Edited past paper

RESPIRATORY

1- A 62-year-old smoker gentleman retired school principal, presented to the outpatient clinic with a history of chronic dry cough, his cough is associated with dyspnea on minimal exertion. He denies wheezes, chest pain, fever, anorexia, or weight loss. His drug history includes Insulin, Amlodipine, Hydrochlorothiazide, and Simvastatin. On physical examination there is finger clubbing, JVP is not raised, heart sounds are normal, on auscultation of the chest there is decreased bilateral vesicular breath sounds with fine end-inspiratory crackles, the next step in the management is:

a. Spirometry with bronchodilator

b. Full blood count

c. Chest CT scan with contrast

d. High-resolution chest CT

e. Antinuclear antibody (ANA)

Answer : d

How can ILD be investigated?

- High resolution CT chest
  - Some causes have specific appearances
- Pulmonary function tests
- Lung Biopsy
- Blood tests
- MDT

…the choice of tests depends on the clinical presentation

2- 60-year-old man comes with productive cough, hemoptysis, weight loss, night sweats. His chest X-ray shows a right upper lobe cavity. You suspect that he has tuberculosis. His HIV test is negative. His sputum Acid Fast Bacillus was negative on three occasions. The best next step in his management is:

a. Repeat sputum AFB after one month

b. Do blood culture for mycobacteria

c. Do bronchoscopy

d. Treat empirically for TB

e. Do PPD test

Answer: c

Bronchoscopy allows for direct visualization of the airways and can facilitate obtaining samples from the lungs, which may yield a diagnosis of TB through bronchoalveolar lavage or biopsy, especially in cases where sputum tests are inconclusive.

3- 52-year-old gentleman presents with feeling unwell, a cough productive of green sputum with occasional blood streaks. He is also complaining of shortness of breath and has a cold sore. On examination he is febrile (38.8 C°), tachypneic, tachycardic and there is left basal coarse crackles. What is the most likely diagnosis?

a. Viral pneumonia

b. Pneumonia due to Streptococcus pneumoniae

c. Pneumonia secondary to Mycoplasma pneumoniae

d. Pneumonia secondary to Klebsiella pneumoniae

e. Pneumonia due to Staphylococcus aureus

Answer : b

This organism is a common cause of community-acquired pneumonia, particularly in adults. The presence of green sputum and systemic symptoms such as fever and tachypnea align with typical features of a bacterial pneumonia, especially caused by Streptococcus pneumoniae. The history of a cold sore may suggest a recent viral infection, but the predominant findings indicate a bacterial pneumonia.

4- One of the following is not considered a sign of severe asthma attack:

a. Peak expiratory flow (PEF) 40%

b. Oxygen saturation is 88%

c. Respiratory rate is 32

d. Agitated and sits hunched forward

e. Expiratory wheezes

Answer : e

Physical Examination

Severe episode

- Shortness of breath at rest
- Talk in words
- Respiratory rate: greater than 30/min
- Use of accessory muscles
- Heart rate is more than 120 bpm
- Loud biphasic (expiratory and inspiratory) wheezing
- Pulsus paradoxus is often present (20-40 mm Hg)
- O2 sat less than 91%
- Sitting position: tripod position.

5- 47-year-old female status post abdominal hysterectomy 3 days ago suddenly develops left sided chest pain that worsens with deep inspiration and dyspnea. On exam, she is tachycardic, febrile (37.7 C°) and tachypneic with crackles in the left lower lobe. A chest x-ray is unremarkable, and an ECG reveals sinus tachycardia. Which of the following is the most likely diagnosis?

a. Pulmonary embolism

b. Hospital acquired pneumonia

c. Pneumothorax

d. Atelectasis

e. Acute myocardial infarction

Answer : a

The unremarkable chest X-ray and the timing after surgery increase the suspicion of PE. The sudden onset of chest pain, dyspnea, and tachycardia, along with the recent surgery, raises concern for this condition.

6- Which of the following leads to hypoxia with a normal A-a gradient?

a. Shunting

b. Pulmonary embolus

c. Diffusion defect

d. V/Q mismatch

e. High altitude

Answer: e

Causes of Hypoxemia			
Cause	**PaO_2**	**A-a gradient**	**PaO_2 response to supplemental oxygen**
Hypoventilation	Decreased	Normal	Increases
Diffusion Impairment	Decreased	Increased	Increases
Shunt	Decreased	Increased	Does not increase.
V/Q Mismatch	Decreased	Increased	Usually increases (depends on V/Q mismatch type)
High Altitude	Decreased	Normal	Increases

Respiratory-failure-Dr.khalid's lec. Slide 23

7- Which of the following pathogens most commonly complicates H1N1 influenza?

a. Haemophilus influenzae

b. Streptococcus pneumoniae

c. Legionella pneumophila

d. Anaerobic bacteria

e. Mycoplasma pneumoniae

Answer : b

Streptococcus pneumoniae is a frequent cause of secondary bacterial pneumonia following influenza infections, including H1N1. Influenza can compromise the respiratory tract's defenses, making patients more susceptible to bacterial superinfection.

8- A 55-year-old gentleman presents with extreme tiredness & difficulty concentrating. His wife states he is irritable, and he is a very loud snorer and occasionally chokes during the night. His libido is low, he is suffering from headaches and he has been falling asleep during the day as he feels very unrefreshed after his sleep. His BMI is 35. What investigation will give the diagnosis?

a. CXR

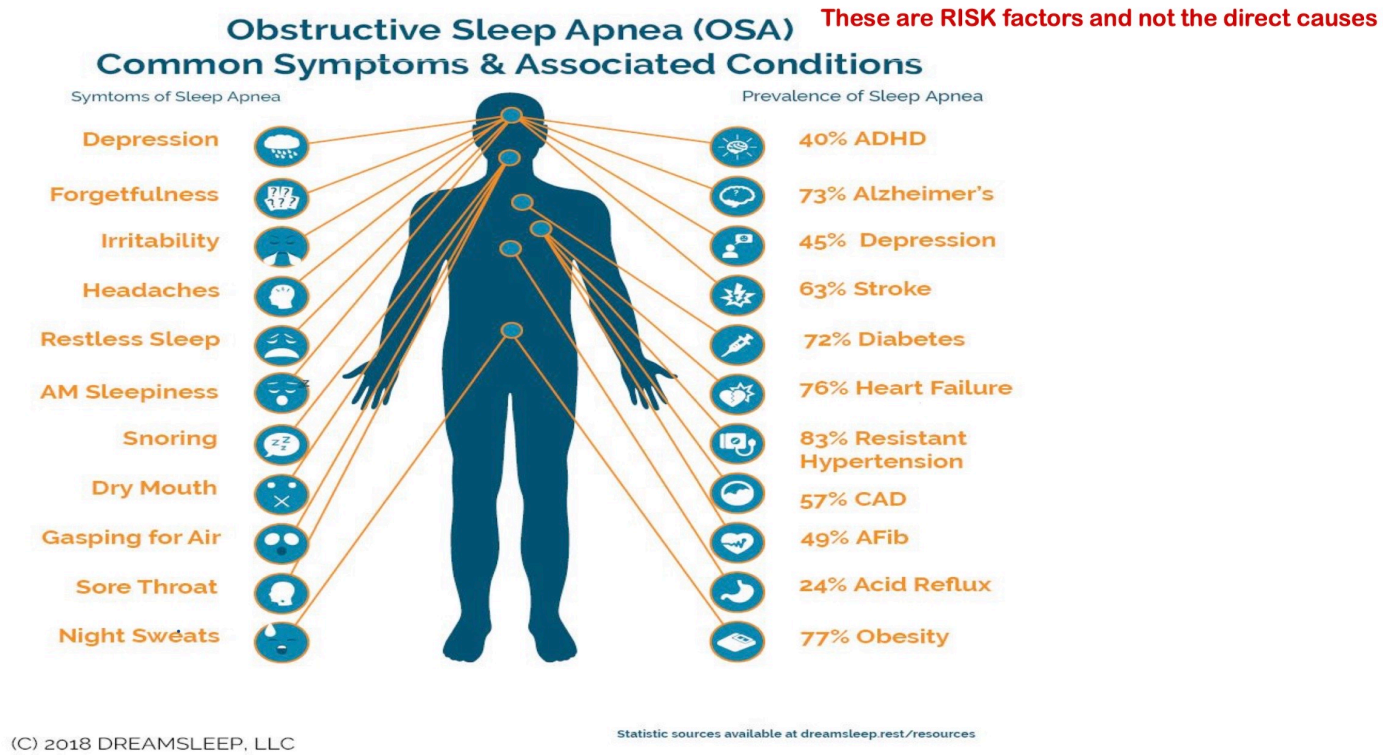
b. Sleep study

c. Thyroid function test

d. Liver function test

e. Pulmonary function test

Answer : b


Obstructive Sleep Apnea (OSA)
Common Symptoms & Associated Conditions
These are RISK factors and not the direct causes
Symtoms of Sleep Apnea
Depression
Forgetfulness
Irritability
Headaches
Restless Sleep
AM Sleepiness
Snoring
Dry Mouth
Gasping for Air
Sore Throat
Night Sweats
Prevalence of Sleep Apnea
40% ADHD
73% Alzheimer's
45% Depression
63% Stroke
72% Diabetes
76% Heart Failure
83% Resistant Hypertension
57% CAD
49% AFib
24% Acid Reflux
77% Obesity
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Statistic sources available at dreamsleep.rest/resources

9- A 40-year-old male patient is being mechanically ventilated with 100% oxygen & has the following arterial blood gas: pH 7.40, $PaCO_2$ 30 mmHg, PaO_2 65 mmHg. What is the main mechanism of the hypoxemia in this patient?

a. Ventilation-perfusion mismatch

b. Intrapulmonary shunting

c. Pulmonary diffusion abnormalities

d. Hypoventilation

e. Low FIO_2

Answer : b

the patient is mechanically ventilated with 100% oxygen but has a ↓ PaO_2 of 65 mmHg, with a normal pH and ↓ $PaCO_2$. This indicates that despite being on high-flow oxygen, the patient is still experiencing significant hypoxemia.

Pulmonary shunt(right-to-left shunt)

- The venous deoxygenated blood from the right side enters the left side of the heart and systemic circulation **without getting oxygenated within the alveoli**.
- So, shunt refers to "**normal perfusion, poor ventilation**."
- The lungs have a normal blood supply, but ventilation is decreased or absent, resulting in failure to exchange gases with the incoming deoxygenated blood.
- The ventilation/perfusion ratio is or near to zero.

- **The A-a gradient increases** as deoxygenated blood enter the arterial (systemic) circulation, decreasing the arterial oxygen tension, PaO_2.
- Therefore, increasing the oxygen concentration does not correct the hypoxemia. The blood will bypass the lungs, no matter how high the oxygen concentration.
- **This failure to increase PaO_2 after oxygen administration** is a very important point and helps with a differential diagnosis between impaired diffusion and other causes of hypoxemia that resolve with supplemental oxygen.

- For example, in **atelectasis**, the collapsed lung is not ventilated, and the blood **within that segment** fails to oxygenate.
- In **cyanotic heart diseases**, the blood from right side bypasses (shunts) the lungs and enters the left side, causing **hypoxemia** and **cyanosis**.

Respiratory-failure-Dr.khalid-slids 11-13

10- A 61-year-old man, smoker, diagnosed 4 years ago as COPD, presented to the emergency room with increased dyspnea, productive cough, increased yellow sputum but without fever. The FEV1 is 1L, FVC is 2L. His ABG now is pH 7.29, $PaCO_2$ is 56, HCO_3^- is 28, & PaO_2 is 35. All of the following statements regarding this condition are true EXCEPT:

a. This patient has hypoventilation

b. This patient has V/Q mismatch

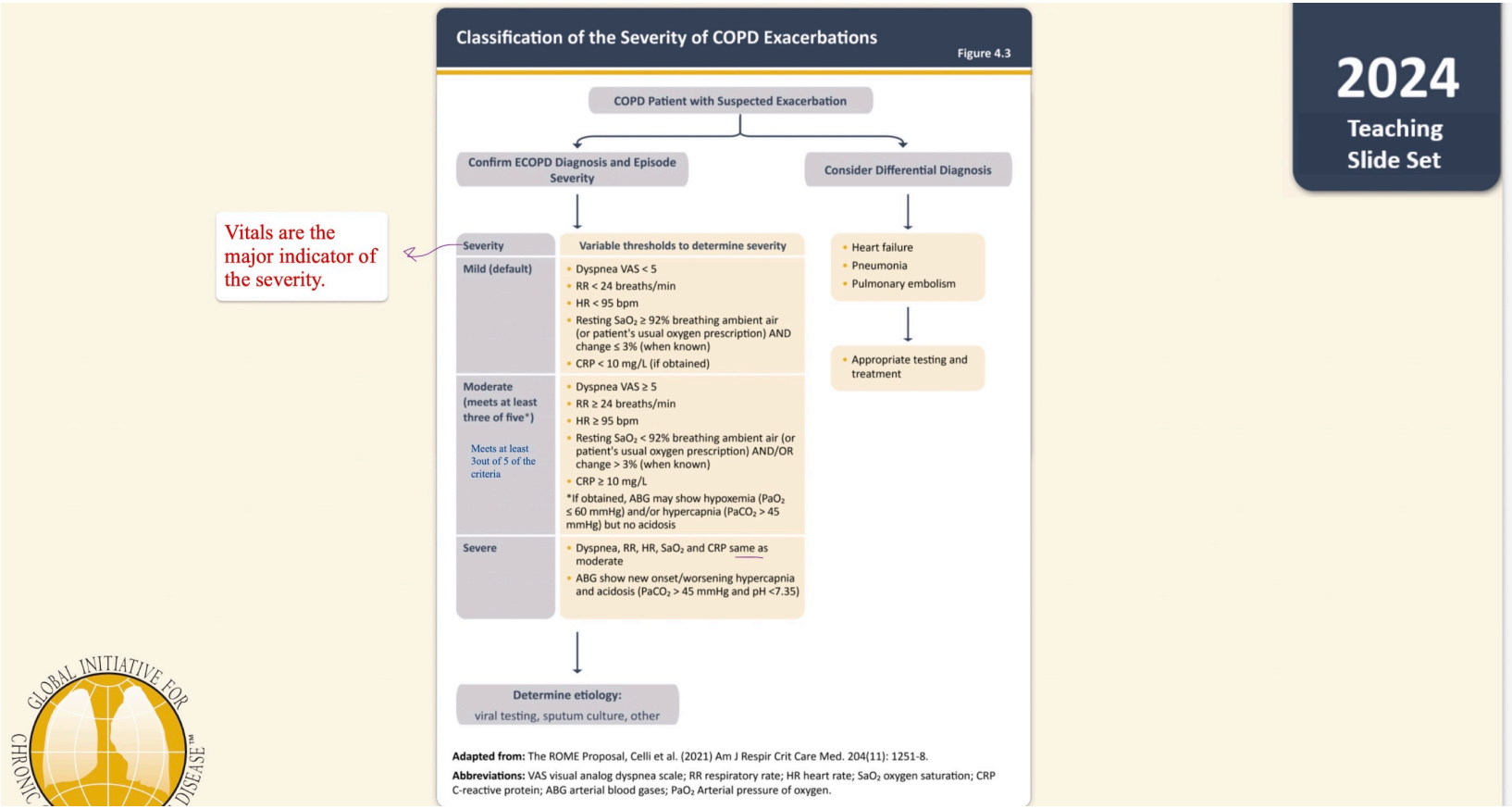
c. Positive pressure non-invasive ventilation is appropriate therapy

d. Refractory Hypoxia is a common problem

e. H. Influenza is common cause of infection among such condition

Answer : e

the absence of fever makes the diagnosis of H.influenza less likely



11- The following FVL is typical for which one of the following conditions?

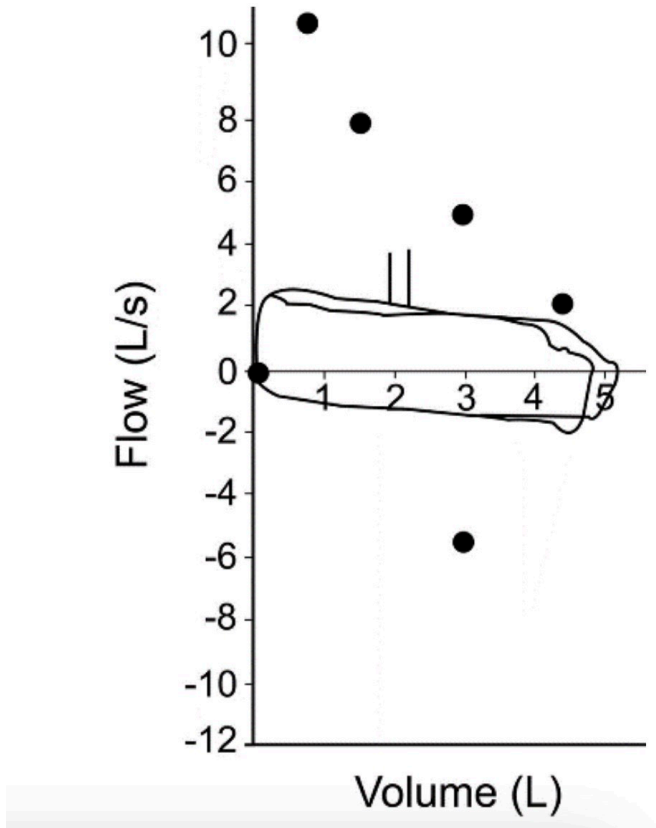
a. Variable extra-thoracic obstruction

b. Fixed Airway obstruction

c. Variable Intra-thoracic obstruction

d. Severe Emphysema

e. Lung Fibrosis



Answer : b

12- All of the following are true regarding the Pulmonary Function testing are true EXCEPT:

a. Peak Flow Meter is used to assess for variability

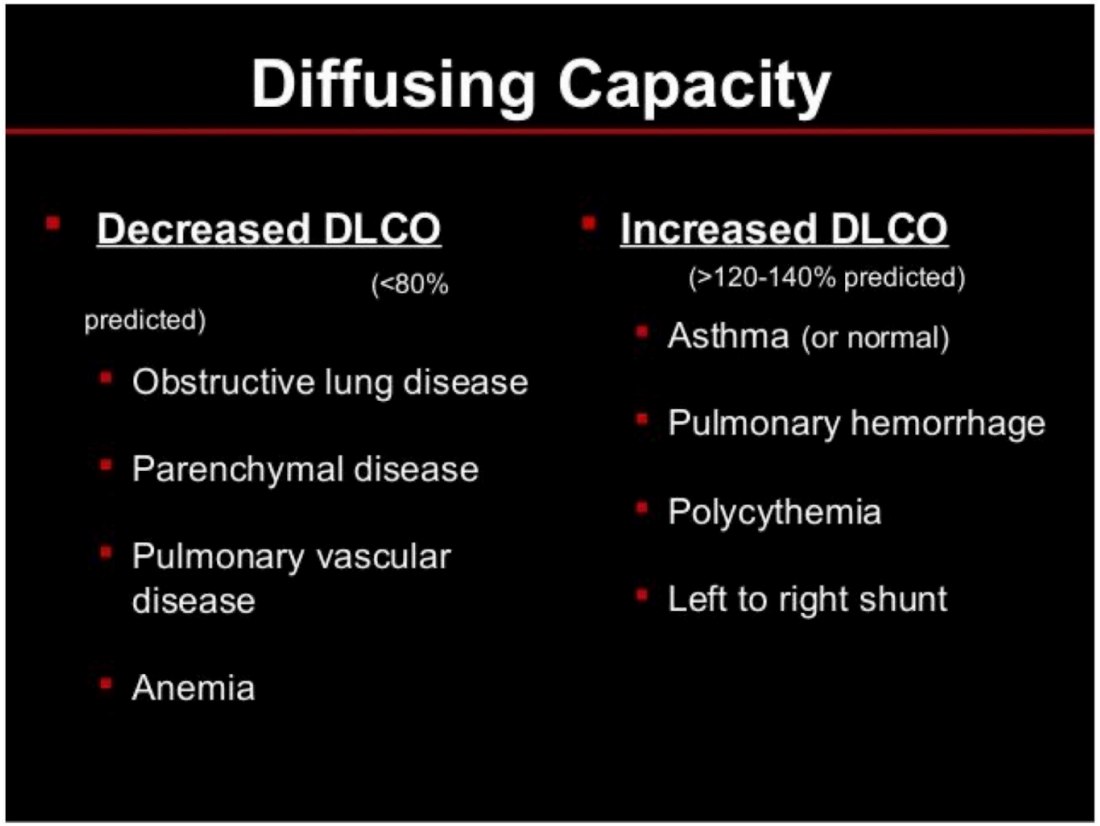
b. Spirometry is effort dependent test

c. Flow Volume Loop is of value to differentiate Upper from lower airway obstruction

d. Residual volume is increased in Asthma

e. DLCO is used to differentiate Emphysema from IPF

Answer: e



Pulmonary function tests, slide 31

13- A 30-year-old woman presented to the Emergency Room with acute attack of her Asthma symptoms. An ABG on room air and Spirometry were done for her in the E/R. All of the following parameters are associated with severe asthma attack EXCEPT:

a. $PaCO_2$ of 43

b. pH of 7.30 with HCO_3 of 27

c. $PaCO_2$ of 52

d. FEV1 of 40% of predicted

e. $P(A\text{-}a)O_2$ of 22

Answer: b

This is an old question that's answered based on old guidelines. Forget about it.

