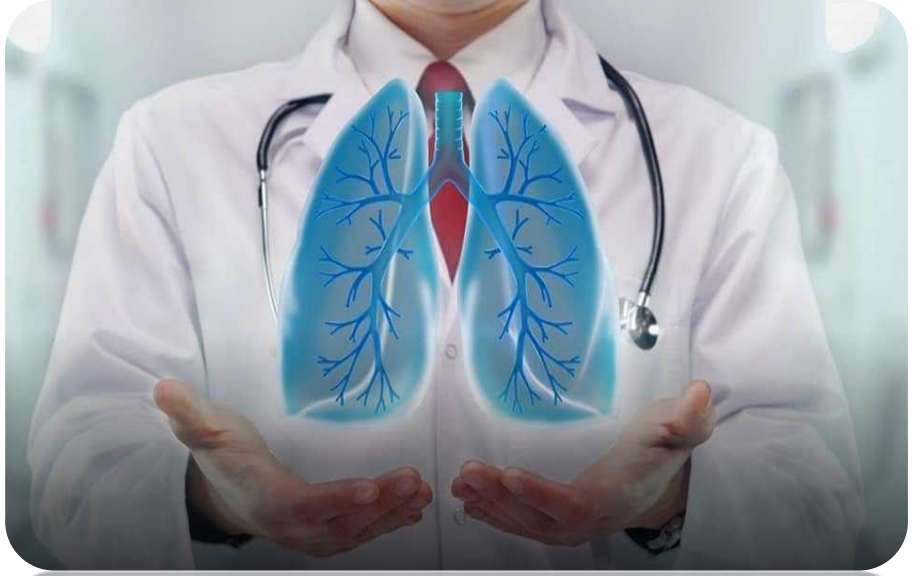
Dr abbas Hamad

pulmonologist



المحاضرة الثالثة- المرحلة الثانية
الطب الباطني- تقنيات التخدير

Respiratory diseases

The most common respiratory diseases

1- asthma •

2- COPD •

3- pneumonia •

4- tuberculosis •

5- bronchiectasis •

6- viral illness •

asthma

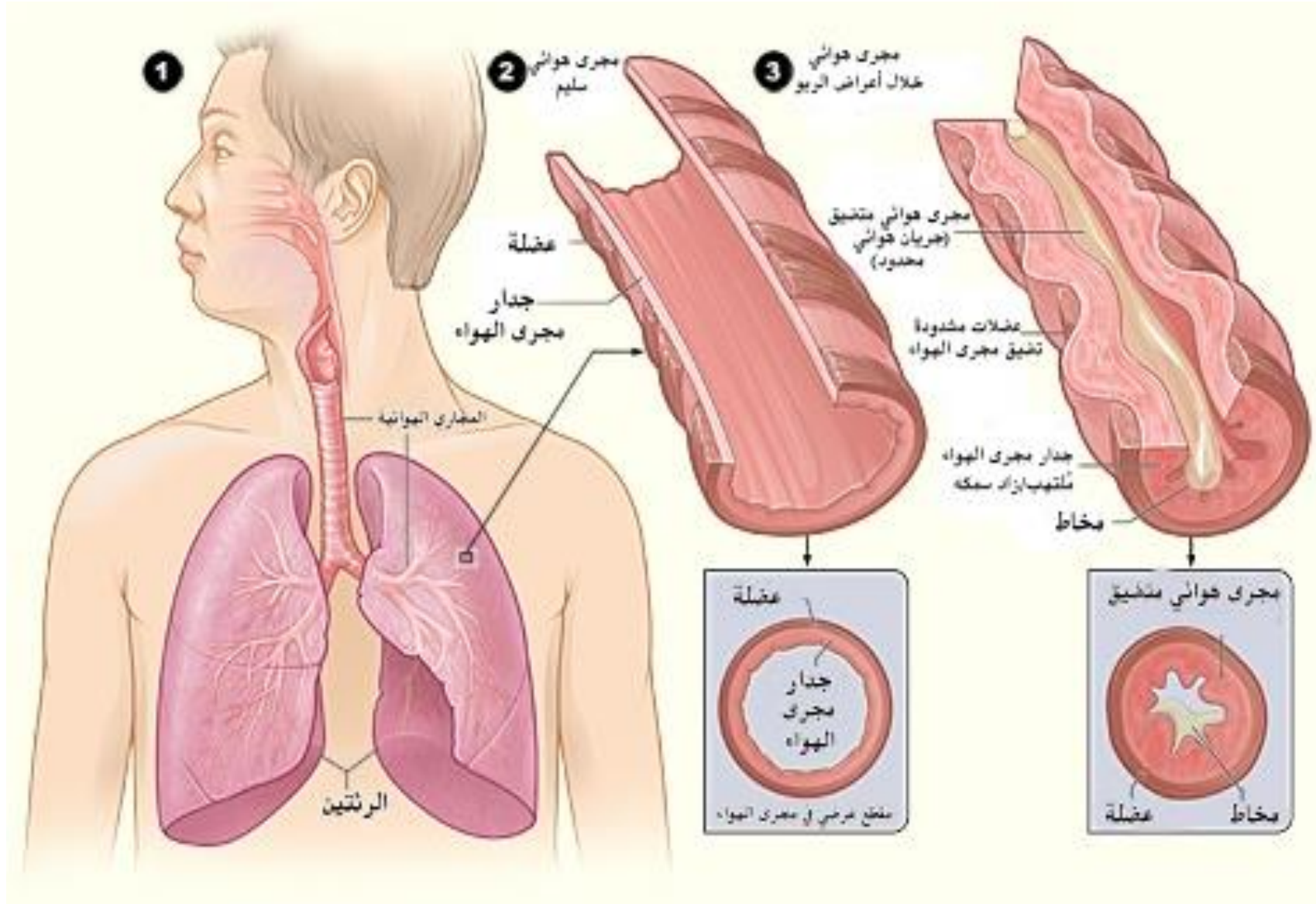
Definition There is no universally agreed definition.

Asthma is a chronic inflammatory disorder of the airway characterized by bronchial hyperreactivity to a variety of stimuli, leading to a variable degree of airway obstruction, some of which may become irreversible over many years.

Epidemiology It is the commonest chronic respiratory disease in the UK, with a prevalence of 10–15%

Airway obstruction occurs due to a combination of:

- Inflammatory cell infiltration
- Mucus hypersecretion with mucus plug formation
- Smooth muscle contraction


1
2
مجرى هوائي
سليم
3
مجرى هوائي
خلال أعراض الربو
عضلة
جدار
مجرى الهواء
مجرى هوائي متضيق
(جريان هوائي
محدود)
عضلات مشدودة
تضيق مجرى الهواء
جدار مجرى الهواء
ملتهب/زاد سمكه
مخاط
المجاري الهوائية
الرئتين
عضلة
جدار
مجرى
الهواء
مقطع عرضي في مجرى الهواء
مجرى هوائي متضيق
عضلة
مخاط

Clinical features •

- Cough
- SOB
- Wheeze
- Chest tightness

Examination •

- May be entirely normal
- Classically, expiratory wheeze is heard

How to diagnose asthma

The diagnosis is based on the presence of:

- Symptoms (cough, wheeze, breathlessness)
- Day-to-day peak flow variability (>15% variability or reversibility to inhaled β2 agonist)
- Airway hyperresponsiveness.

