

Evidence-based Approaches: IMC Case on COPD

A 62 year old white male presents to the IMC with a chief complaint of increasing shortness of breath. He has felt that over the last 5 years he has developed progressive dyspnea. He admits to smoking 1.5 packs of cigarettes per day for the last 40 years. He has a chronic cough which is worst in the morning and is productive of white sputum. At times his chest feels “tight”, and it seems to get better with an inhaler that the ER gave him. He admits to being hospitalized 6 months ago for “bronchitis”, but denies ever being intubated or cared for in the ICU. He denies history of asthma. He denies a history of benzene, asbestos, or any known toxin exposure. He states he doesn’t even know what COPD or emphysema means. He denies any chest pain or palpitations, and thinks he had a “stress test” 6 months ago that was normal. He notes “a little swelling in my legs at the end of a long day”. He denies fever, chills, headache, dizziness, orthopnea, PND, abdominal pain, nausea, vomiting, diarrhea, constipation, melena, hematochezia, dysuria, hematuria, or rash. He states he has lost 5 pounds over the last 5 years.

Past Medical Hx: BPH, GERD, HTN, osteoarthritis of the bilateral knees

Past Surgical Hx: Appendectomy (at age 22)

Allergies: Sulfa drugs (rash)

Medications: HCTZ 25 mg daily; famotidine 20 mg BID; terazosin 2 mg HS; Tylenol PRN

Social History: 1.5 PPD x 40 years; occasional beer (holidays); denies illicit drugs; retired brick layer; lives with wife in house with central heater/air. Home with a gas stove, however is well-ventilated.

Family History: Father: deceased (age 40) from gunshot; Mother: alive age 84 with Alzheimer’s dementia, HTN, hyperlipidemia

ROS: see above

Review of EMR: Hospitalization for dyspnea 6 months ago. Stress-echo – normal LV, normal wall motion and augmentation with adequate stress; CTA chest – multiple upper lobe blebs, no PE, no nodules or masses, no infiltrates; CBC, CMP, lipid panel, TSH and UA all within normal limits. DC summary shows final discharge diagnosis of “Exacerbation of COPD”, meds as above except prednisone burst and albuterol HFA inhaler.

Vitals: Temp 97.6, BP 126/84, HR 90 bpm, RR 18/min, SaO₂ 92% on RA, Ht 6’0”, Wt 160# BMI 21.7 kg/m²

Gen: A&O x 3, NAD, Nontoxic, Speaks in full sentences without difficulty, Pleasant

HEENT: PERRL, EOMI, TMs clear; Nasal turbinates pink and moist; mild injection posterior pharynx; no oral lesions

Neck: Supple, no JVD, no Bruits, no thyroidomegaly

Heart: RRR no murmurs, gallops or rubs; heart sounds somewhat distant

Lungs: Diminished breath sounds, prolonged expiratory phase; scattered end expiratory wheezes; no crackle or rhonchi

Chest: increased AP diameter (barrel chest)

Abdomen: Soft, +BS, NT/ND, no mass, hernia or organomegaly

Lower leg: trace pitting edema, no calve tenderness, no lesions

Vasc: Palpable pulses in the bilateral upper and lower extremities

Neuro: Grossly intact

Please use the GOLD guideline to help answer the following questions

https://goldcopd.org/wp-content/uploads/2023/01/GOLD-2023-ver-1.2-7Jan2023_WMV.pdf

1. What are some of our patient's symptoms which are consistent with the diagnosis of COPD? (pg. 28-29)
2. What are the common comorbidities associated with COPD?
3. What are some of the differential diagnosis of COPD, and what are some of the suggestive features of each differential diagnosis? (pg. 32, Table 2.3)
4. Is our patients history, physical and multiple key indicators enough to diagnose him with COPD, or should it be confirmed with spirometry? (pg. 28)

You order spirometry on the patient. His FEV1/FVC ratio is 55%, his percent predicted FEV1 is 44%. There is less than 6% change in FEV1 with albuterol.