14- All of the following are expected physiological disturbances seen in Pulmonary Emphysema EXCEPT:

a. Low FEV1

b. Low FVC

c. Low FEV1/FVC

d. Low Compliance

e. Low DLCO

Answer : d

15- A 66-year-old man with a history of snoring. The following is a typical fraction from his polysomnography. The sleep disturbances seen in this piece of his polysomnography is:

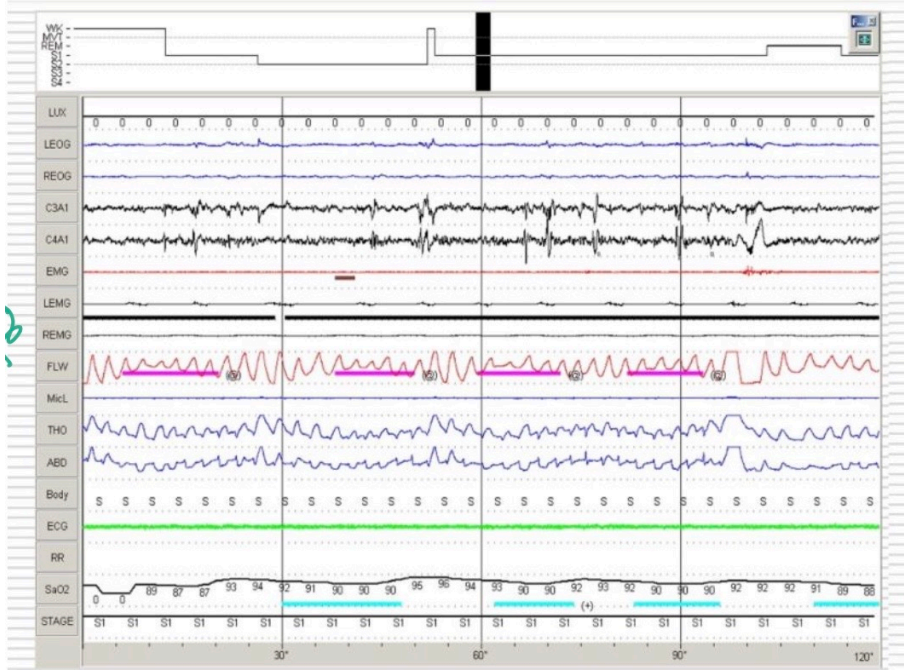
a. Obstructive apnea

b. Central apnea

c. Upper airway resistance syndrome

d. Mixed sleep apnea

e. Hypopnea



Answer : e

16- A 44-year-old male smoker, presented with progressive dyspnea for the last 6 months, the chest examination was positive for decrease breath sounds, expiratory wheezes, & prolonged expiratory phase. Spirometry showed an FEV1/FVC of 60%. All of the followings can cause this condition EXCEPT:

a. Myasthenia Gravis

b. Emphysema

c. Sarcoidosis

d. Tuberculosis

e. Bronchiolitis obliterans

Answer : a

17- A 60-year-old man presented to the Emergency Department with Pneumonia. Physical examination showed that he is in pain, Temperature of 40° C, BP of 85/55 mmHg, Blood urea is 90 mg/dl and WBC is 25000. The CURB65 score for this patient is:

a. 1

b. 2

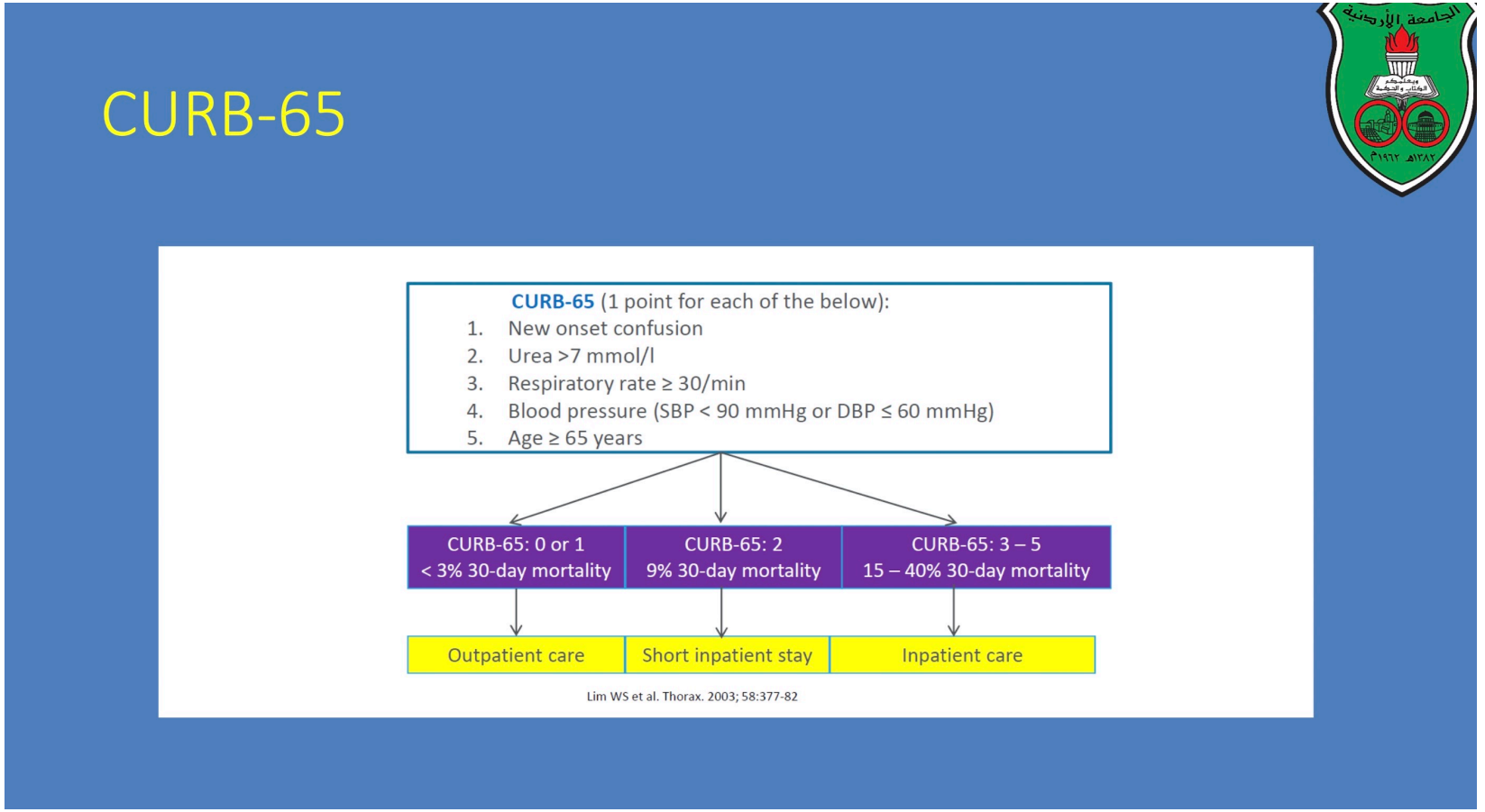
c. 3

d. 4

e. 5

Answer : b

(important)



18- The following is a typical Flow volume loop curve for a patient with which of the following conditions?

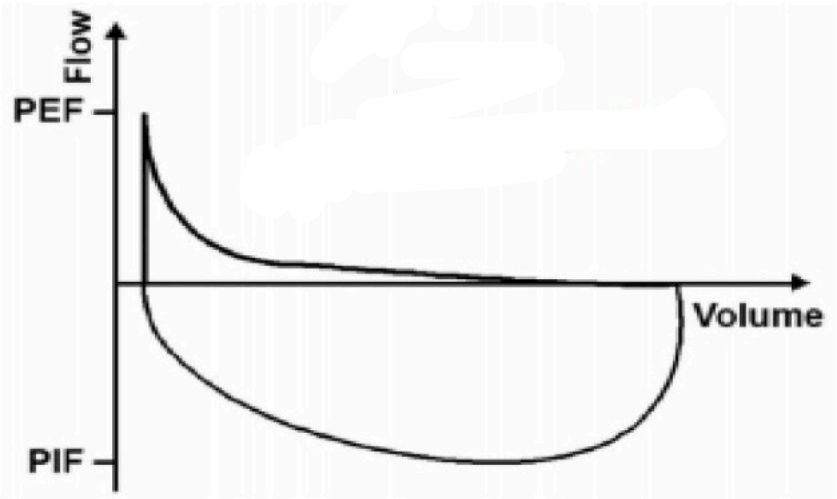
a. Severe tracheal stenosis

b. Severe Gillian Barrie disease

c. Severe Vocal cord dysfunction

d. Severe interstitial lung disease

e. Severe Emphysema



Answer : e

Expiratory proplem (intra-thoracic)

19- a 33-year-old female lady presented with symptoms of polyuria, polydipsia, & constipation. She is also complaining of new onset shortness of breath & found to have bilateral hilar lymphadenopathy with lung nodularity mainly around broncho-vascular bundle on high resolution CT scan. She has tender red nodules on the right leg. The most likely diagnosis is:

a. Adenocarcinoma of the lung

b. Sarcoidosis

c. Metastatic breast cancer

d. Hypersensitivity pneumonitis

e. Lymphoma

Answer : b

20- A 59-year-old smoker gentleman presented with a 5-days history of fever. He complained of 3-days history of nausea, vomiting, non-bloody diarrhea. Over the past 2 days, he felt short of breath & presented in a state of dyspnea. He developed a cough with small amounts of yellow-brown sputum. On examination, you find skin lesions of erythema nodosum. You diagnosed him with pneumonia. What is the most likely cause of this patient's pneumonia?

a. Streptococcus pneumoniae

b. Haemophilus influenzae

c. Klebsiella pneumoniae

d. Viral pneumonia

e. Mycoplasma pneumonia

Answer : e

the presence of other extra-pulmonary symptomes favors M.pneumonia over S.pneumonia.

Conditions associated with erythema nodosum

Infections
Bacterial
▪ Streptococcal infection (the most common infectious cause) ▪ Tuberculosis ▪ Leprosy ▪ *Yersinia*, *Salmonella*, *Campylobacter* gastroenteritis ▪ *Mycoplasma* pneumonia ▪ Tularemia ▪ Leptospirosis ▪ Brucellosis ▪ *Chlamydia trachomatis* ▪ Psittacosis ▪ Lymphogranuloma venereum ▪ Cat-scratch disease ▪ Q fever (*Coxiella burnetii* infection)

21- A 60-year-old patient who is known case of COPD on long acting muscarinic agent (LAMA) presented with increasing shortness of breath on exertion, mild sputum production, & fatigue. His modified medical research (MMRC) scale of dyspnea is now 3 (used to be 1). On examination, poor air entry bilaterally with prolonged expiration & scattered wheeze all over his chest posteriorly. His oxygen saturation is 92% on room air. The next step in the management of this patient is:

a. Chest x-ray

b. Diffusion capacity of the lung for carbon monoxide (DLCO)

c. Spirometry

d. Complete blood count

e. Arterial blood gases

Answer : e

To assess the severity of COPD exacerbation.

22- A 50-year-old gentleman who’s a known case of COPD presented with right pneumothorax. All of the following physical findings are consistent with the diagnosis of pneumothorax EXCEPT:

a. Increased tactile vocal fremitus on the right side

b. Hyper-resonance percussion note on the right side

c. Decreased chest wall movement on the right side

d. Decreased breath sounds on the right side

e. Respiratory distress

Answer : a

Physical findings in select lung diseases

ABNORMALITY	BREATH SOUNDS	PERCUSSION	FREMITUS	TRACHEAL DEVIATION
Pleural effusion	↓	Dull	↓	None if small Away from side of lesion if large
Atelectasis	↓	Dull	↓	Toward side of lesion
Simple pneumothorax	↓	Hyperresonant	↓	None
Tension pneumothorax	↓	Hyperresonant	↓	Away from side of lesion
Consolidation (lobar pneumonia, pulmonary edema)	Bronchial breath sounds; late inspiratory crackles, egophony, whispered pectoriloquy	Dull	↑	None

THE I FIRST AID FOR USMLE STEP 1

23- A 67-year-old man presents with dyspnea & pleuritic chest pain that has worsened over the past month. On physical examination you find decreased air entry in the right lower lobe with dullness to percussion. Chest x-ray shows right pleural effusion. Pleural fluid analysis reveals high LDH & high protein. What is the most likely cause of the patient's effusion?

a. Heart failure

b. Liver disease

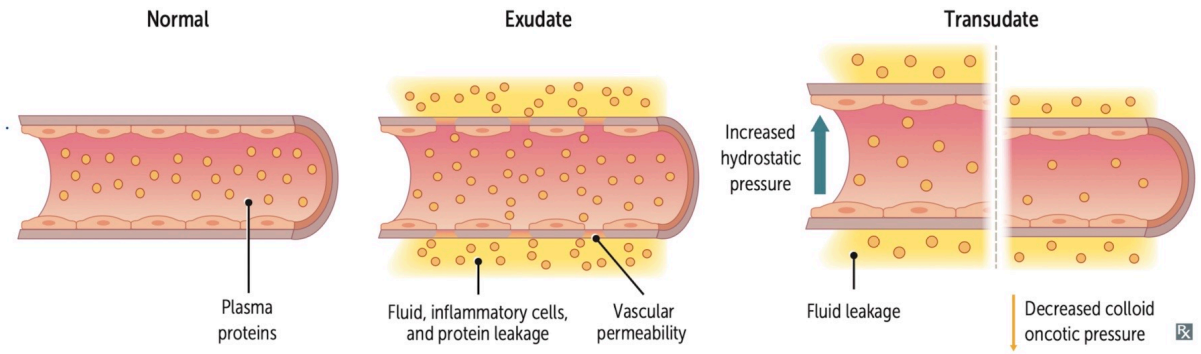
c. Para-pneumonic effusion

d. Nephrotic syndrome

e. Atelectasis

Answer : c

Pleural effusions	Excess accumulation of fluid A between pleural layers → restricted lung expansion during inspiration. Can be treated with thoracentesis to remove/reduce fluid B. Based on the Light's criteria, fluid is consistent with an exudate if pleural fluid protein/serum protein > 0.5, pleural fluid LDH/serum LDH > 0.6, or pleural fluid LDH > 2/3 upper limit of normal serum LDH.
Exudate	Cloudy fluid (cellular). Due to infection (eg, pneumonia, tuberculosis), malignancy, connective tissue disease, lymphatic (chylothorax), trauma. Often requires drainage due to ↑ risk of infection.
Transudate	Clear fluid (hypocellular). Due to ↑ hydrostatic pressure (eg, HF, Na^+ retention) and/or ↓ oncotic pressure (eg, nephrotic syndrome, cirrhosis).



24- All of the following are associated with COPD exacerbation (risk factors & triggers) EXCEPT:

a. Smoking & air pollution

b. Severe airflow limitation

c. BMI of 24 kg/m2

d. A history of previous exacerbations

e. Bacterial or viral infection

Answer : c

25- All of the following are known triggers to asthma exacerbation EXCEPT:

a. GERD

b. Obesity

c. Upper respiratory tract infection

d. Allergens

e. Cold air

Answer : b

"trigger" such as viral upper respiratory infection, allergen, air pollution or other irritant exposure, lack of adherence to controller medication, or an unknown stimulus. Up to date

So obesity is risk factor to develop asthma not trigger For exacerbation

26- A 17-year-old boy presents with a left lower lobe pneumonia. He has a history of recurrent chest infections & of productive cough that occurs everyday. You are told by his parents that he has had “loose stool” since childhood. Upon further investigation, you find out that his vas deferens are absent. What is the most likely diagnosis?

a. Cystic fibrosis

b. Primary ciliary dyskinesia

c. Bronchiolitis

d. Foreign body aspiration

e. Acute bronchitis

Answer A

Recurrent pneumonia>>Thick mucus and impaired mucociliary clearance

Daily productive cough>>Chronic bronchiectasis and mucus plugging

Loose stools>>Pancreatic insufficiency → fat malabsorption

Absent vas deferens>>**Congenital bilateral absence of the vas deferens (CBAVD)** is common in males with CF and causes infertility

- Presentation:
  - Major cause of severe chronic lung disease and most common cause of exocrine pancreatic deficiency in children.
  - Over one-third of CF patients are adults. Look for a young adult with chronic lung disease (cough, sputum, hemoptysis, bronchiectasis, wheezing, and dyspnea) and recurrent episodes of infection. Sinus pain and polyps are common.
  - Lung disease accounts for 95% of deaths in CF.
  - Gastrointestinal Involvement:
    - Meconium ileus in infants with abdominal distention.
    - Pancreatic insufficiency (in 90%) with steatorrhea and vitamin A, D, E, and K malabsorption.
    - Recurrent pancreatitis.
    - Distal intestinal obstruction.
    - Biliary cirrhosis.
    - Islets are spared. Beta cell function is normal until much later in life.

