skilled multidisciplinary clinicians.

PERIOPERATIVE MANAGEMENT

- Patients who are at risk of OSA should be screened for OSA pre operatively.
  - The preferred screening tool is STOP-BANG.

- Surgery should not be cancelled or delayed in patients with high risk of OSA pre-operatively unless there is evidence of uncontrolled systemic disease.

- Patients with or suspected high risk of OSA should be monitored closely post operatively.
- Hospitals should have suitable PAP devices available for peri operative use or ensure patients with OSA bring their own device to the hospital.

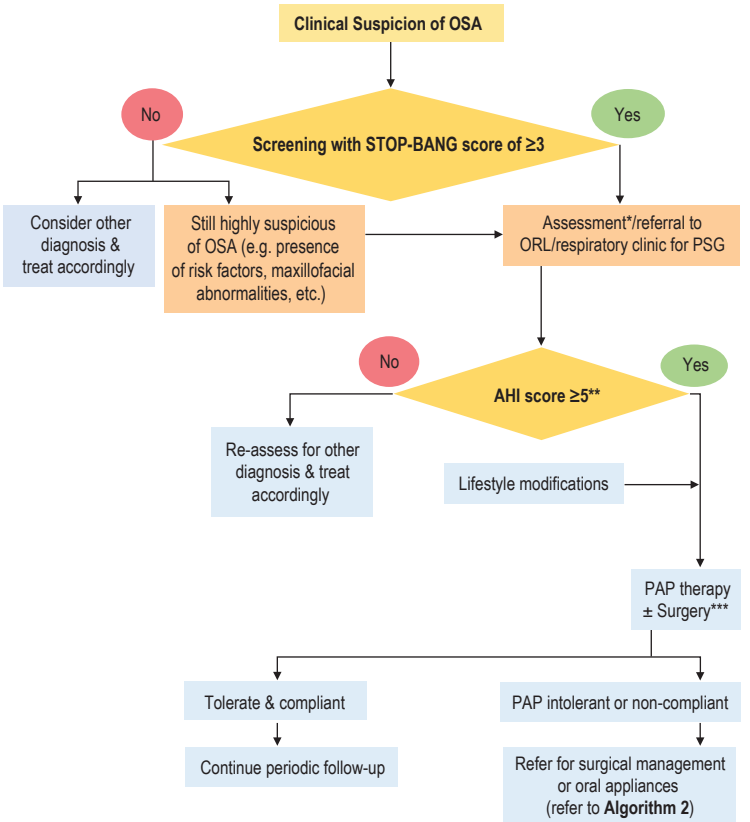
MONITORING & FOLLOW-UP

- Monitoring & follow-up of OSA cases are important in ensuring treatment response, adherence & optimisation of medical risk factors.
- OSA should be ideally managed by a multidisciplinary team consisting of respiratory physicians, otolaryngology surgeons, oral maxillofacial surgeons, orthodontists, bariatric surgeons and dietitians.

SPECIAL GROUP

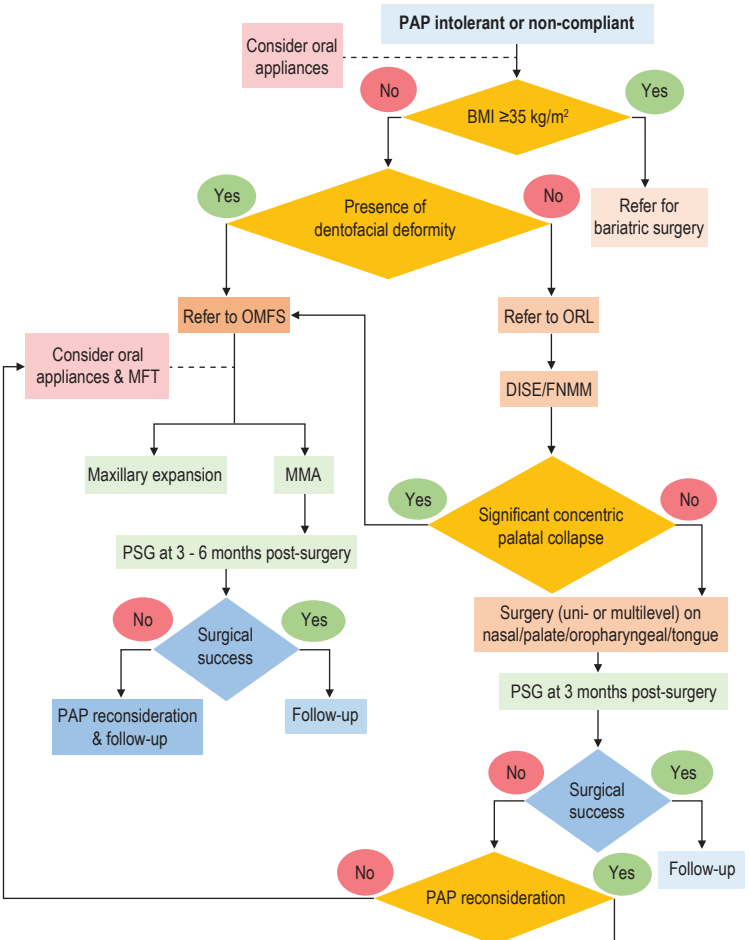
- Pregnant women with suspected OSA based on symptoms & signs should be referred for further management by a multidisciplinary specialist team.
- Patients with OSA & craniofacial anomalies should be assessed regarding the benefit & risk of a surgical intervention before it can be offered to them.
- Patients with Down syndrome should be screened for OSA & treated accordingly.
- CPAP is the preferred initial treatment in stable ambulatory patients with obesity hypoventilation syndrome & severe OSA.

