Sheet 12

Respiratory diseases

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* We will talk about respiratory diseases in general and their relation to dental management
* Why are we concerned with respiratory diseases?
* Because they may cause a cross infection hazard; respiratory diseases can spread easily especially upper and lower respiratory tract infections and tuberculosis
* Because a large number of patients with respiratory disease take cortisone; and as we mentioned, cortisone is important because it may cause adrenal insufficiency and makes the patient susceptible to infection
* Respiratory diseases may have oral manifestations, and they may be the first or even the only manifestations of the disease
* There are 4 important issues we must address when we talk about a patient with respiratory disease:
1. Choice of anesthesia; this issue may not be very important in many patients, but it is important in some cases like uncooperative children or mentally retarded patients with respiratory disease who must be operated under general anesthesia, because GA may cause many risks when we talk about some respiratory diseases
2. Use of steroids; like asthma patients who use systemic steroids
3. Cross infection
4. Positioning of the patient; some patients with respiratory disease can't sleep in the supine position, so this must be taken into consideration when treating such a patient
* We will talk about Asthma, COPD, sleep apnea, emergencies related to respiratory diseases, TB, sarcoidosis, and other diseases

**Asthma**

* Reversible obstruction of the airways
* Common chronic inflammatory respiratory disease
* Recurrent episodes of cough due to bronchial obstruction
* We have **2 types** of asthma: **extrinsic** and **intrinsic**
* Extrinsic is usually caused by an allergen (external factor). The intrinsic type is with unknown etiology (internal factor) but stress and anxiety may cause precipitation of the attack
* Extrinsic is usually associated with children. Intrinsic is usually associated with adults
* Extrinsic usually becomes less severe with age and may totally disappear. But intrinsic becomes more progressive and severe with age
* **Mechanism of asthma**: it is a chronic inflammatory response associated with immunocytes (cells related to immunity) especially **eosinophils**, those eosinophils release inflammatory mediators like histamine, and as a result of the release of these mediators we will have an airway obstruction
* **Common triggers of asthmatic attack:** (many of them are present in the dental practice)
1. Air
2. Exercise
3. Emotional stress
4. Drugs, like NSAIDs and aspirin
* **Clinical features of Asthma patients**: cough, wheezing, chest tightness. And some patients with severe asthma are unable to complete a full sentence without stopping
* Typical symptoms of asthma are relieved by **beta 2 agonists**, because they cause bronchodilation, so they are used as a diagnostic test
* **Diagnosis** is reached by history and examination, and response to bronchodilators (beta 2 agonists). Other tests may be used such as: lung function tests (spirometry), skin prick test (to know if the patient is allergic to a certain substance), histamine provocation test
* **Management**:
* Depends on the severity
* The goal of the treatment is to suppress the symptoms and reduce the frequency of attacks and hospital admissions
* Avoidance of known trigger factors
* Bronchodilators and inhaled steroids. Some drugs are also used: oral leukotriene antagonists, theophylline (present in tea) and systemic steroids
* **Oral manifestations of asthma**:
* Non specific, usually side effects of drugs, because they cause xerostomia so the patients will have: caries, candidal infection, periodontal disease, dental erosion…
* Patients who experience asthmatic attacks, especially children, will have mouth breathing. As a result of mouth breathing, they will have increased lower anterior facial height, increased overjet…
* Inhaled steroids cause local immunosuppression 🡪 candidal infection
* **In conclusion**:
* The appointment of an asthma patient must be in the morning, not very early in the morning and not late
* Asthma patients must take prophylactic inhalation before the dental treatment, especially if the procedure is going to be prolonged and stressful
* You must tell the asthma patient to bring the inhaler with him in case he had any asthmatic attack in the practice
* Try to reduce the stress to the minimum during the procedure
* Patients who take systemic steroids may be given a prophylactic steroid cover depending on the procedure and the dose that they take
* It is contraindicated to give asthma patients NSAIDs, because they cause provocation of asthmatic attacks