  - Genitourinary Involvement:
    - Almost all male patients with cystic fibrosis have obstructive azoospermia from congenital bilateral absence of the vas deferens. The vas deferens fails to develop due to accumulation of inspissated mucus in the fetal genital tract, resulting in infertility.
    - Women are infertile because chronic lung disease alters the menstrual cycle and thick cervical mucus blocks sperm entry.
  - Sweat glands:
    - Excessive loss of salt → salt depletion, especially with hot weather.
    - Salty taste of skin.

27- All of the following are true about idiopathic pulmonary fibrosis (IPF) EXCEPT:

a. No extra-pulmonary manifestation except clubbing

b. A restrictive intra-pulmonary process is evident on PFTs

c. Surgical biopsy is used for diagnosis

d. Lung transplantation is the only therapy that may improve survival

e. It is typically seen in the 5th decade of life

Answer : c

Diagnostic **High-Resolution Computed Tomography (HRCT)**

28- A 57-year-old male patient presented with shortness of breath. He has FEV1 of 45% of predicted, FVC of 50% of predicted, FEV1/FVC of 55%. All of the following can cause such findings EXCEPT:

a. Bronchiectasis

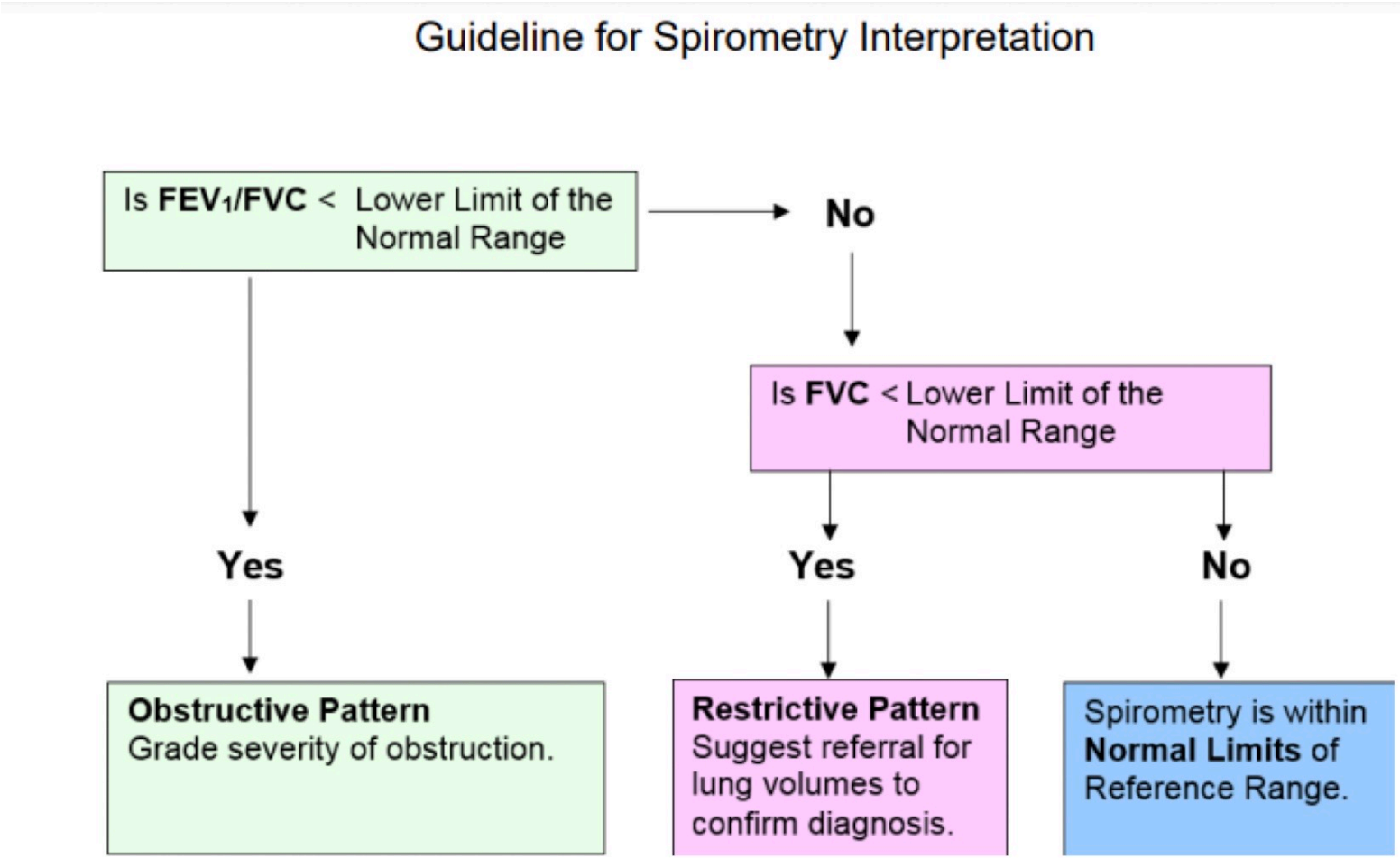
b. COPD

c. Asthma

d. Kyphoscoliosis

e. Bronchiolitis obliterans

Answer : d



Kyphoscoliosis produces one of the most severe restrictive

29- All of the following are associated with increased risk for OSA EXCEPT:

a. Obesity

b. Female gender

c. Resistant hypertension

d. CAD

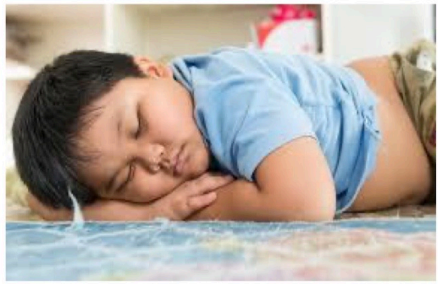
e. Depression

Answer: B

OSA is more common in men than in women, especially in premenopausal women.after menopause f=m

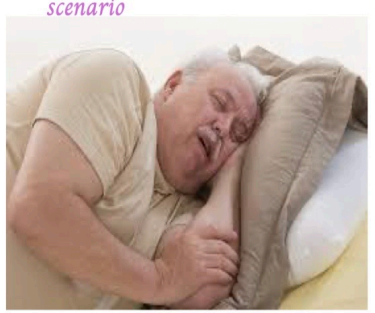
Risk factors

Obesity



Alcohole

Obese male >50y, is the typical scenario



micrognathic mandible

Post Menopause

Sedative drugs (anti epileptic, opioids,...)

natomical structures : 1. Adenoids 2. Tonsils
hey are very strong risk factors BUT not a CAUSE

Hypothyroidism

30- All of the following are true about small cell lung carcinoma (SCLC) EXCEPT:

a. It is the most common cause of malignancy-related SIADH

b. It is associated with Pancoast tumour

c. Cushing syndrome is common in patients with SCLC

d. It is very responsive to chemotherapy

e. It is the most common cancer associated with paraneoplastic neurologic syndromes

Answer : b

Pathology — The overwhelming majority of superior sulcus tumors (pancost)are non-small cell lung cancers (NSCLCs), and in the past were mainly squamous cell carcinomas , although in subsequent series adenocarcinomas predominate (Up to date)

Pancoast tumors cause **Horner syndrome** (ptosis, miosis, anhidrosis) due to compression of the **stellate ganglion**.

They also invade the **brachial plexus**, leading to **shoulder/arm pain and weakness**

31- What is the value that the arrow points to?

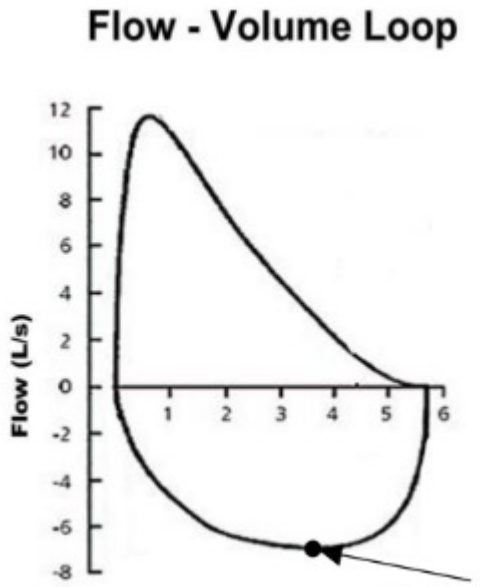
a. Peak expiratory flow

b. Peak inspiratory flow

c. Total lung capacity

d. Residual volume

e. Forced vital capacity



Answer : b

32- What is the best diagnostic test of asthma?

a. Spirometry with reversibility

b. Arterial blood gases

c. Chest x-ray d. Bronchoscopy

e. Diffusion capacity of the lung for carbon monoxide (DLCO

Answer: A

1- Spirometry measures lung function, specifically:

FEV1 → How much air a person can exhale in one second.

FVC→ The total volume of air exhaled forcefully after full inspiration.

FEV1/FVC Ratio → Helps distinguish obstructive vs. restrictive lung disease.

2- Reversibility test

Asthma is characterized by reversible airway obstruction.

After administration of a short-acting bronchodilator (e.g., albuterol), a ≥12% and ≥200 mL increase in FEV1 confirms reversible airway obstruction, which is diagnostic of asthma

33- What is the best test used for the evaluation of the severity of an asthma attack?

a. FEV1

b. FVC

c. PEF

d. PIF

e. DLCO

Answer: C

34- Which of the following doesn’t cause wheezing?

a. IPF

b. COPD

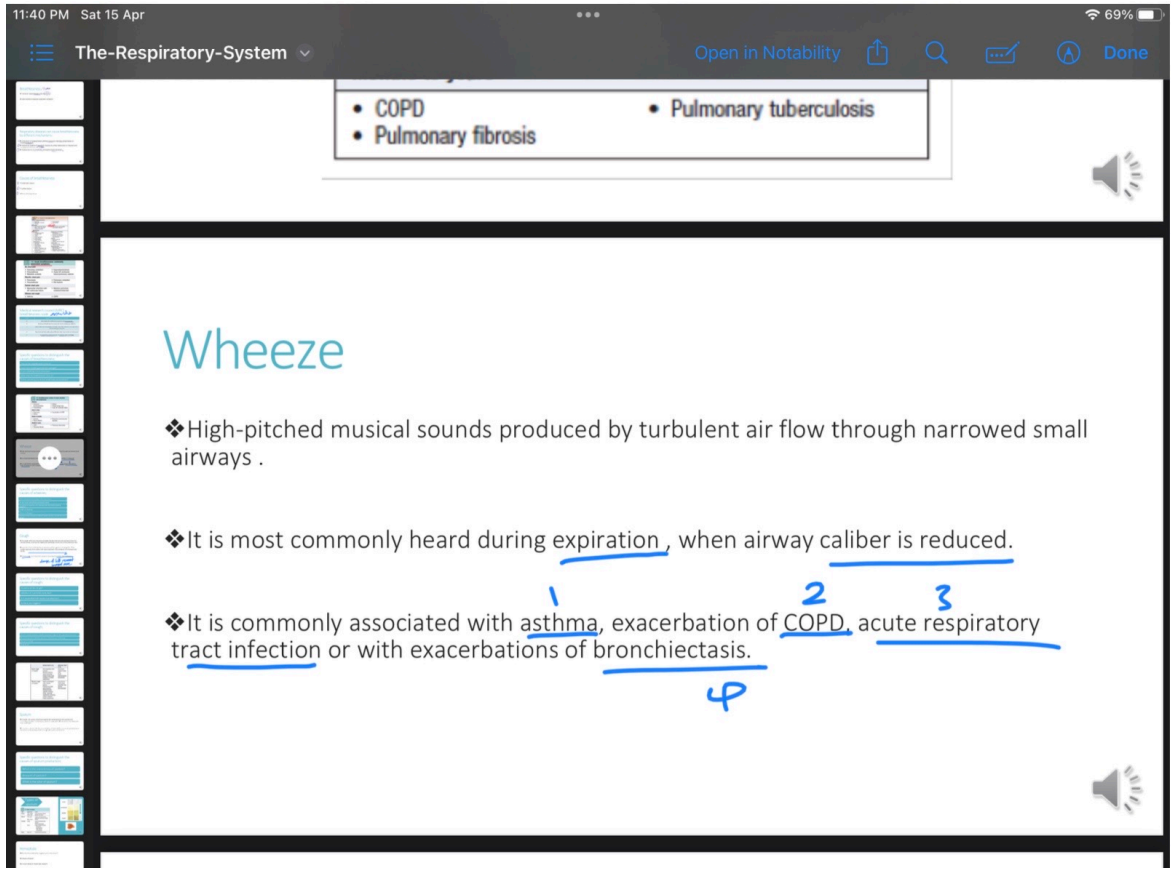
c. Bronchitis

d. Asthma

e. Cystic fibrosis

Answer: A

IPF primarily causes lung scarring, leading to symptoms like shortness of breath and dry cough, but not typically wheezing ..



35- A 67-year-old gentleman comes to the clinic complaining of increasing fatigue. He said that he'd become short of breath when he bends over. It lasts about 60 seconds with some headache & dizziness. On examination, you find out that his neck veins are dilated with purplish dis-colouration across the chest. What is the most likely diagnosis?

a. SVC obstruction

b. Pneumonia

c. Angioedema

d. COPD

e. Asthma

Answer: A

Pneumonia: Typically causes fever, cough, and chest pain, not dilated neck veins or positional shortness of breath. Angioedema: Involves swelling (often facial) due to an allergic reaction, not dilated veins or chest dis-coloration. COPD (Chronic Obstructive Pulmonary Disease): Causes chronic shortness of breath and wheezing, but not typically positional symptoms or dilated neck veins. Asthma: Involves wheezing and shortness of breath, often triggered by allergens, not positional symptoms or vein dilation... The 60sec related to timing of that position (bending)

36- All of the following are associated with normal or high DLCO EXCEPT:

a. Emphysema

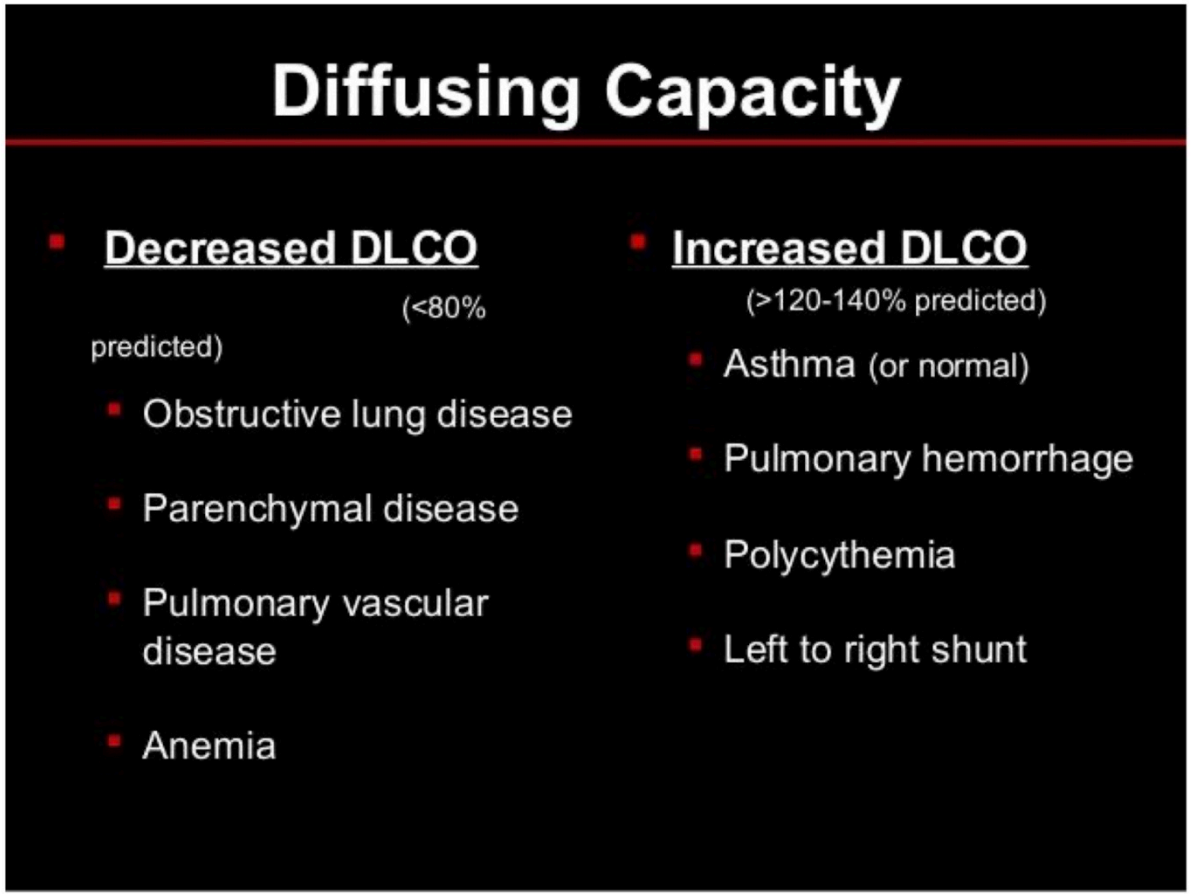
b. Asthma

c. Obesity

d. Chronic bronchitis

e. Myasthenia gravis

Answer: A


Diffusing Capacity
Decreased DLCO
(<80% predicted)
Obstructive lung disease
Parenchymal disease
Pulmonary vascular disease
Anemia
Increased DLCO
(>120-140% predicted)
Asthma (or normal)
Pulmonary hemorrhage
Polycythemia
Left to right shunt

37- A 37-year-old gentleman presents to the emergency department with acute onset breathlessness. He has a history of recurrent respiratory tract infections since childhood. He stated that he & his partner have been seeing a doctor for infertility. On examination, you find out that he has clubbing. Chest x-ray shows dextrocardia. What is the most likely diagnosis?

a. Cystic fibrosis

b. Primary ciliary dyskinesia

c. Bronchitis

d. Allergic bronchopulmonary aspergillosis

e. α1-antitrypsin deficiency

Answer: B

38- The following flow volume loop is typical for which one of the following conditions?