Consider the diagnosis of asthma in:

- Recurrent cough, episodic breathlessness, and wheeze
- Chest tightness
- Isolated or nocturnal cough
- Exercised-induced cough or breathlessness
- Hyperventilation syndrome

investigations

1- Peak flow recording/simple spirometry •

2- FBC (eosinophilia) is common in asthma •

3- IGE •

4- CXR •

Asthma severity

mild asthma

Moderate asthma

Sever asthma

Life threatening asthma

Near fatal asthma

Asthma is 5 steps

Step 1 symptoms less than twise a month

Step 2 symptoms twise a month or more but less than 4-5 days a week

Step 3 symptoms most days or waking with asthma once a week or more

Step 4 daily symptoms or waking with asthma once a week or more and low lung function

Step 5 short course OCS may also needed for patients presenting with severely uncontrolled asthma

Treatment of acute asthma

β2 agonist—inhaled or nebulized, e.g. nebulized salbutamol 2.5–5mg, • driven by O2 • Give repeated doses or continuous, e.g. 5–10mg/h

Anticholinergic—nebulized ipratropium bromide

Steroids—the earlier given in an attack, the better the outcome • Oral is as • effective as IV • Dose 40–50mg PO prednisolone, continuing for at least 5 days or until recovery.

Inhaled corticosteroids should be continued (or started as soon as possible) as • part of the chronic disease management plan

IV magnesium sulfate—immediately if very severe and if poor response to above • therapies, 1.2–2g IV infusion over 20min.

•

Continue treatments

- **IV aminophylline**—some patients may respond; Dose—5mg/kg loading dose over 20min, followed by continuous infusion of 0.5–0.7mg/kg (500mg in 500mL normal saline or 0.5% glucose at 0.5 × body weight in kg/mL/h). Side effects: nausea, arrhythmias, palpitations
- **Antibiotics**—not routinely given
- **IM adrenaline**—may be useful if near arrest, whilst awaiting ICU support

COPD

- COPD is common and is mostly due to smoking.

Definition

Fixed airflow obstruction

Minimal or no reversibility with bronchodilators

- Minimal variability in day-to-day symptom

- Slowly progressive and irreversible deterioration in lung function, leading to progressively worsening symptoms.

- Aetiology 95% of cases are smoking-related, typically >20 pack years. COPD occurs in 10–20% of smokers, indicating that there is probable genetic susceptibility. COPD is increasing in frequency worldwide, particularly in some developing countries, due to high levels of smoking, but also because of biomass fuel exposure. It can also be caused by environmental and occupational factors such as dusts, chemicals, and air pollution

