

DIAGNOSIS OF COPD EXACERBATION

FLAME LECTURE: 22

BRIT 10.31.18

LEARNING OBJECTIVES

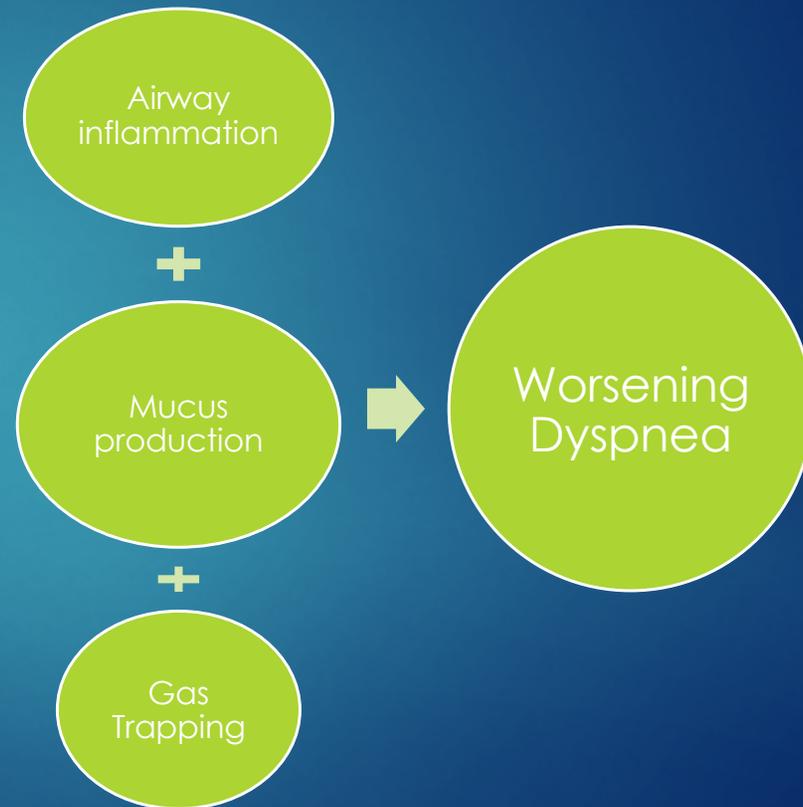
- ▶ Explain the significance of COPD Exacerbations in the management of COPD
- ▶ Define and describe a COPD Exacerbation
- ▶ Stratify the severity of COPD Exacerbations
- ▶ Identify common triggers of COPD Exacerbation, and risk factors for increased severity
- ▶ Prerequisites:
 - ▶ NONE
- ▶ See also – for closely related topics
 - ▶ FLAME LECTURE 15/16: COPD Pathophysiology & Diagnosis
 - ▶ FLAME LECTURE 23: Treatment of COPD Exacerbation

CLINICAL SIGNIFICANCE

- ▶ COPD exacerbations are important events in the management of COPD because they have:
 - ▶ Negative impact on overall health status¹
 - ▶ Increase rates of hospitalization and readmission²
 - ▶ Hasten disease progression²

DEFINITION AND FEATURES³

- ▶ An exacerbation of COPD is defined as an acute worsening of respiratory symptoms that requires additional therapy
- ▶ Associated with increased **airway inflammation**, increased **mucus production**, and marked **gas trapping**, which all result in increased **dyspnea**
- ▶ Other symptoms include increased sputum purulence and volume, and increased cough and wheeze



SEVERITY STRATIFICATION³

- ▶ COPD exacerbations are classified as mild, moderate, or severe based on the following features:
 - ▶ Mild
 - ▶ No supplemental oxygen requirement, FEV₁ >50% predicted; treated with short-acting bronchodilators ONLY
 - ▶ Moderate
 - ▶ No or minimal supplemental oxygen requirement, FEV₁ 36-50% predicted, age ≥ 65 yrs; treated with short-acting bronchodilators plus antibiotics and/or oral corticosteroids
 - ▶ Severe
 - ▶ Requires supplemental oxygen, FEV₁ <35% predicted; requires hospitalization for stabilization and management

COMMON TRIGGERS⁴

- ▶ Infection of the tracheobronchial tree
 - ▶ Viral > Bacterial; most common pathogen is Rhinovirus
 - ▶ Viral triggers are associated with more severe exacerbations
- ▶ Air pollution
 - ▶ Tobacco smoke, occupational exposures, ozone
- ▶ Other medical comorbidities
 - ▶ Congestive heart failure, non-pulmonary infections, pulmonary embolism, and pneumothorax
- ▶ One third of exacerbations have no identifiable cause

FACTORS THAT INCREASE RISK OF SEVERE EXACERBATION⁴

- ▶ Altered mental status
- ▶ Viral infectious trigger
- ▶ ≥ 3 exacerbations in past 12 months
- ▶ BMI ≤ 20
- ▶ Marked increase in symptoms
- ▶ Change in vital signs
- ▶ Poor physical activity levels
- ▶ Medical comorbidities
 - ▶ Cardiac ischemia, congestive heart failure, pneumonia, diabetes mellitus, or renal or hepatic failure
- ▶ Severe baseline COPD
 - ▶ FEV₁/FVC ratio < 0.70 and FEV₁ less than 50% of predicted
- ▶ Underutilization of home supplemental oxygen therapy
- ▶ Poor social support

REFERENCES

- ▶ [2018 GOLD COPD Guidelines- Full Text](#)
- ▶ [2018 GOLD COPD Guidelines- Pocket Guide \(printable\)](#)
- ▶ COPD exacerbations: defining their cause and prevention. Wedzicha, Jadwiga A et al. The Lancet , Volume 370 , Issue 9589, 786 – 796
- ▶ Seemungal, T. A. R. et al. Effect of exacerbation on quality of life in patients with chronic obstructive pulmonary disease. Am. J. Respir. Crit. Care. Med. 157, 1418–1422 (1998).
- ▶ Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global Strategy for the Diagnosis, Management and Prevention of chronic obstructive pulmonary disease: 2018 Report. <http://www.goldcopd.org>.
- ▶ Evensen AE. Management of COPD exacerbations. Am Fam Physician. 2010;81:607–613.