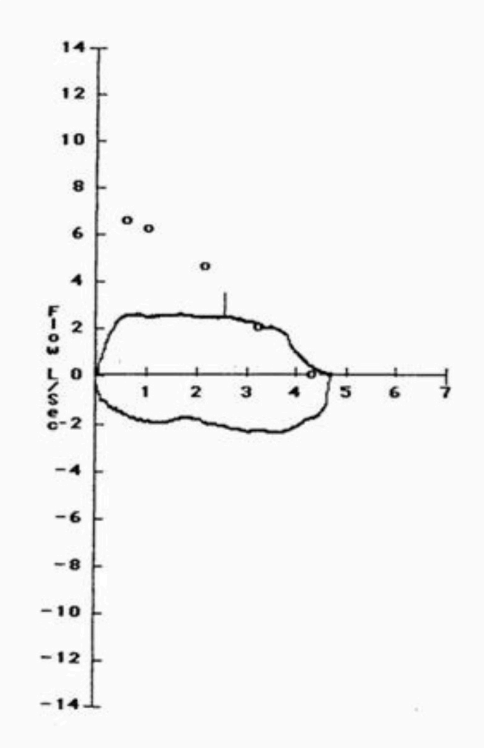
a. Tracheal tumour

b. Severe emphysema

c. Interstitial lung disease

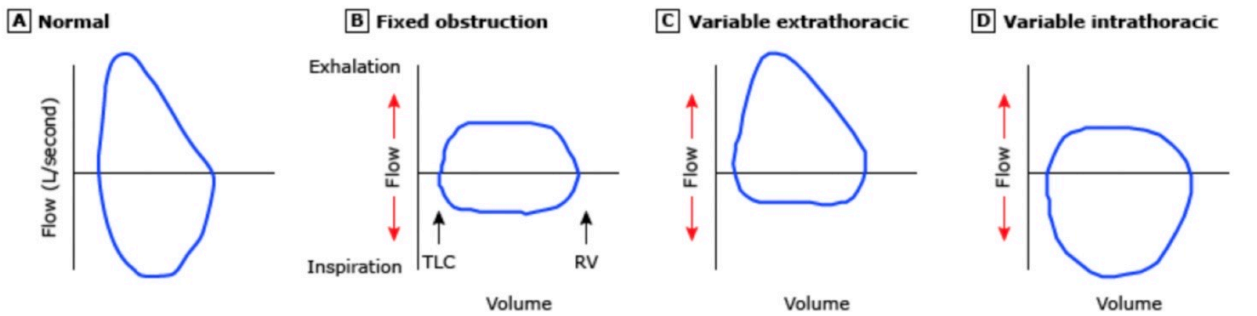
d. Variable extra-thoracic obstruction

e. Asthma



Answer : A

Flow-volume loops in upper airway obstruction



(A) Normal flow-volume loop: the expiratory portion of the flow-volume curve is characterized by a rapid rise to the peak flow rate, followed by a nearly linear fall in flow. The inspiratory curve is a relatively symmetrical, saddle-shaped curve.
(B) Fixed upper airway obstruction (can be intrathoracic or extrathoracic): flow limitation and flattening are noted in both the inspiratory and expiratory limbs of the flow-volume loop.
(C) Dynamic (or variable, nonfixed) extrathoracic obstruction: with flow limitation and flattening are noted on the inspiratory limb of the loop.
(D) Dynamic (or variable, nonfixed) intrathoracic obstruction: flow limitation and flattening are noted on the expiratory limb of the loop.

TLC: total lung capacity; RV: residual volume.

Adapted from: Stoller JK. Cleve Clin J Med 1992; 59:75.

Graphic 76811 Version 4.0

39- The following PFT results are consistent with which of the following?

a. Emphysema

b. Pneumoconiosis

c. Atelectasis

d. Kyphoscoliosis

e. Myasthenia gravis

	Patient's findings	% predicted
RV	2.5	150%
FEV1	0.76	42%
FVC	1.83	72%
FEV1/FVC	41%	---
DLCO	10	30%

Answer: a

40- A 67-year-old gentleman presented to the Emergency Department with Pneumonia. He is awake & oriented. Physical examination showed that he is in pain, Temperature of 40° C, respiratory rate of 28, BP of 85/55 mmHg, Blood urea is 90 mg/dl, and WBC is 25000. The CURB65 score for this patient is:

a. 1

b. 2

c. 3

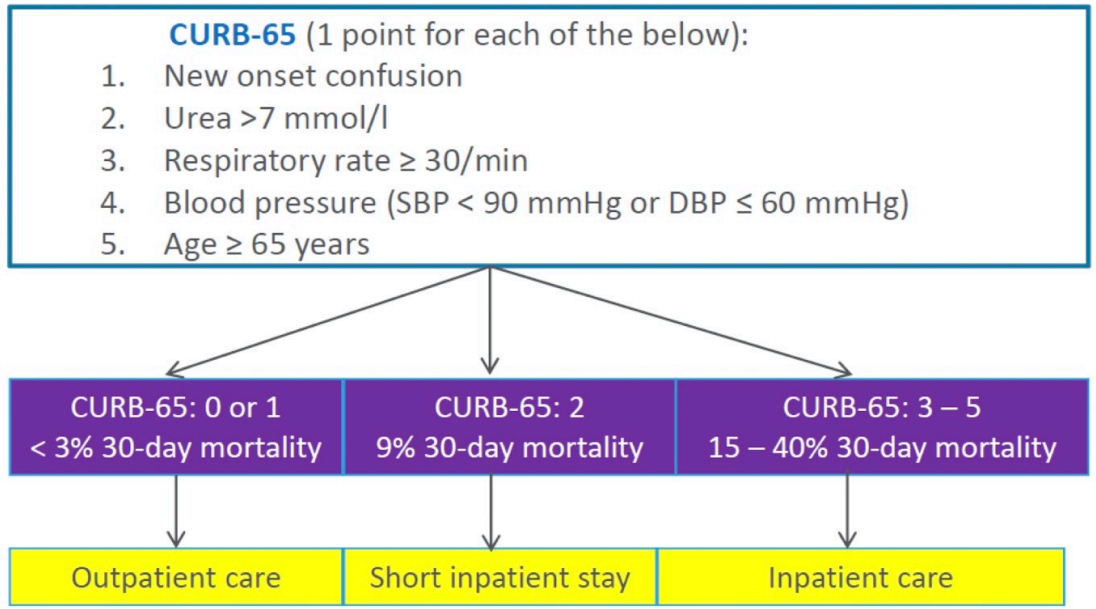
d. 4

e. 5

Answer: c

- **Confusion**: No (0 points)
- **Urea**: 90 mg/dL (which is > 20 mg/dL) (1 point)
- **Respiratory rate**: 28 (≥ 30 is 1 point; so 0 points)
- **Blood pressure**: 85/55 mmHg (systolic BP < 90) (1 point)
- **Age**: 67 years (1 point)

CURB-65



Lim WS et al. Thorax. 2003; 58:377-82

41- A 62-year-old gentleman who is a smoker with 26 pack-years came to the clinic complaining of recent onset hemoptysis & hoarseness. He has also had significant unintentional weight loss over the past month. Chest x-ray reveals an upper large mass in the right lung with cavitation. Lab studies show elevated Ca+2. What is the most likely diagnosis?

a. Squamous cell carcinoma

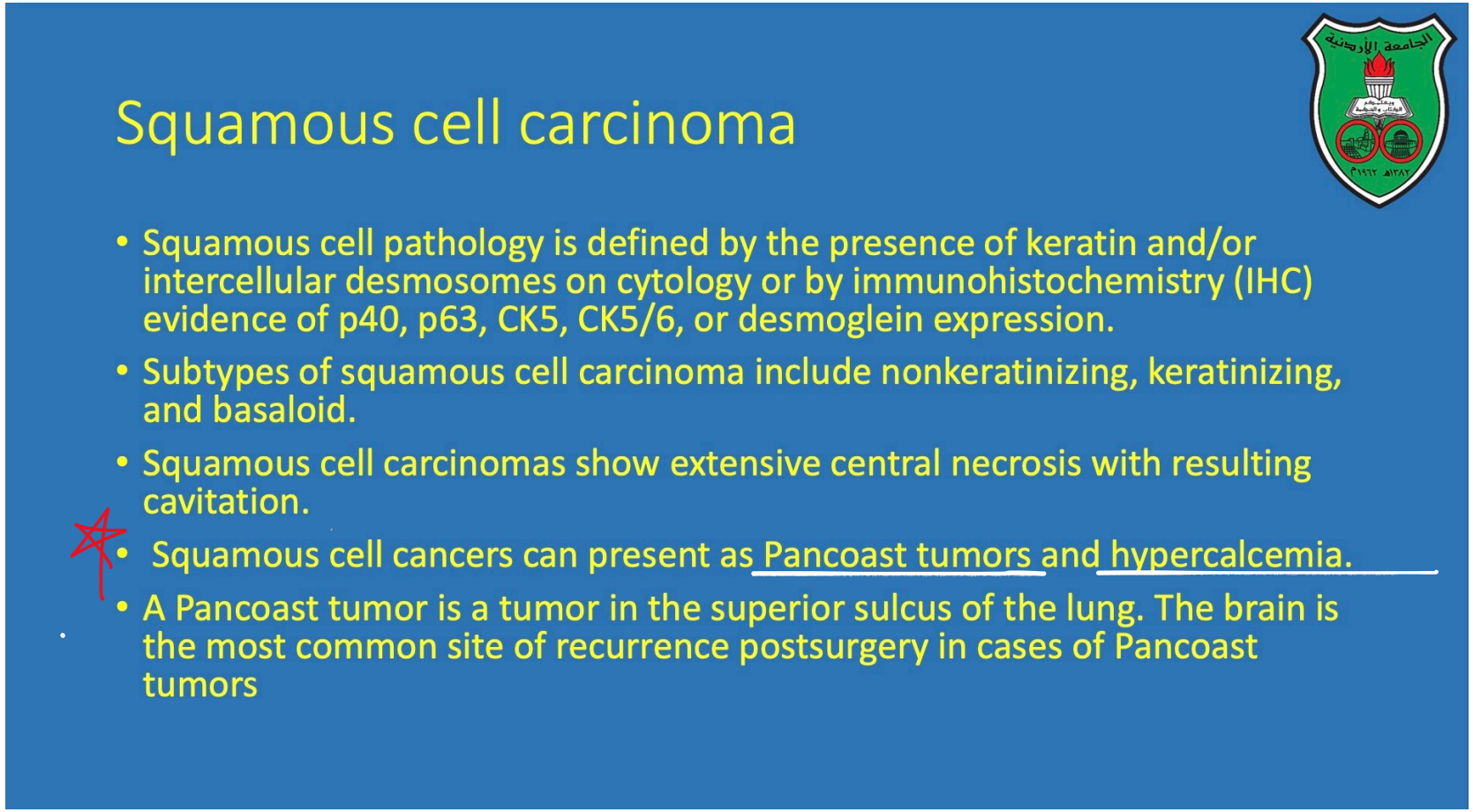
b. Adenocarcinoma

c. Small cell lung carcinoma

d. Sarcomatoid carcinoma

e. Neuroendocrine carcinoma

Answer: a


Squamous cell carcinoma
• Squamous cell pathology is defined by the presence of keratin and/or intercellular desmosomes on cytology or by immunohistochemistry (IHC) evidence of p40, p63, CK5, CK5/6, or desmoglein expression.
• Subtypes of squamous cell carcinoma include nonkeratinizing, keratinizing, and basaloid.
• Squamous cell carcinomas show extensive central necrosis with resulting cavitation.
• Squamous cell cancers can present as Pancoast tumors and hypercalcemia.
• A Pancoast tumor is a tumor in the superior sulcus of the lung. The brain is the most common site of recurrence postsurgery in cases of Pancoast tumors

42- A 58-year-old gentleman who is a former smoker presented to the clinic with progressive shortness of breath & dry cough of 6 months. Over the past week he can't walk across the room without getting short of breath. Physical examination is significant for bilateral basal coarse crackles & fingers clubbing. Chest x-ray shows diffuse bilateral infiltrates. What is the most likely diagnosis?

a. Pneumonia

b. Interstitial pulmonary fibrosis

c. Bronchiectasis

d. COPD

e. Sarcoidosis

Answer: b

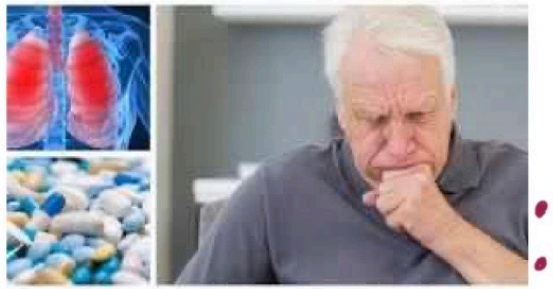
IPF(Idiopathic pulmonary fibrosis) MC

Also can be seen in RA in secondary fibrosis

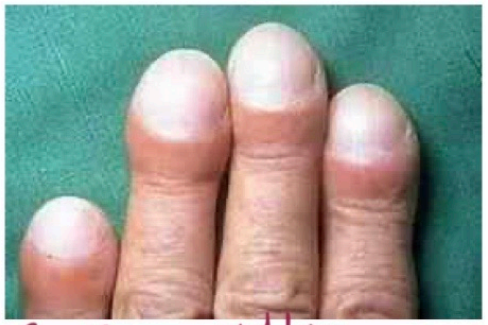
Histologically : UIP(usual interstitial pneumonia)

Most common form of ILD .

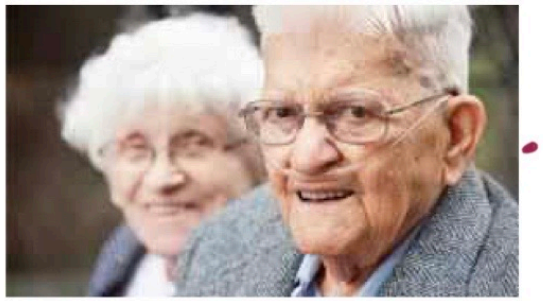
diagnosed by exclude other causes



- male
- cough & dyspnea for years



- Smokers
- Clubbing



- old

43- A 68-year-old gentleman, who was treated with radiotherapy for Hodgkin's lymphoma 30 years ago, came with pleural effusion yellowish in color & rich in lymphocytes & atypical cells. He's not a smoker. What is the most likely cause of his effusion?

a. Adenocarcinoma of the lung

b. Recurrence of Hodgkin's lymphoma

c. Heart failure

d. Tuberculosis

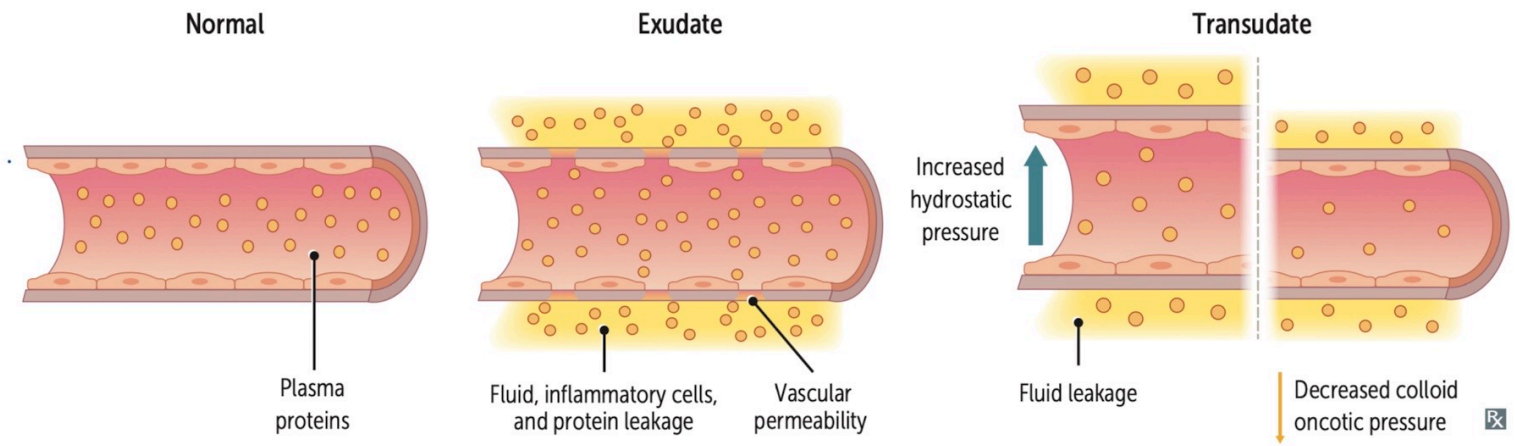
e. Para-pneumonic effusion

Answer : b

A yellowish pleural effusion rich in lymphocytes and containing atypical cells strongly suggests a malignant effusion. Lymphomas, including Hodgkin's lymphoma, can involve the pleura and lead to such effusions. Given that the patient is not a smoker, the likelihood of adenocarcinoma, which is most commonly associated with smoking, is reduced.

Note : adiation therapy, while effective, can have long-term complications, including the development of secondary malignancies. Recurrence of the original lymphoma, even after a long period, is a possibility.

Pleural effusions	Excess accumulation of fluid A between pleural layers → restricted lung expansion during inspiration. Can be treated with thoracentesis to remove/reduce fluid B. Based on the Light's criteria, fluid is consistent with an exudate if pleural fluid protein/serum protein > 0.5, pleural fluid LDH/serum LDH > 0.6, or pleural fluid LDH > 2/3 upper limit of normal serum LDH.
Exudate	Cloudy fluid (cellular). Due to infection (eg, pneumonia, tuberculosis), malignancy, connective tissue disease, lymphatic (chylothorax), trauma. Often requires drainage due to ↑ risk of infection.
Transudate	Clear fluid (hypocellular). Due to ↑ hydrostatic pressure (eg, HF, Na^+ retention) and/or ↓ oncotic pressure (eg, nephrotic syndrome, cirrhosis).



44- The following FVL is typical for which one of the following conditions?