Clinical feature

1- Dyspnea

2- Chronic cough, may be productive

3- Decreased exercise tolerance

4- Wheeze

Investigations

Cxr

Pft

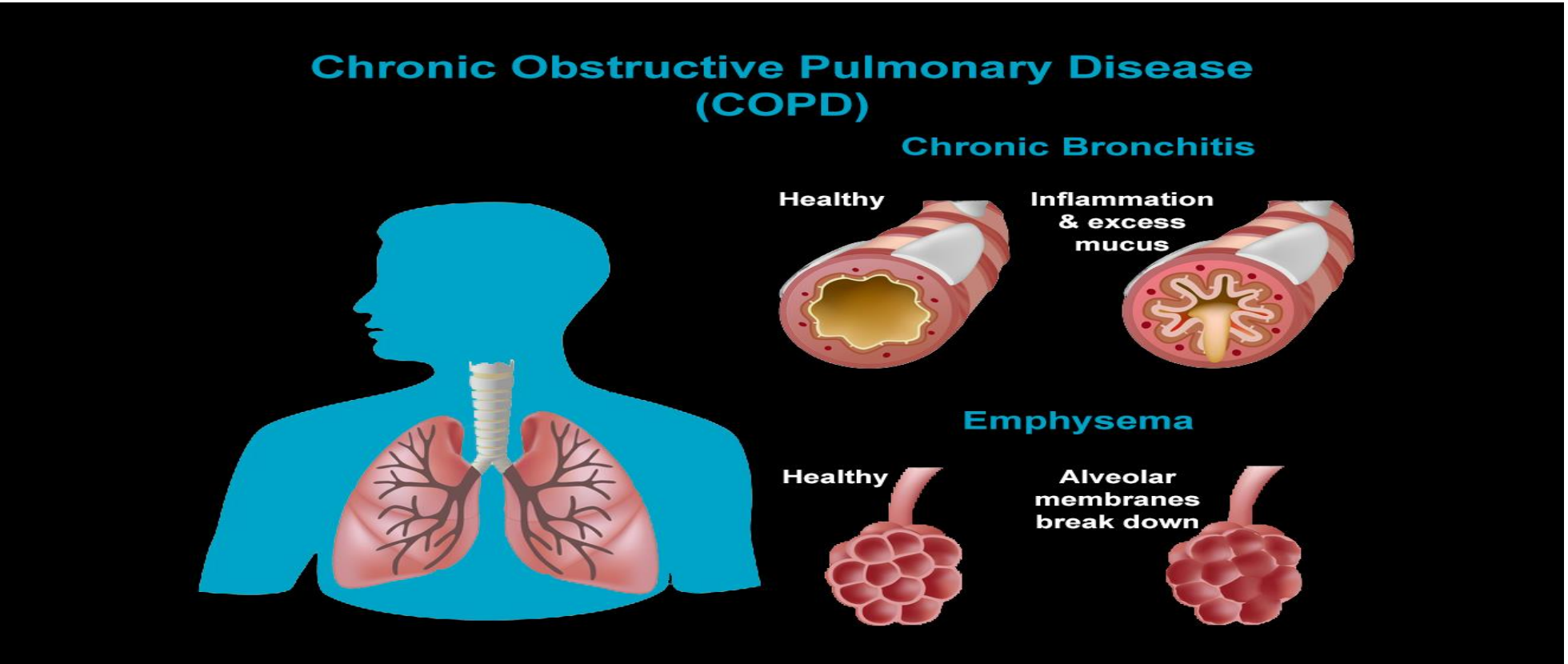
Cbc

Classification of COPD

Mild : FEVI 50-80% •

Moderate : FEVI 49-30% •

Sever: FEV1 less than 30% •



Non-pharmacological management of stable COPD

Smoke cessation

Education

Pulmonary rehabilitation

Diet

Self- management plan

Psychosocial support

Pharmacological management of stable COPD

Bronchodilators

Inhaled steroid

oral steriod

O2 therapy

Vaccination

Antibiotics like azithromicin and moxifluxacin tab

mucolytics

Management of acute exacerbation

Management summary: acute exacerbation of COPD • •

Assess the severity of the exacerbation by measuring RR, O2 saturations, • degree of air entry, tachycardia, BP, peripheral perfusion, conscious level, mental state •

Exclude a pneumothorax clinically • •

If hypoxic, give controlled 24–35% O2 via Venturi face mask to aim for SaO2 • 88–92%, salbutamol nebulizer; establish venous access •

Check blood gas • •

Request a CXR • Perform ECG • Check bloods for WCC, CRP, • potassium, etc. • Optimize volume status • Take a brief history, if possible

continue

nebulized bronchodilators—salbutamol 2.5–5mg and ipratropium 500 micrograms on arrival and 4–6-hourly. Run nebulizer with air, not O2 •

Continued low concentration O2 therapy, aiming to maintain saturations between 88% and 92%.

Repeat blood gases after 60min to ensure improvement if hypoxic or acidotic. Repeat if clinical deterioration •

Consider antibiotics •

Oral steroids •

Consider IV aminophylline if not improving with nebulizers

Continue

Consider intensive care—ideally, consultant-led decision with the patient, their family, and ITU regarding invasive mechanical ventilation. Document in the medical notes.