ALGORITHM 1. MANAGEMENT OF OBSTRUCTIVE SLEEP APNOEA IN ADULTS



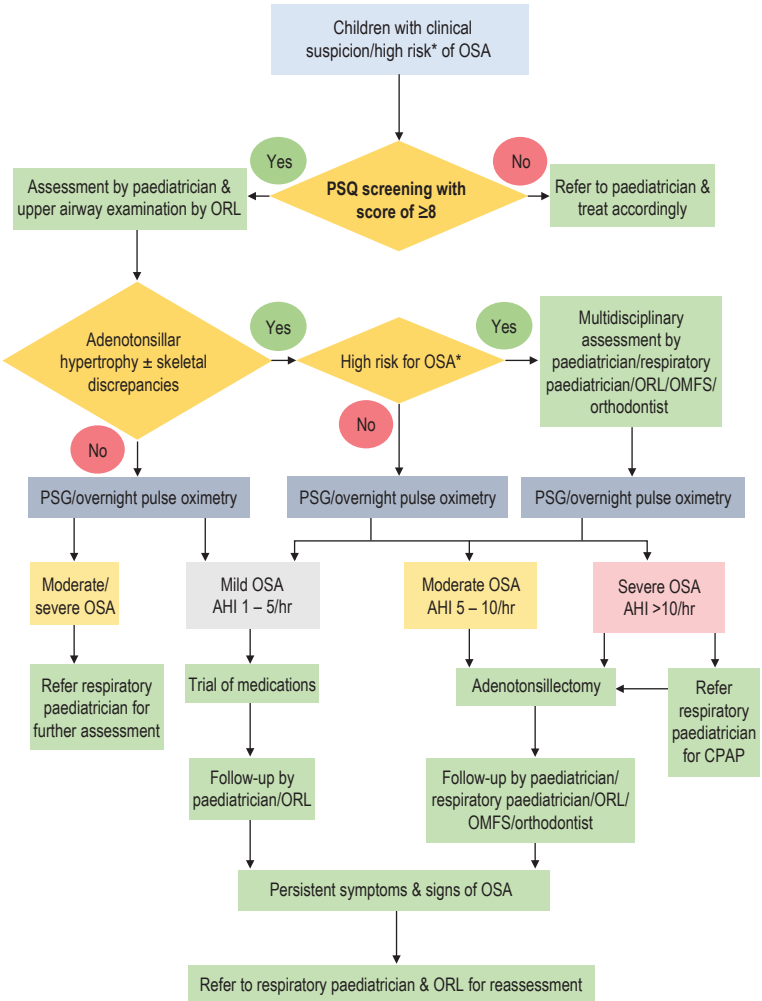
ORL: otorhinolaryngologist
*May include endoscopic upper airway evaluation
**Preferably cases of OSA are managed by a multidisciplinary team (certain cases may receive upper airway surgery earlier)
***Patient who opts for surgery should follow **Algorithm 2**

ALGORITHM 2. SURGICAL TREATMENT IN ADULTS OBSTRUCTIVE SLEEP APNOEA



BMI: body mass index; DISE: drug-induced sleep endoscopy
FNMM: fiber-optic nasal endoscopy with Muller's Manoeuvre
MFT: myofunctional therapy;
MMA: maxillomandibular advancement
OMFS: oral and maxillofacial surgery

ALGORITHM 3. MANAGEMENT OF OBSTRUCTIVE SLEEP APNOEA IN CHILDREN



*obesity, craniofacial anomalies, Down syndrome etc. (refer to **Subchapter 4.1 in the CPG**)