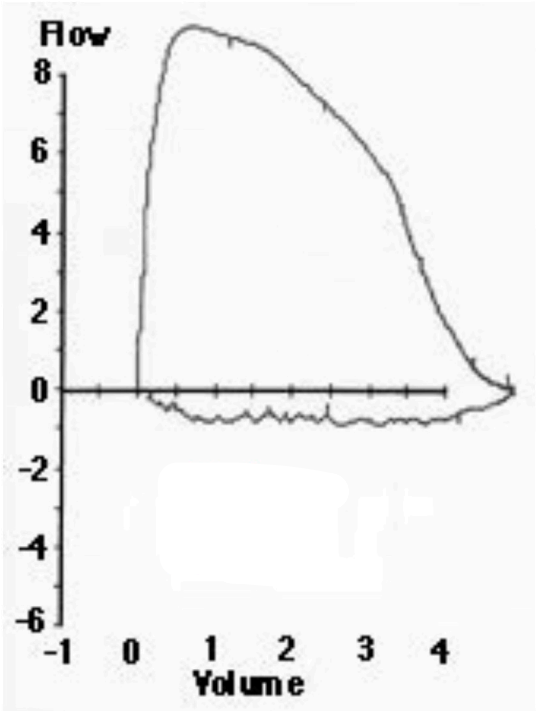
a. Variable extra-thoracic obstruction

b. Fixed upper airway obstruction

c. Chronic bronchitis

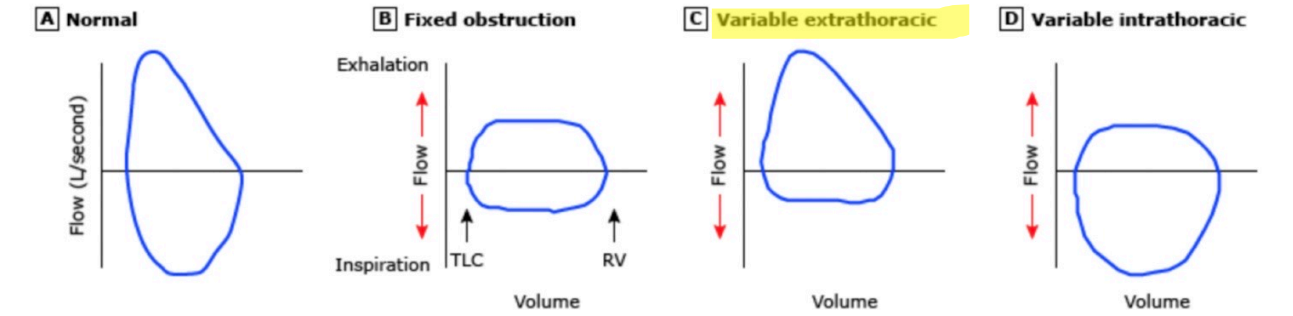
d. Interstitial lung disease

e. Asthma



Answer: A

Flow-volume loops in upper airway obstruction



(A) Normal flow-volume loop: the expiratory portion of the flow-volume curve is characterized by a rapid rise to the peak flow rate, followed by a nearly linear fall in flow. The inspiratory curve is a relatively symmetrical, saddle-shaped curve.
(B) Fixed upper airway obstruction (can be intrathoracic or extrathoracic): flow limitation and flattening are noted in both the inspiratory and expiratory limbs of the flow-volume loop.
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(D) Dynamic (or variable, nonfixed) intrathoracic obstruction: flow limitation and flattening are noted on the expiratory limb of the loop.

TLC: total lung capacity; RV: residual volume.

Adapted from: Stoller JK. Cleve Clin J Med 1992; 59:75.

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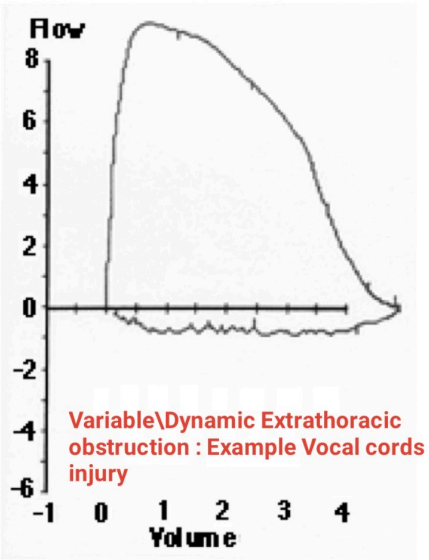
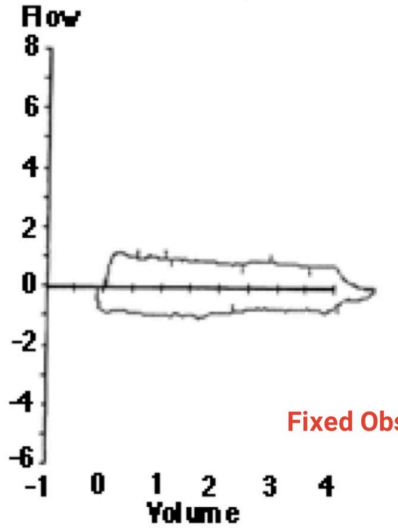


Variable\Dynamic Extrathoracic obstruction : Example Vocal cords injury



Fixed Obstruction

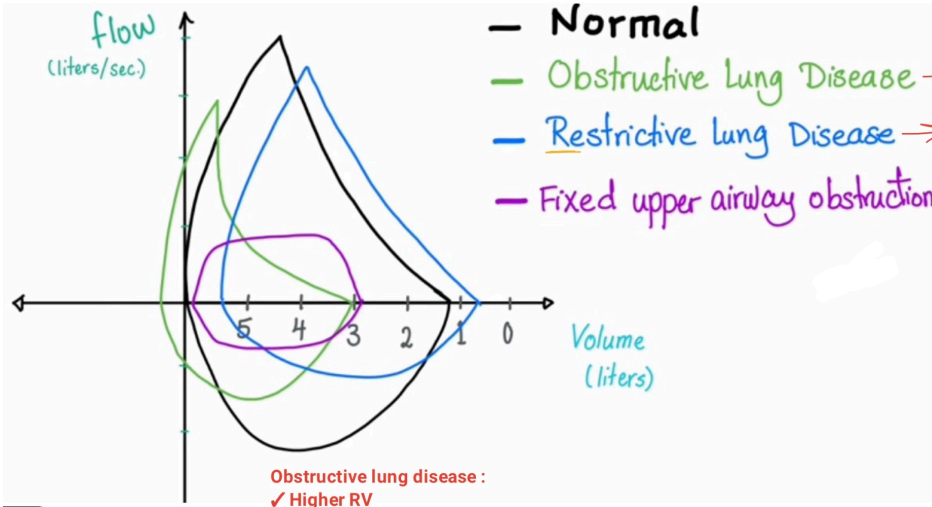
Variable extrathoracic Fixed

Large airway obstruction

15 / 30

Restrictive Diseases >> problem in inspiration but no problem in Expiration and the lung is working on low volumes ,, can't expand

✓Lower RV
✓Lower TLC
✓Lower FVC , FEV1 , BUT Normal or high ratio
✓ Lower PEFR
✓ Lower inspiratory flow rate
✓ Flat inspiratory curve



Obstructive lung disease :
✓ Higher RV
✓ Higher TLC
✓Lower PEFR

10 / 30

45- Which of the following tests is the most specific for diagnosing asthma?

a. Reversibility test

b. Methacholine challenge test

c. Arterial blood gases

d. Skin prick test

e. CBC & eosinophil count

Answer: A

Pulmonary Function Testing

- Establish asthma diagnosis
- Prior to initiating treatment
- Should include measurements before and after inhalation of a short-acting bronchodilator
- Reduced FEV_1/FVC (airway obstruction)
- Reversibility: increase of 12% and 200 mL after the administration of a short-acting bronchodilator

46- A patient with kyphoscoliosis has a PaO_2 of 45 & $PaCO_2$ of 65. What is the mechanism of hypoxia in this patient?

a. Hypoventilation

b. V/Q mismatch

c. Intra-pulmonary shunt

d. Hypoventilation & V/Q mismatch

e. Diffusion hypoxia

Answer: A

The restrictive nature of kyphoscoliosis can lead to inadequate ventilation, causing an increase in $PaCO_2$ (hypercapnia) and a decrease in PaO_2 (hypoxemia).

47- Which of the following volumes doesn't change with severe asthma?

a. Forced vital capacity

b. Residual volume

c. Total lung capacity

d. FEV1

e. Inspiratory arm of flow volume loop

Answer : e

48- A 30-year-old gentleman came to the clinic. He is a non-smoker who is a known case of COPD with emphysema predominance. Which of the following is wrong about this case?

a. The patient is probably thin

b. His disease is associated with production of large amount of sputum

c. On examination, he will have an increased A-P diameter

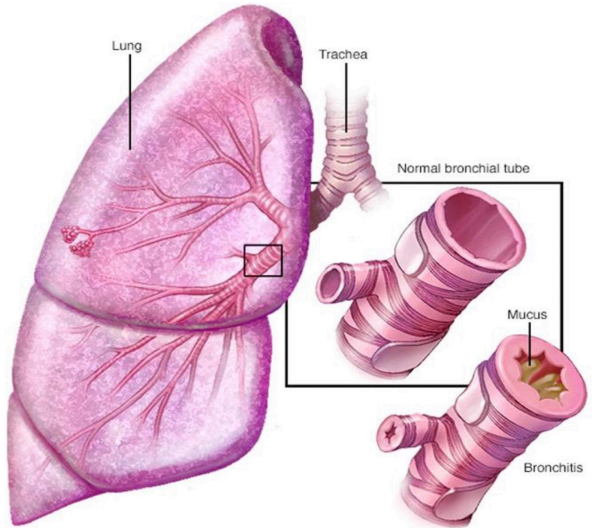
d. On examination, you will notice pursed lips appearance

e. His disease is associated with increased lung compliance

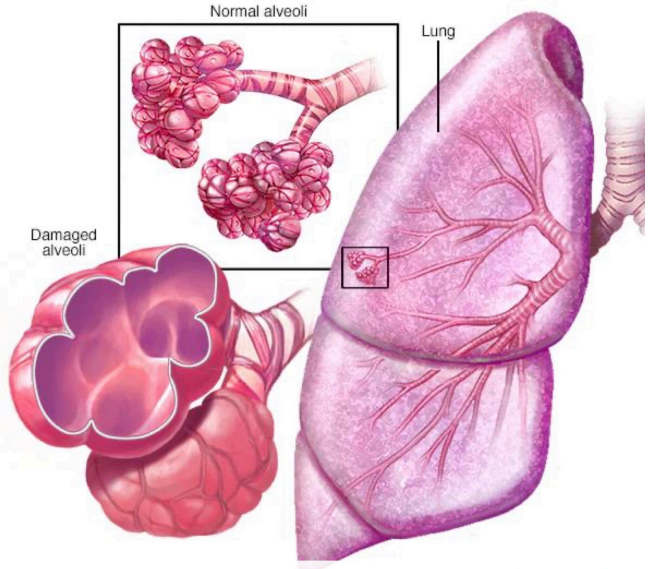
Answer: b

Patients with emphysema typically do not produce large amounts of sputum. This is more characteristic of chronic bronchitis

- **Chronic bronchitis** is defined in clinical terms as the presence of cough and sputum production for most days over 3 months for 2 consecutive years.



Emphysema is defined as enlargement of the airspaces distal to the terminal bronchioles, due to destruction of the alveolar walls



49- Which disease does the following curve represent (the one that the arrow points to)?

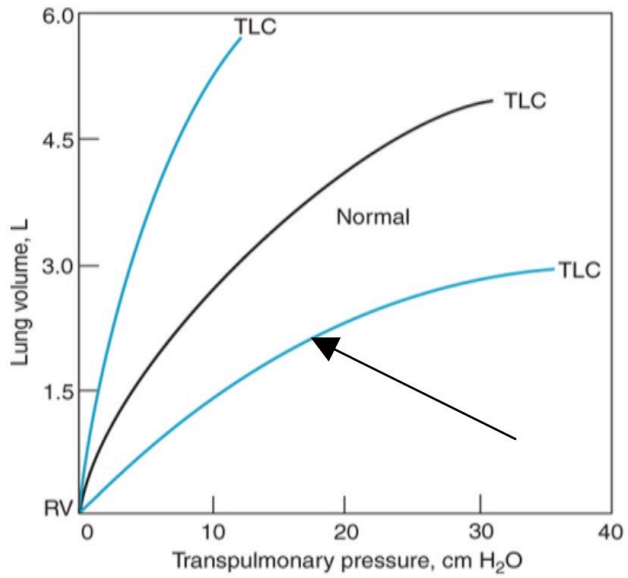
a. Emphysema

b. Chronic bronchitis

c. Pulmonary fibrosis

d. Bronchiolitis obliterans

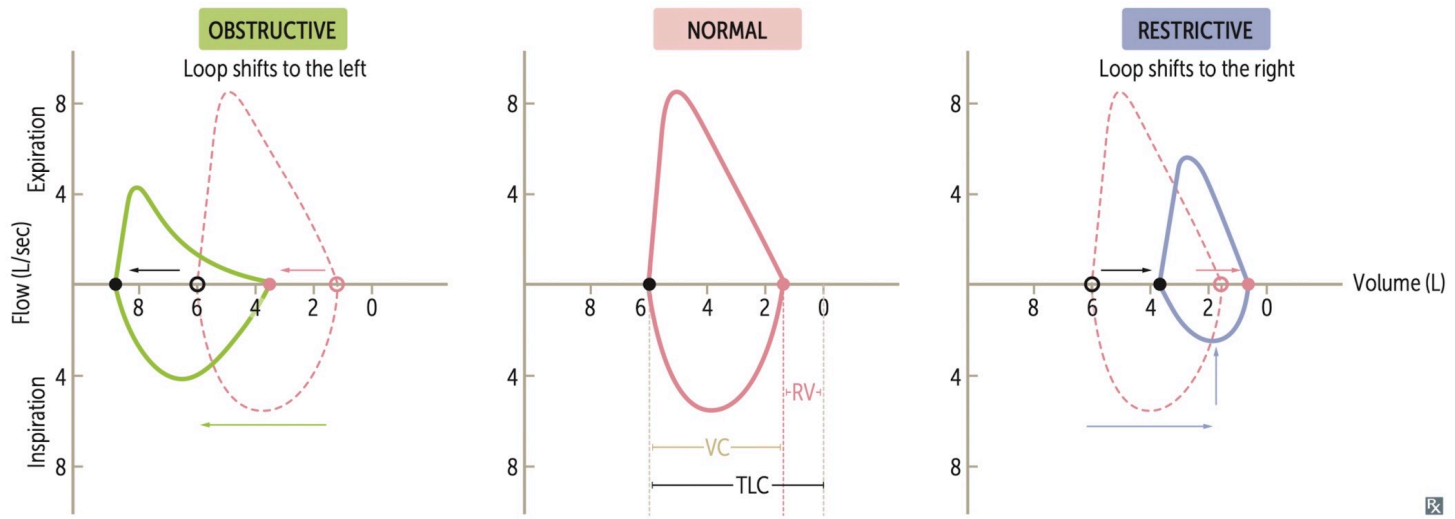
e. Asthma



Answer: c

Flow-volume loops

FLOW-VOLUME PARAMETER	Obstructive lung disease	Restrictive lung disease
RV	↑	↓
FRC	↑	↓
TLC	↑	↓
FEV_1	↓↓	↓
FVC	↓	↓
FEV_1/FVC	↓ FEV_1 decreased more than FVC	Normal or ↑ FEV_1 decreased proportionately to FVC



50- What is the mechanism of dyspnea in patients with acute asthma?

a. Respiratory acidosis

b. Respiratory alkalosis

c. Hypoxia

d. Hypercapnia

e. Increased work of breathing

Answer : e

There is a significant increase in **airway resistance (**due to bronchoconstriction, inflammation, and mucus plugging) in asthma patients, to overcome this increased resistance and maintain adequate ventilation, the respiratory muscles (diaphragm and accessory muscles) have to work much harder. This increased effort to breathe is perceived by the patient as shortness of breath or dyspnea.- Pubmed

51. What does the following interval (indicated by the double-headed arrow) in the flow volume loop represent?

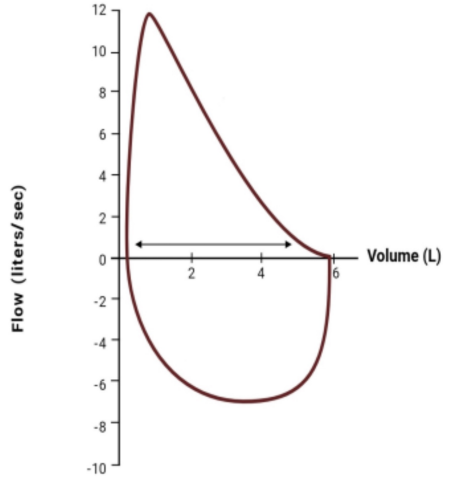
a. FVC

b. TLC

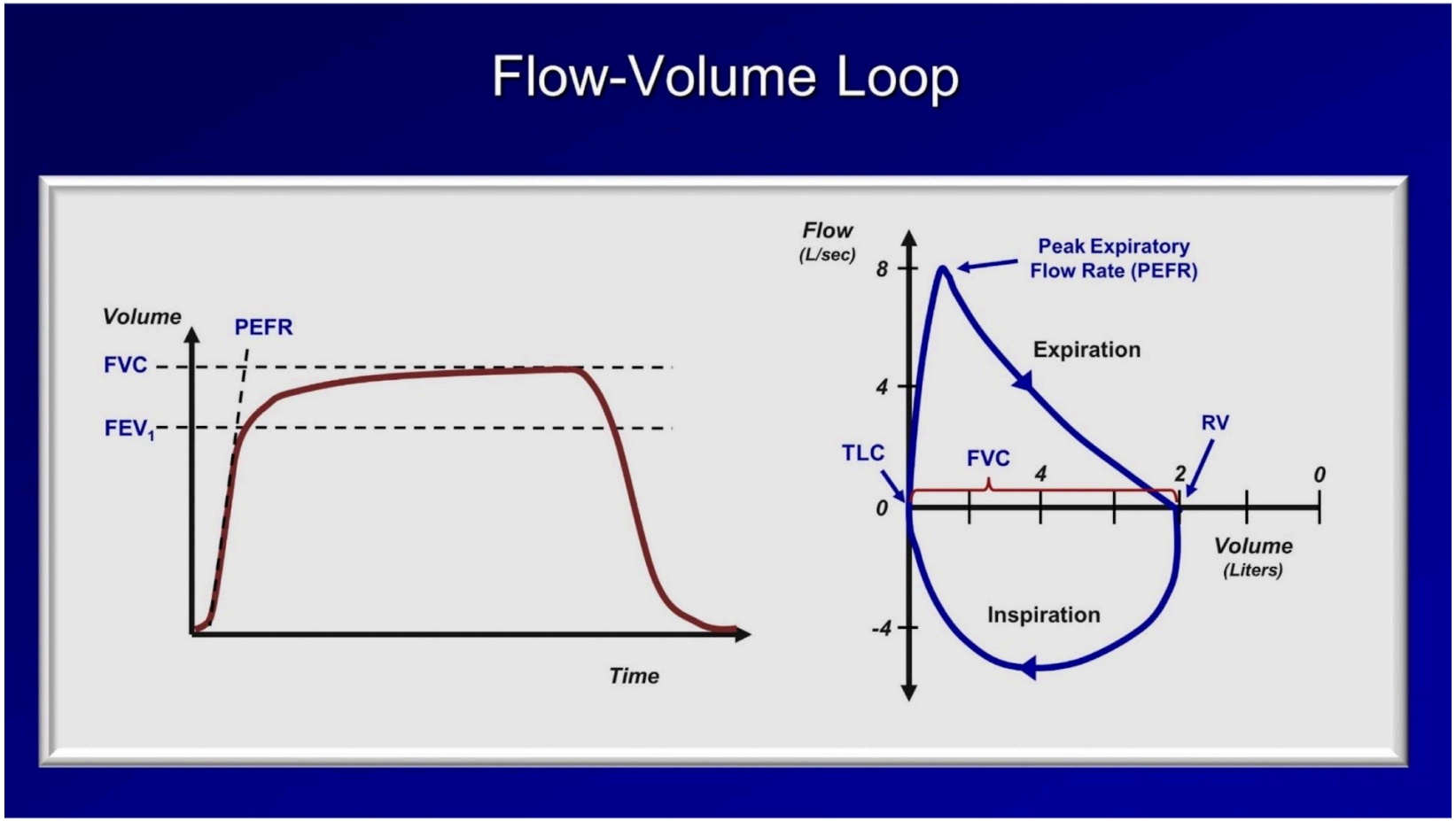
c. FEV1

d. RV

e. PEF



Answer: A


Flow-Volume Loop
Volume
PEFR
FVC
FEV1
Time
Flow
(L/sec)
8
4
-4
Peak Expiratory
Flow Rate (PEFR)
Expiration
RV
TLC
FVC
4
2
0
0
Volume
(Liters)
Inspiration

52- Which of the following is the least likely to cause pulmonary edema?

a. Malignant hypertension

b. Heart failure

c. Massive pulmonary embolism

d. Bicuspid regurgitation

e. Volume overload

Answer : C

A massive pulmonary embolism can lead to a sudden increase in pressure in the pulmonary artery and can cause right heart strain, but it typically does not cause pulmonary edema in the same way that heart failure does.