**COPD**

* **Irreversible** airway obstruction
* COPD=Chronic bronchitis+emphysema
* **Emphysema** means dilation of the terminal airspaces of the lung
* **Chronic bronchitis** means there is a productive cough for 3 consecutive months in the last 2 years
* **Causes**: smoking, genetics (alpha 1 antitrypsin deficiency)
* **Mechanism of COPD**: mucous gland hypertrophy that will cause the mucous secretions to precipitate in the alveoli, gas will accumulate in the lungs, so the lungs will not benefit from respiration and oxygen, this will cause hypoxia and CO2 retention
* **Clinical features**:
* Chronic productive cough
* Wheezing
* Progressive breathlessness
* Weight loss in some patients
* **We have 2 types of COPD**: 1) pink buffers 2)blue bloaters (CO2 retention)
* **Diagnosis**:
* History of chronic productive cough
* Respiratory disease tests: pulmonary function tests, ABG (arterial blood gas), chest x-rays
* **Management**:
* Avoid the risk factors
* Bronchodilators
* Oxygen supplies
* Antibiotics to avoid chest infections
* Chest physiotherapy
* In severe cases 🡪 lung transplant
* **Oral manifestations**:
* Like asthma, they are side effects of bronchodilators 🡪 dry mouth and its associations (caries, candidiosis…)
* Some patients may have **central cyanosis**; color of lip and tongue appear bluish
* General anesthesia is risky in COPD patients
* Patients may benefit from LA and sedation because they reduce stress
* Some patients may need steroid prophylactic cover and oxygen during treatment

**Obstructive sleep apnea**

* Interrupted breathing during sleeping
* Common disorder, especially in obese people
* **Cause**: upper airway obstruction as a result of excessive relaxation of the muscles of the palate and oropharynx
* **Risk factors**:
* Obesity (most important factor)
* Large tonsils
* Patients with severe class 2 malocclusion
* Patient who takes drugs that cause muscle relaxation (such as epilepsy drugs)
* Endocrine diseases such as hypothyroidism and acromegaly
* Alcohol
* Smoking
* **Symptoms**:
* Snoring in association with excessive day sleeping
* Tiredness
* Drowsiness
* Morning headache
* Poor concentration and memory
* Anxiety and depression
* **Diagnosis**:
* History and clinical features
* Sleep lab studies
* **Management**:
* Lifestyle change; in relation to smoking and obesity
* C-PAP; device that supplies the patient with oxygen while asleep
* We as dentists are concerned with this disease because there are some oral appliances that can reduce sleep apnea and snoring, they can be simple but very effective and can solve the problem if the cause is oral
* An example of these appliances is the **Mandibular Advancement Appliance**; if the cause of sleep apnea is a retrognathic mandible, these appliances can solve the problem by protruding the mandible
* **Tongue retaining device**: retains the tongue outward and downward to help open the airways
* **Soft palate lift device**

**Tuberculosis**

* Chronic infectious disease characterized by the formation of **caseating granulomas** in the affected organs
* Affects any organ especially the lungs
* The cause of tuberculosis is a bacteria called mycobacterium tuberculosis, and spreads through droplet infection
* **Risk factors**:
* Living with someone who has TB
* Alcohol
* Diabetes
* Immunosuppression and AIDS
* IV drug abuse
* Some parts of the world are endemic such as some parts of Russia
* Malnutrition
* Prisons; because they are crowded and there is malnutrition
* **Clinical features**:
* Persistent cough
* Weight loss
* Night sweating
* **Diagnosis**:
* Clinical features
* Identification of mycobacterium through lung biopsy (neelsen staining)
* PCR
* tuberculin skin test (skin reaction to maltox protein injection)
* Granuloma: collection of giant macrophages
* TB is treated by a prolonged period of chemotherapy (**6-9 months**); this is very important because if a patient came to you with history of TB and he told you that he had been treated for 1 month this means that he is not fully treated and still infective
* Anti-TB antibiotics, e.g rifampicin
* TB is associated with lymph node enlargement, single oral ulcers, swelling of parotid glands, **saliva discoloration (becomes red because of the use of refampin/refampicin)**
* The most important thing to consider while treating a patient with TB is **cross infection**
* Associated risk factors may include hepatitis

**Sarcoidosis**

* Similar to TB, but in this disease there is **Non-caseating granuloma**
* Multi-organ disease of unknown etiology with diverse clinical manifestations
* Characterized by non-caseating granuloma in the affected organs especially the lungs
* Oral manifestations include **dry mouth** and sometimes it is the first manifestation of the disease
* Other oral manifestations: swelling of salivary glands, intermittent swelling of lips and tongue, mucosal nodules or patches on skin and around the nose

Good luck