5. Is this spirometry (along with the patient's history and risk factors) consistent with a diagnosis of COPD?
6. What other diagnostic studies are indicated at this time? (pg. 43)
7. What are the 4 aspects of COPD assessment to consider prior to initiating therapy? (pg. 37)
8. What grade of COPD does our patient have? What are the other grades of COPD? (pg. 37, table 2.6)
9. What are the modified MRC scale and CAT assessment? What is the difference between the two and which is currently recommended? (pg. 38-40)
10. Use the ABE assessment tool to classify our patient (assuming his CAT score is 14) (pg. 41)
11. What are the two treatable traits highlighted in the GOLD guidelines? Why is it important to distinguish between these two traits? (pg. 45)

If you feel you need more education on the interpretation of pulmonary function tests, please click the below link for a nice short article which reviews PFTs:

<https://www.ccm.org/content/ccjom/70/10/866.full.pdf>

You notify the patient he has COPD and briefly review with him the definition and likely cause of his disease. He asks what can be done to help him.

12. What are the goals for the treatment of stable COPD? (pg. 110, table 4.1)
13. What is the single most commonly encountered and easily identifiable risk factor for COPD, and what should be encouraged to all patients with this risk factor? (pg. 110)

14. Explain what the Ask, Advise, Assess, Assist, and Arrange means in tobacco cessation counseling. What are the major findings and recommendations for treating tobacco use and dependence? (pg. 52-54)

The patient asks if there are any other medications or therapies that can help him with his dyspnea, other than his albuterol inhaler. He is also requesting codeine for his cough.

15. What are the recommended initial treatments based on ABE? (pg. 115, figure 4.2)
16. Is monotherapy with an ICS indicated? When should you consider using an ICS (in combination with LABA/LAMA) as a component of initial therapy? (pg. 115, figure 4.2; pg. 114 figure 4.7).
17. What are key points for inhalation of drugs? (pg. 112, table 4.4)
18. What are the key points for the use of bronchodilators? (pg. 114, table 4.6)
19. Are long-term glucocorticoids recommended for stable COPD? (pg. 65)
20. What do you tell the patient regarding codeine? (pg. 114, table 4.8)
21. In what groups is pulmonary rehab recommended? (pg. 122)
22. What are the requirements for home oxygen therapy and is our patient eligible? How often should you recheck to see if oxygen is still indicated and/or effective? (pg. 125, figure 4.5)

You counsel the patient on smoking cessation, set him up with pulmonary rehab, start him on a daily LABA+LAMA (whichever combined agent is covered by his insurance), and continue albuterol prn. You give him a flu vaccine and pneumonia vaccine. On follow up two months later he states he is less short of breath, and has cut back to ½ PPD of tobacco; despite your advice, he refuses nicotine replacement therapy, bupropion or varenicline. He thanks you for all your help.

23. After re-assessment, what are the recommended follow-up treatments if symptoms remain uncontrolled? When do you considering escalating to an ICS? When do you consider de-escalating the ICS? (pg. 117, figure 4.4)

Unfortunately one month later he presents to the IMC stating that over the last 2 days he is coughing more than ever, his sputum is now green and more voluminous, and he feels much more short of breath. His vitals are stable and his oxygen saturation is 91% on room air with a respiratory rate of 18. He is afebrile, but has diminished lung sounds with diffuse wheezing. He desperately wants to avoid hospitalization. You ask the MA to immediately give him an albuterol aerosol treatment.

24. What are the 3 classes of medications most commonly used for COPD exacerbations? (pg. 141-143)

25. Review the key points for managing COPD exacerbations. (pg. 141, Table 5.5)
26. What are some indications for hospital admission for exacerbations? (pg. 139, Table 5.3)
27. When should follow-up from hospital admission occur and what are the recommendations for post-hospital follow-up? (pg. 146-147, table 5.9)

For more COPD diagnosis and management analysis, please review the ACP "In the Clinic" article on COPD from August 2020:

<https://www.acpjournals.org/doi/epdf/10.7326/AITC202008040>

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