TABLE 61-3 Frequency of Signs and Symptoms in Acute Pulmonary Embolism

Symptoms	Frequency (%)
Dyspnea	73
Pleuritic chest pain	66
Cough	37
Leg swelling	33
Hemoptysis	13
Wheezing	9
Chest pain	4
Signs	
Respiratory rate $\geq$20/min	70
Crackles	51
Heart rate $\geq$100/min	30
Third or fourth heart sound	26
Loud pulmonary component of second heart sound	23
Temperature $>$ 38.5° C	7
Pleural rub	3

53- Which of the following supports the diagnosis of pulmonary embolism over pneumonia?

a. Site of pain

b. Presence of effusion

c. Loud P2

d. Elevated CRP & body temperature

e. Presents with more prominent cough & sputum

Answer : C

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Temperature > 38.5° C	7
Pleural rub	3

Pneumonia

- Acute respiratory symptoms associated with lung infiltrate on Chest X ray or CT chest (interstitial infiltrate , lobar consolidation or cavitation)
- Symptoms could be mild SOB and cough to severe with septic shock and acute respiratory failure
- Diagnosis is mainly clinically and Chest image to confirm the diagnosis
- Basic work up includes CBC, KFT, Blood and sputum cultures for severe cases
- CRP and procalcitonin does not help to establish the diagnosis

54- What is the sleep disturbance seen in this piece of polysomnography?

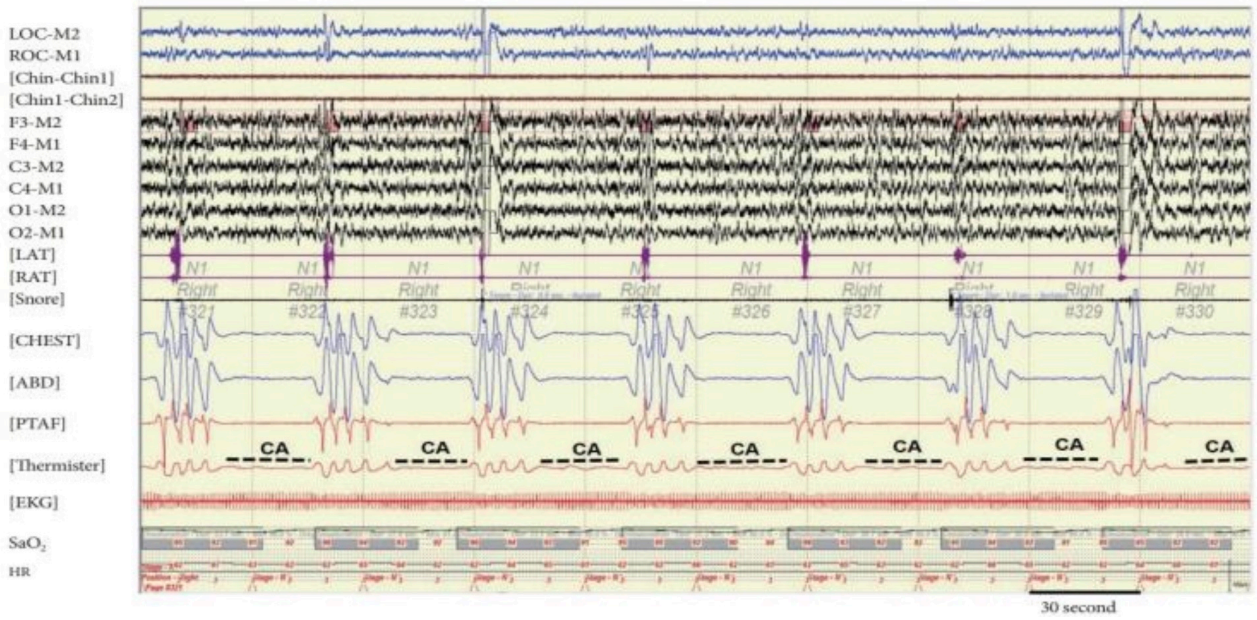
a. Obstructive apnea

b. Central apnea

c. Upper airway resistance syndrome

d. Mixed sleep apnea

e. Hypopnea



Answer : b

Scoring respiratory events

- **Apnea** : 90% or more reduction in airflow or complete cessation of air flow for 10 seconds.

  Oxygen desaturation is not a criteria.

- **Obstructive apnea**: Apnea with evidence of continued respiratory effort i.e, Chest movement persists
- **Central apnea** : Apnea with absent respiratory effort .i.e, No chest movement .
- **Mixed apnea**: if inspiratory effort is absent at the beginning of the event but resumes in the second portion of the event .

55- What does this point (marked with an arrow) represent in the flow volume loop?

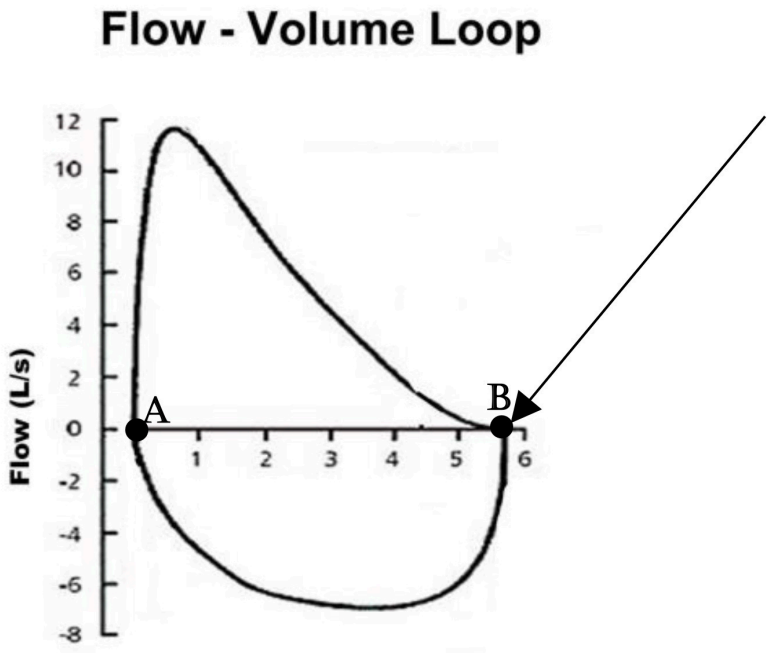
a. FVC

b. TLC

c. PIF

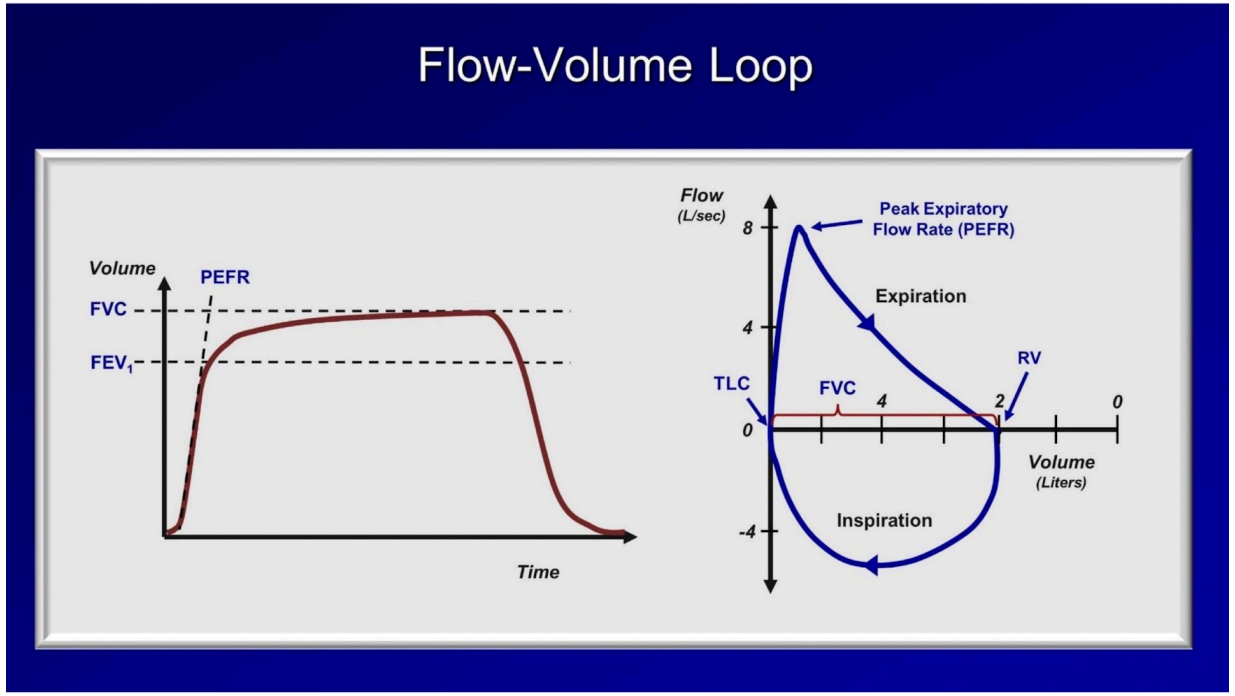
d. RV

e. PEF



Answer: d

The test begins at the Total Lung Capacity (TLC), denoted as point A, and proceeds to the Residual Volume (RV) at point B following a complete expiration. The volume of air that is expelled during this process is referred to as the Forced Vital Capacity (FVC).



56- What is the mechanism of hypoxia in COPD patients?

a. Hypoventilation
b. V/Q mismatch
c. Diffusion hypoxia
d. Pulmonary shunt
e. Mixed hypoventilation & V/Q mismatch

Answer: e

Two commonly recognized COPD subtypes are the “pink puffers” and “blue bloaters.”

- **Pink puffers**, typically associated with significant **emphysema**, compensate by hyperventilation and often manifest muscle wasting and weight loss. Compared with blue bloaters, pink puffers are less hypoxemic and therefore appear “pink.”

- **Blue bloaters** typically have chronic bronchitis and tend to have decreased ventilation and greater *ventilation-perfusion* (V/Q) mismatch than pink puffers, leading to hypoxemia and hence **cyanosis** and to cor pulmonale with edema or “bloating.”

57- Which of the following findings correspond with the most severe asthma attack?

a. PaO_2 of 40, $PaCO_2$ of 43

b. PH of 7.50, PaO_2 of 65, $PaCO_2$ of 31

c. P $(A\text{-}a)O_2$ of 15

d. FEV1 of <80% but >60% predicted

e. Loud wheezing.

Answer : a

Patient presents with acute asthma attack, check CO_2 levels, if decreased (less that 35) its normal. But if the levels of CO_2 is within the normal limits (around 40) then the patient has severe attack that prevent CO_2 washout and leads to buildup of CO_2.

Impending Respiratory Failure

- Drowsy and confused
- Thoracoabdominal movement
- Wheezing may be absent
- Severe hypoxemia, bradycardia
- Pulsus paradoxus may be absent: suggests respiratory muscle fatigue.
- Diaphoresis
- Rise in PCO_2 and hypoventilation
- Life-threatening hypoxia, advanced hypercarbia, bradypnea, somnolence

Indicates the severity (tachycardia is benign).

58. case: pregnant by IVF, lying in bed food 4 days, presented with leg swelling and SOB, she was also found to have signs of varicose veins, which of the following is a moderate risk of PE:

A. Bed rest for 4 day

B. Pregnancy

C. IVF

D. Varicose veins

Answer: c

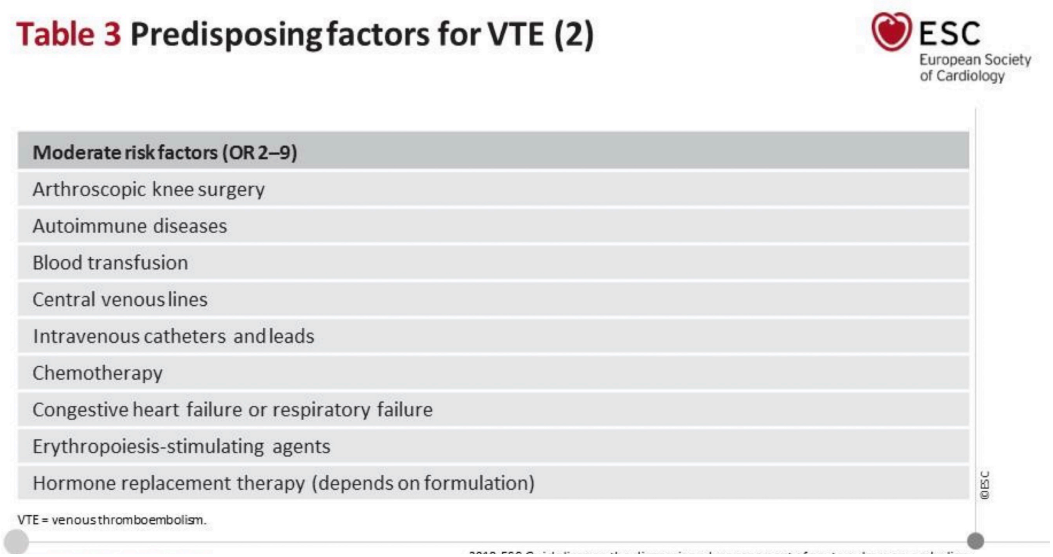


Table 3 Predisposing factors for VTE (2)

ESC European Society of Cardiology

Moderate risk factors (OR 2–9)
Arthroscopic knee surgery
Autoimmune diseases
Blood transfusion
Central venous lines
Intravenous catheters and leads
Chemotherapy
Congestive heart failure or respiratory failure
Erythropoiesis-stimulating agents
Hormone replacement therapy (depends on formulation)

VTE = venous thromboembolism.

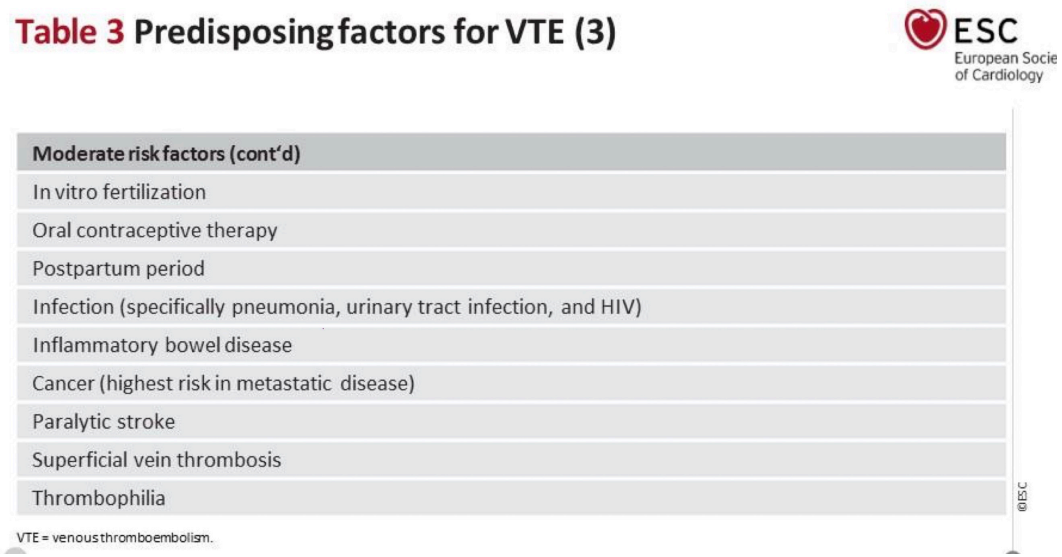


Table 3 Predisposing factors for VTE (3)

ESC European Socie of Cardiology

Moderate risk factors (cont'd)
In vitro fertilization
Oral contraceptive therapy
Postpartum period
Infection (specifically pneumonia, urinary tract infection, and HIV)
Inflammatory bowel disease
Cancer (highest risk in metastatic disease)
Paralytic stroke
Superficial vein thrombosis
Thrombophilia

VTE = venous thromboembolism.

59. case: smoker, with shortness of breath, prolonged expiratory time, end expiratory wheezes, basal inspiratory crackles, FEV1/FVC : 73%(Normal > 70%) on spirometry, which of the following is not related to COPD?