Consider resuscitation status

Consider NIV—pH 7.3 or less, hypoxia, hypercapnia, conscious level

Consider doxapram if NIV not available or not tolerated

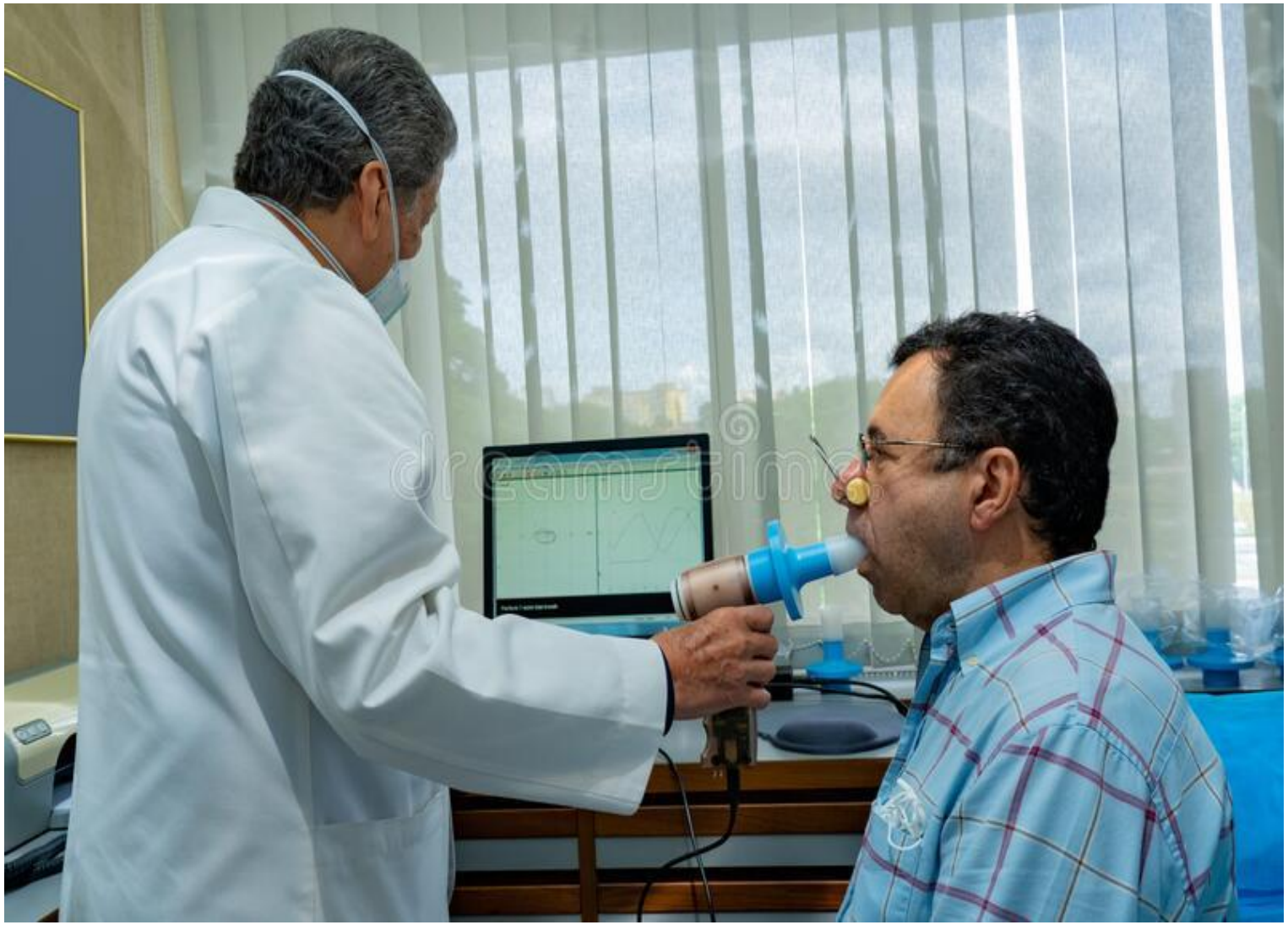
DVT prophylaxis

Early mobilization

nutrition.

Neubolizer device

NIV ventilator



Pulmonary function test

Thank you•