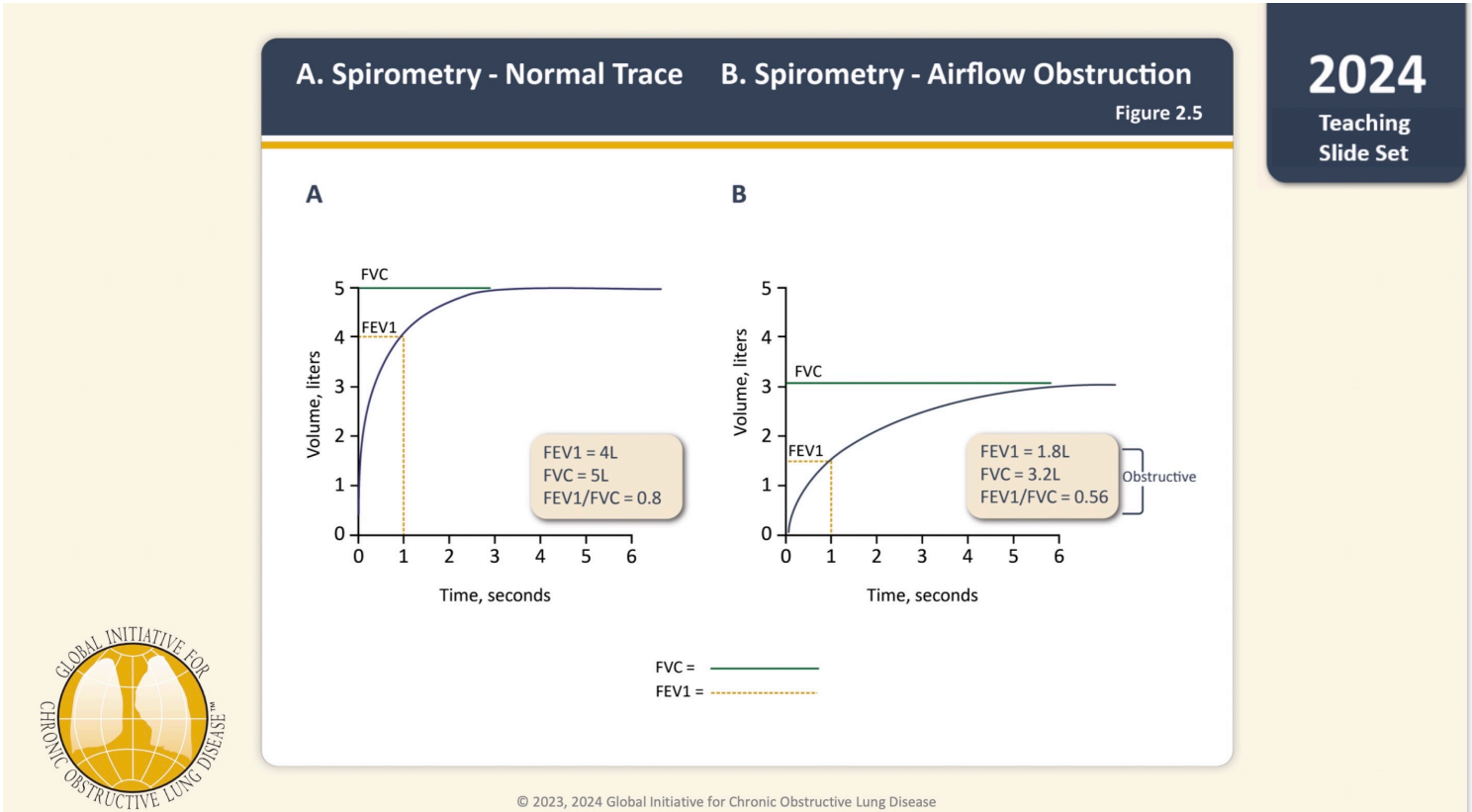
A. smoking

B. physical findings

C. spirometry findings

D. symptoms

Answer: c


A. Spirometry - Normal Trace
B. Spirometry - Airflow Obstruction
Figure 2.5
2024
Teaching
Slide Set
A
B
FVC
FEV1
Volume, liters
Time, seconds
FEV1 = 4L
FVC = 5L
FEV1/FVC = 0.8
FEV1 = 1.8L
FVC = 3.2L
FEV1/FVC = 0.56
Obstructive
FVC =
FEV1 =
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60. A young female with unexplained shortness of breath was diagnosed with pulmonary hypertension on echocardiogram, A RHC(right heart catheter) was inserted as a tool of confirmation of the diagnosis and showed PAWP-30 mmHg and PVR=4WU,which of the following conditions does she have:

A. Pre capillary hypertension

B. postcapillary hypertension

C. combined pre and post capillary hypertension

D. Exercise PH

Answer: c

A **PAWP** greater than 18 mmHg typically indicates post-capillary pulmonary hypertension, which is often caused by left heart issues, **PVR** (Pulmonary Vascular Resistance): 4 Wood Units (WU)

This is a measure of the resistance in the pulmonary circulation. Elevated PVR is indicative of pulmonary arterial hypertension.

Given that the PAWP is significantly elevated at 30 mmHg (indicating increased left atrial pressure) and the PVR is also elevated, the most appropriate answer is:

C. Combined Pre and Post-capillary Hypertension.

61. Case: Middle aged woman who was obese, witnessed snoring and apnea episodes during sleep by her husband, mallampati score 3, which of the following is least likely associated with this case?

A. Stroke

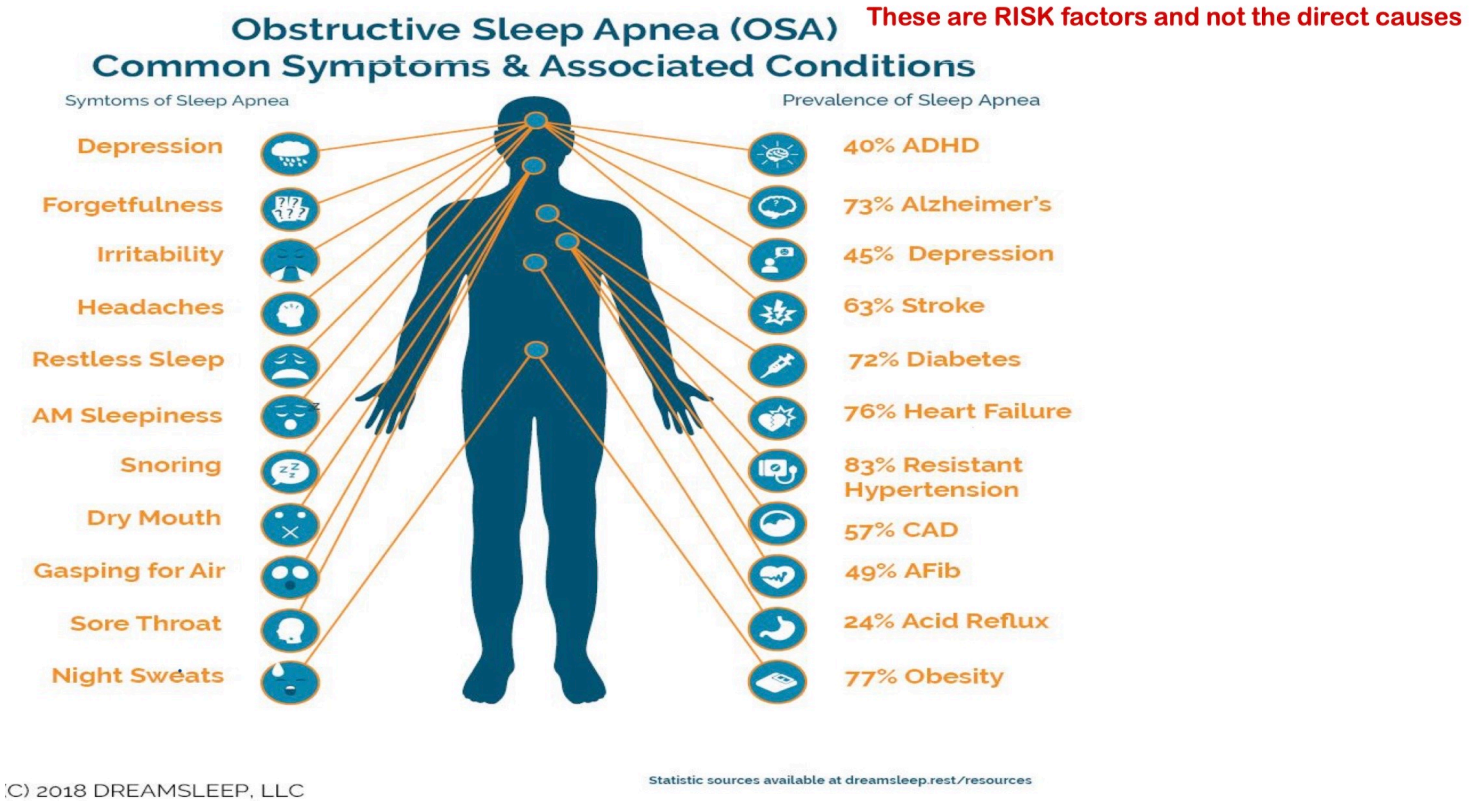
B. HTN

C. Obesity

D. Cancer

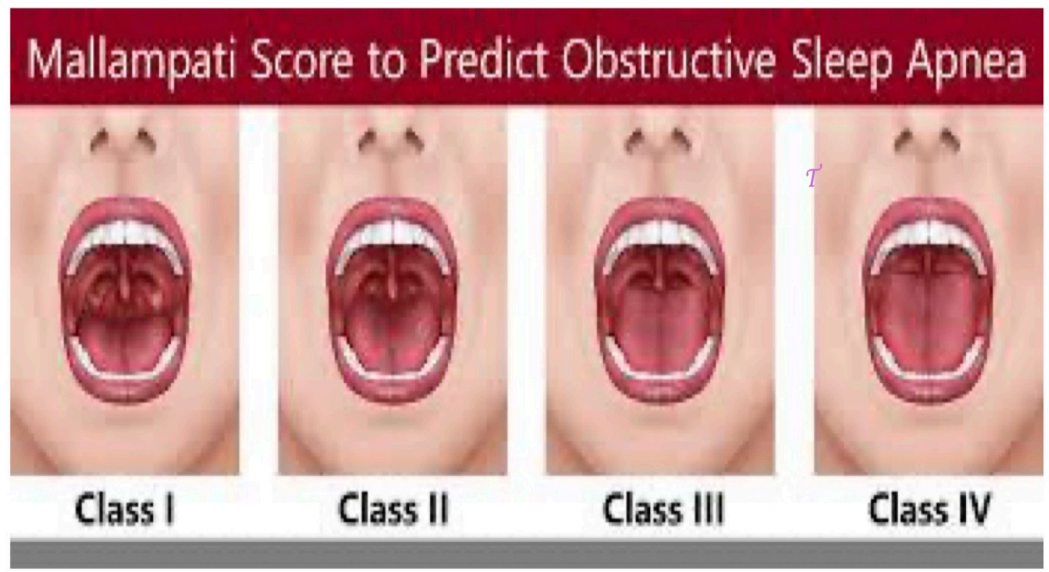
E. Sarcoidosis

Answer : e


Obstructive Sleep Apnea (OSA)
Common Symptoms & Associated Conditions
These are RISK factors and not the direct causes
Symtoms of Sleep Apnea
Depression
Forgetfulness
Irritability
Headaches
Restless Sleep
AM Sleepiness
Snoring
Dry Mouth
Gasping for Air
Sore Throat
Night Sweats
Prevalence of Sleep Apnea
40% ADHD
73% Alzheimer's
45% Depression
63% Stroke
72% Diabetes
76% Heart Failure
83% Resistant Hypertension
57% CAD
49% AFib
24% Acid Reflux
77% Obesity
(C) 2018 DREAMSLEEP, LLC
Statistic sources available at dreamsleep.rest/resources

Each unit increase in mallampati score has the odds of having OSA by 2.5, A study in 2006 found

Extremely helpful in non-obese patients



Stage IV: absent uvula

Loss of the soft palate with the presence of the uvula

Absence of the tip of the uvula

62. Case: male smoker 40 pack year, known COPD, presented complaining of SOB, productive purulent sputum for 3 days + new onset +3 Lower limb edema VAS 6, RR 24,HR 90,02 Sat 86% on room air, CRP 40 (normal <5)

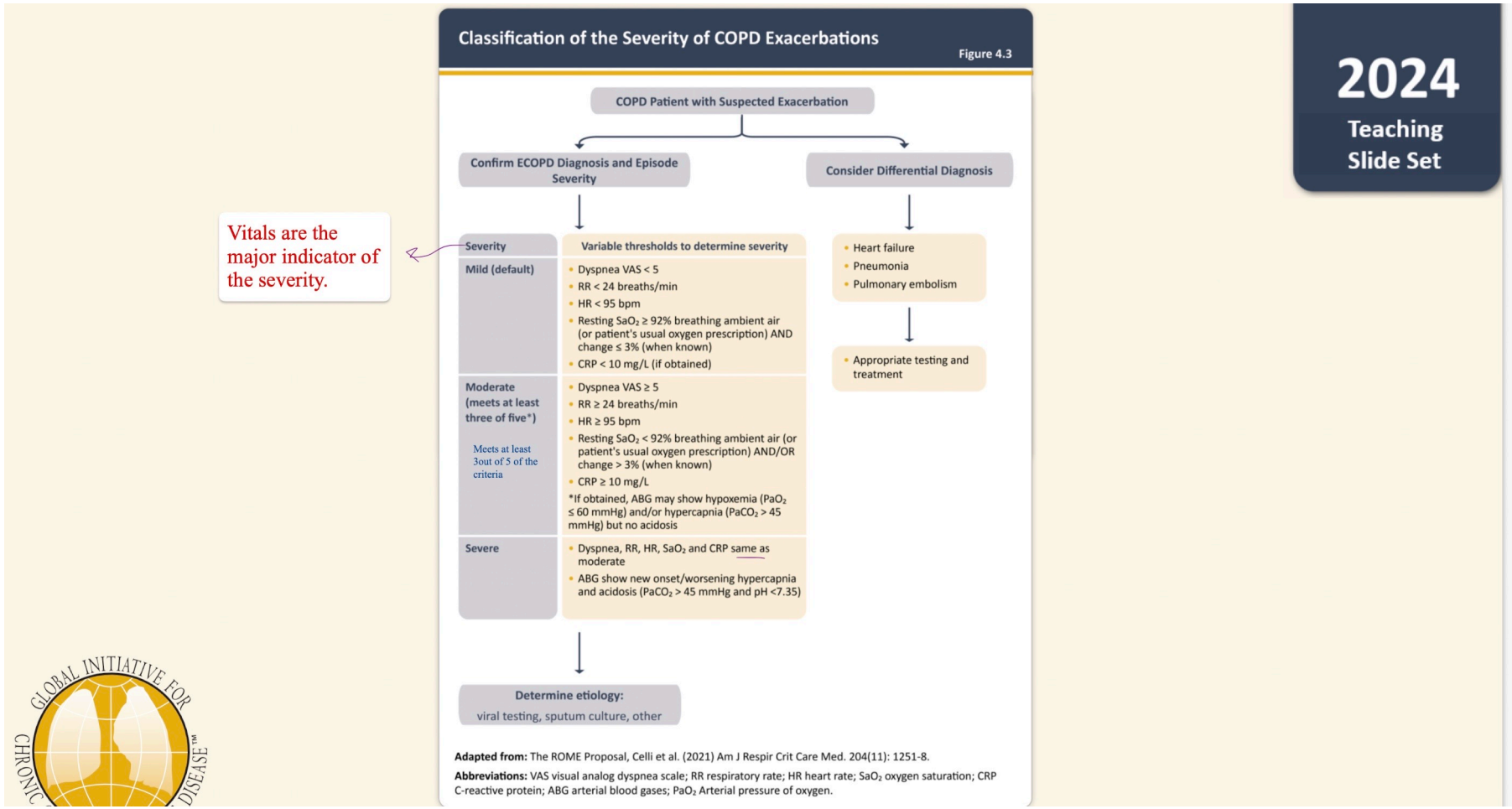
A. Mild exacerbation and don't admit

B. Moderate exacerbation and don't admit

C. Moderate exacerbation and admit

D. This is not considered an exacerbation, it is a part of his COPD progression

Answer: c


Classification of the Severity of COPD Exacerbations
Figure 4.3
2024
Teaching
Slide Set
COPD Patient with Suspected Exacerbation
Confirm ECOPD Diagnosis and Episode Severity
Consider Differential Diagnosis
Vitals are the major indicator of the severity.
Severity
Variable thresholds to determine severity
Mild (default)
Dyspnea VAS < 5
RR < 24 breaths/min
HR < 95 bpm
Resting SaO2 ≥ 92% breathing ambient air (or patient's usual oxygen prescription) AND change ≤ 3% (when known)
CRP < 10 mg/L (if obtained)
Moderate (meets at least three of five*)
Meets at least 3out of 5 of the criteria
Dyspnea VAS ≥ 5
RR ≥ 24 breaths/min
HR ≥ 95 bpm
Resting SaO2 < 92% breathing ambient air (or patient's usual oxygen prescription) AND/OR change > 3% (when known)
CRP ≥ 10 mg/L
*If obtained, ABG may show hypoxemia (PaO2 ≤ 60 mmHg) and/or hypercapnia (PaCO2 > 45 mmHg) but no acidosis
Severe
Dyspnea, RR, HR, SaO2 and CRP same as moderate
ABG show new onset/worsening hypercapnia and acidosis (PaCO2 > 45 mmHg and pH <7.35)
Heart failure
Pneumonia
Pulmonary embolism
Appropriate testing and treatment
Determine etiology:
viral testing, sputum culture, other
Adapted from: The ROME Proposal, Celli et al. (2021) Am J Respir Crit Care Med. 204(11): 1251-8.
Abbreviations: VAS visual analog dyspnea scale; RR respiratory rate; HR heart rate; SaO2 oxygen saturation; CRP C-reactive protein; ABG arterial blood gases; PaO2 Arterial pressure of oxygen.

63. Which of the following carries the highest risk of mortality in patients with PE

A. Positive troponin level

B. PESI grade IV on clinical exam

C. Evidence of right ventricular dysfunction on echocardiogram or CTPA

D. Saddle embolism bilateral

E. Vasopressor to maintain the SBP above 90 mmHg

Answer: e

High risk patients are those who are hemodynamic anstable, and they carry mortality rate of 15%.

Table 4 Definition of haemodynamic instability

ESC European Society of Cardiology

(1) Cardiac arrest	(2) Obstructive shock	(3) Persistent hypotension
Need for cardiopulmonary resuscitation	Systolic BP <90 mmHg, or vasopressors required to achieve a BP ≥90 mmHg despite adequate filling status ***And*** End-organ hypoperfusion (altered mental status; cold, clammy skin; oliguria/anuria; increased serum lactate)	Systolic BP <90 mmHg, or systolic BP drop ≥40 mmHg, either lasting longer than 15 minutes and not caused by new-onset arrhythmia, hypovolaemia, or sepsis

64. A 23-year-old lady was recently diagnosed with hypertension has been admitted to the ER for an acute asthma attack, which of the following is the least likely to have caused the trigger?

A. Aspirin

B. B blockers

C. ACEI

D. Vape

E. Upper respiratory tract infection

Answer : c

ACE inhibitors can sometimes cause a cough, but they are not significant triggers for asthma attacks. They do not typically induce bronchospasm.

65. which of the following is an indication for life-long oxygen therapy in COPD patients ?

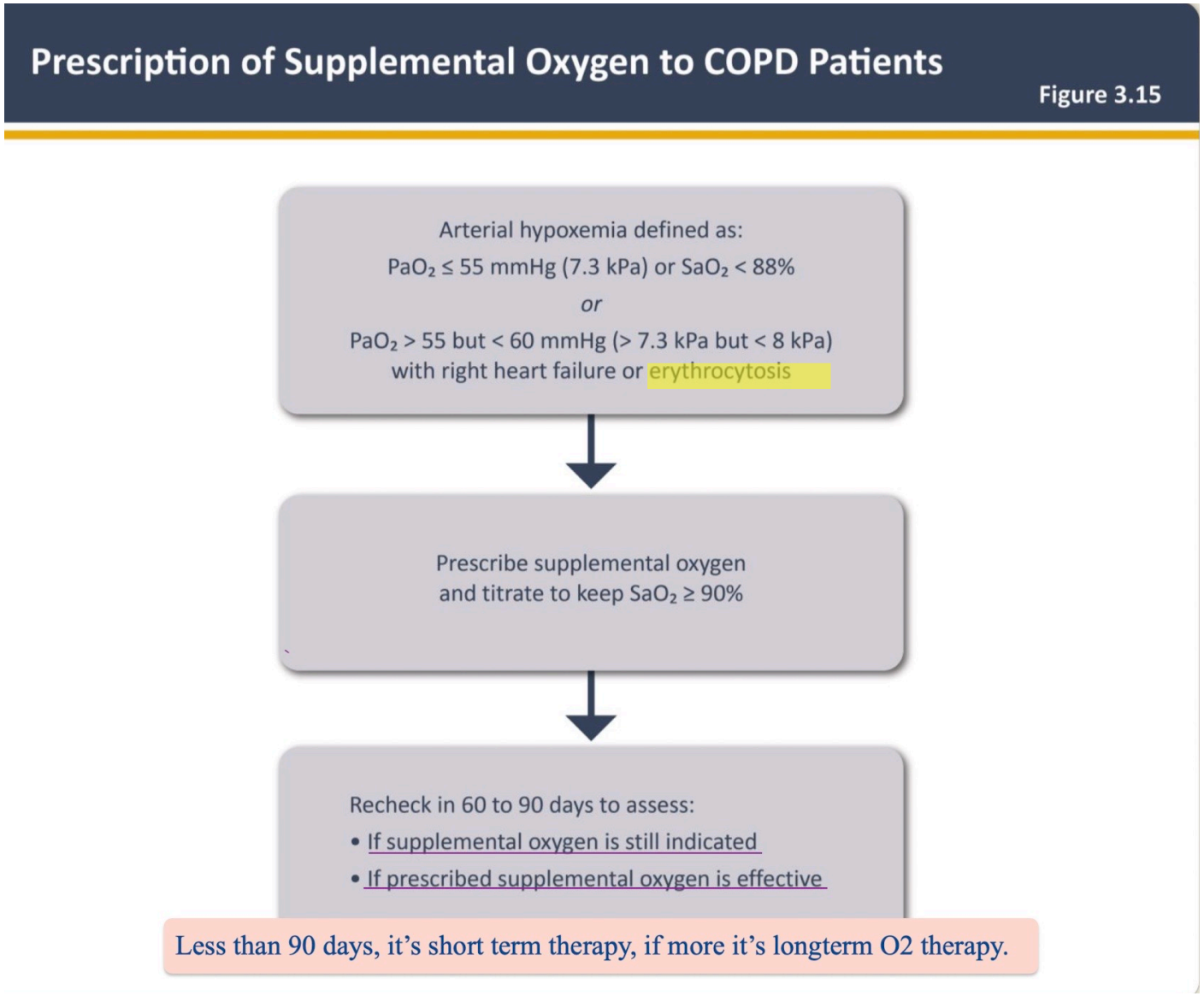
A. PaO_2 of 61 mmHg and right heart failure.

B. PaO_2 of 56 mmHg and polycythemia.

C. Advanced COPD patient with O_2 sat 89% on RA.

D. patient with O_2 sat 93%.

Answer: B


Prescription of Supplemental Oxygen to COPD Patients
Figure 3.15
Arterial hypoxemia defined as:
$PaO_2 \leq 55$ mmHg (7.3 kPa) or $SaO_2 < 88\%$
or
$PaO_2 > 55$ but < 60 mmHg (> 7.3 kPa but < 8 kPa)
with right heart failure or erythrocytosis
Prescribe supplemental oxygen
and titrate to keep $SaO_2 \geq 90\%$
Recheck in 60 to 90 days to assess:
• If supplemental oxygen is still indicated
• If prescribed supplemental oxygen is effective
Less than 90 days, it's short term therapy, if more it's longterm O2 therapy.

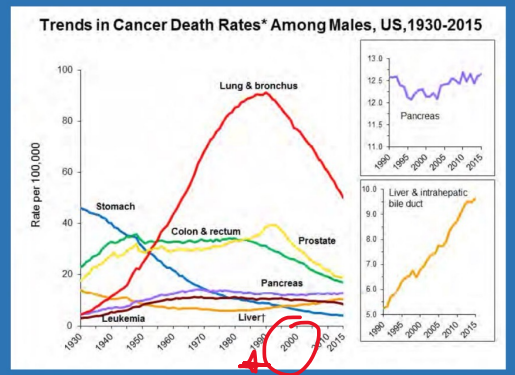
66. Which of the following is true regarding lung cancer ?

A. Mortality has decreased in the past 20 years

B. Small cell cancer is sensitive to chemotherapy ad has good prognosis

C. Small cell cancer can cause Pancoast tumor by invading the superior sulcus

Answer: a



Mortality has decreased in the past 20 years

Treatment of small cell cancer

- SCLC is very sensitive to chemotherapy, but unfortunately, has a very high recurrence rate. Treatment for SCLC is according to the stage of the disease.
- Limited stage vs extensive stage
- Stage I limited-stage small cell lung cancer (LS-SCLC) is lobectomy followed by adjuvant chemotherapy. These include SCLC presenting as peripheral nodules without mediastinal or hilar lymphadenopathy
- LS-SCLC with mediastinal or hilar lymph node involvement is 4 to 6 cycles of chemotherapy followed by radiation therapy.

Squamous cell carcinoma

- Squamous cell pathology is defined by the presence of keratin and/or intercellular desmosomes on cytology or by immunohistochemistry (IHC) evidence of p40, p63, CK5, CK5/6, or desmoglein expression.
- Subtypes of squamous cell carcinoma include nonkeratinizing, keratinizing, and basaloid.
- Squamous cell carcinomas show extensive central necrosis with resulting cavitation.
- Squamous cell cancers can present as Pancoast tumors and hypercalcemia.
- A Pancoast tumor is a tumor in the superior sulcus of the lung. The brain is the most common site of recurrence postsurgery in cases of Pancoast tumors

67.Exudative Effusion with low glucose

A. Uncomplicated parapneumonic

B. Rheumatoid effusion.

C. Nephrotic syndrome.

D. Congestive heart failure.

Answer : b

Rheumatoid arthritis can lead to exudative pleural effusion characterized by low glucose levels. In contrast, complicated parapneumonic effusions may also present with exudative fluid and low glucose, while uncomplicated parapneumonic effusions typically do not cause low glucose levels.

The other options cause transudative pleural effusion.

Exudative pleural effusion

- Rheumatoid Arthritis
    - Most common intrathoracic manifestation of RA (20%)
    - Typically pH< 7.20; glucose <50mg/dL; pleural/serum glucose ratio <0.5;

      elevated LDH (>1,000 U/L), rheumatoid titer > 1:320
    - Associated with rheumatoid nodules
- Systemic Lupus Erythematosus
    - 30% = pleuritis (independent predictor of mortality); pleural fluid ANA NOT helpful but presence of LE cells is highly specific
- Benign Asbestos-Related pleural effusion
    - Most small, asymptomatic, recurrent

SUMMARY OF CHARACTERISTICS FOR PLEURAL INFECTION DIAGNOSIS AND MANAGEMENT

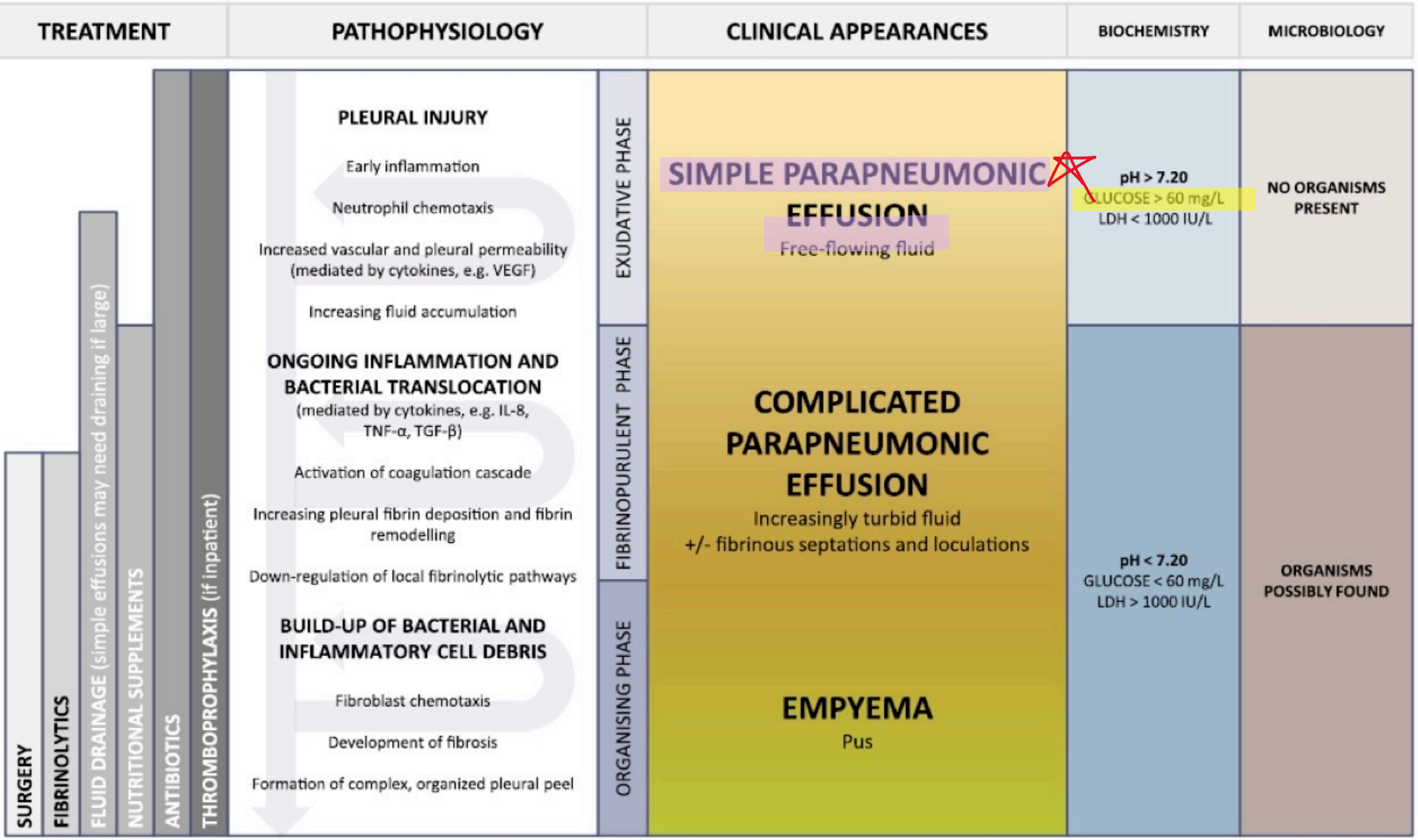


Fig. 2. The pathophysiology, appearance, diagnostic parameters, and treatment options of infected pleural effusions.

68. Which is wrong about OHS (obesity hypoventilation syndrome) ?

A. Most common symptom is exertional dyspnea.

B. HCO_3 levels are usually elevated.

C. Longstanding disease will lead to cor-pulmonale.

D. Associated with sleep apnea or sleep hypoventilation.

E. Hypercapnia without hypoxia.

Answer: e

Patients with obesity hypoventilation syndrome (OHS) present with **type II respiratory failure**, which is characterized by hypoxemia accompanied by hypercapnia.

Clinical presentations

- Acute on top of chronic type 2 respiratory failure .
- Referral to respiratory clinic for
  - Suspected OSA
  - Unexplained dyspnea .
  - Pulmonary hypertension

They usually have HTN,DM or other comorbidities .

- The prevalence of OHS is similar in men and women

69. What is the mechanism of pleural effusion in pneumonia

A. Increased oncotic pressure.

B. Decreased oncotic pressure.

C. Increased capillary permeability.

D. Increased hydrostatic pressure.

E. Decreased hydrostatic pressure.

Answer: c

When pneumonia occurs, the inflammatory process leads to increased permeability of the capillaries, allowing fluid and proteins to leak into the pleural space, resulting in an exudative pleural effusion.

70. A case of shortness of breath and dry cough sarcoidosis with bilateral hilar enlargement and with bronco-vascular nodularity, there was erythema nodosum what is a good prognostic sign in this case

A. Erythema nodosum

B. Shortness of breath

C. Bilateral hilar enlargement with vascular nodularity

D. Dry cough

Answer: a

Lofgren syndrome is a type of sarcoidosis with the following triad: arthritis, erythema nodosum, and bilateral hilar adenopathy. Associated with a good prognosis. THE I FIRST AID FOR USMLE STEP 2 CK

Important notes

1- Not a predictor of asthma exacerbation?

Duration of asthma

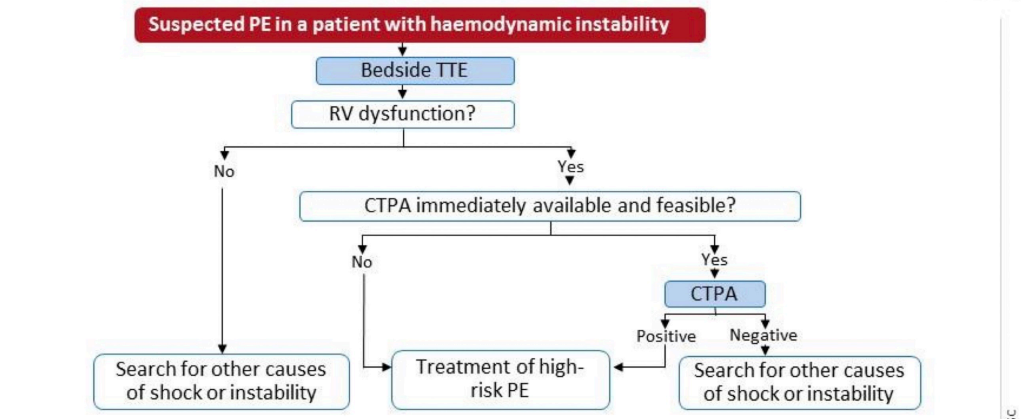
2- A case of cough, fever, bilateral hilar lymphadenopathy, what is the diagnosis?

Sarcoidosis

3- All of the following are true regarding pulmonary embolism EXCEPT:

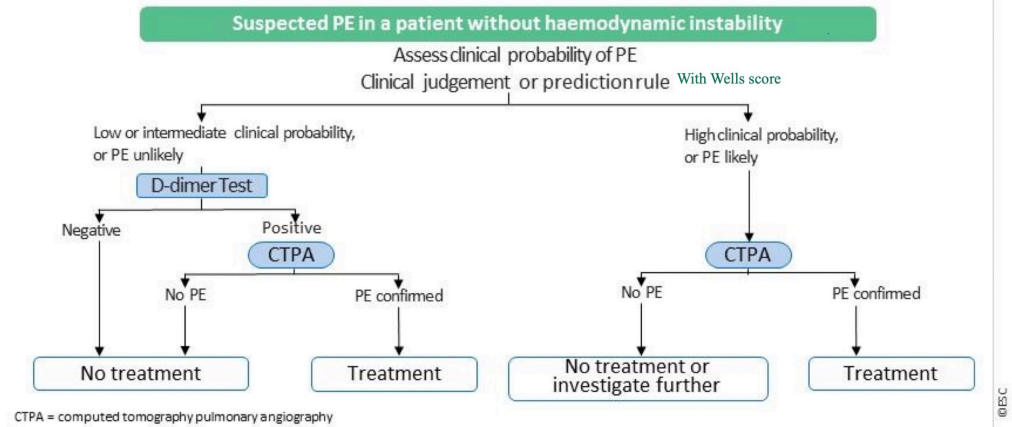
D-dimer has very good diagnostic importance for high-risk patients

Figure 3 Diagnostic algorithm for suspected high-risk PE



CTPA = computed tomography pulmonary angiography; RV = right ventricular; TTE = transthoracic echocardiography

Figure 4 Diagnostic algorithm for suspected PE without haemodynamic instability



CTPA = computed tomography pulmonary angiography

4- The most significant test for the diagnosis of cystic fibrosis?

Sweat chloride test >60 mmol/L

5- A patient with bilateral chest infiltrate. What would favors the diagnosis of ARDS rather than cardiogenic edema?

Pulmonary venous wedge pressure of 18

- Elevated PWP (> 18 mmHg) indicates cardiogenic pulmonary edema due to increased left atrial pressure.
- Normal PWP (≤ 18 mmHg) suggests a non-cardiogenic cause, such as ARDS

6- Streptococcus pneumoniae pneumonia, what is wrong?

Poor response to treatment

7- Alcoholic and smoker with pneumonia, what is wrong?

Blood culture has high yield

8- Not present in PE?

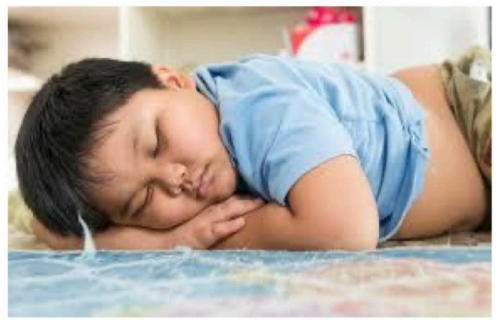
Loud A2

9- Not a risk factor for OSA?

Large chin

Risk factors

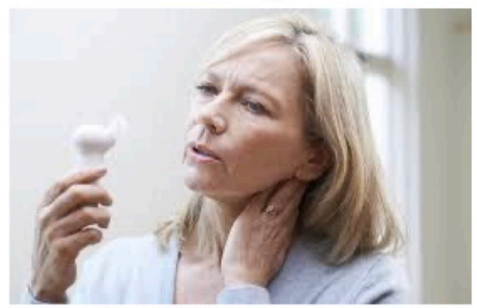
Obesity



micrognathic mandible

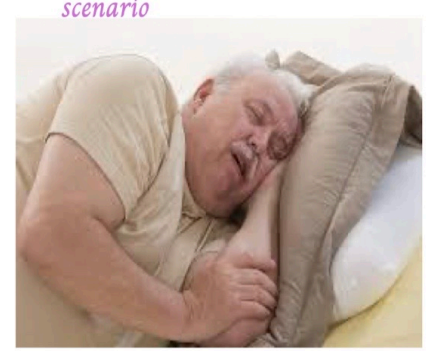
Anatomical structures : 1. Adenoids 2. Tonsils
they are very strong risk factors BUT not a CAUSE

Post Menopause

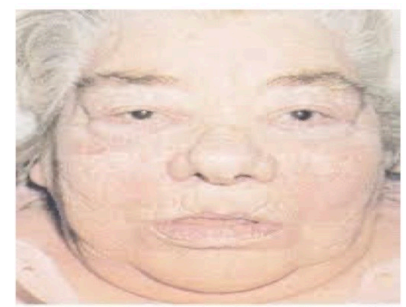


Alcohole

Obese male >50y, is the typical scenario



Sedative drugs (anti epileptic, opioids,...)



Hypothyroidism

10-All of the following are differences between emphysema & chronic bronchitis EXCEPT:

Challenge test (both cause non-reversible obstruction)

11-Cause of death in asthma patients?

Mucous plug

12-A patient in the lCU having hypercapnia. What is the most likely cause?

Hypoventilation

13- Definition of a dead space?

Area not perfused but ventilated normally

14-How do you diagnose asthma airway limitation?

FEV1/FVC <70% & reversible by 12%

15-True about asthma?

25% diurnal variability in the PEFR

Resources :

- ✓ Lectures’ slides
- ✓ Lectures’ notes
- ✓ UpToDate
- ✓ THE I FIRST AID FOR USMLE STEP 1

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