Evidence Base 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 apparently has felt that over the last 5 years he has become slowly more short of breath. He admits to smoking 1.5 pack of "Basic" cigarettes per day for the last 40 years. He has a chronic cough which is worst in the morning, with whitish sputum. At times his chest feels "tight", and it seems to get better with a "puffer" the ER gave him. He admits to being hospitalized last November for "bronchitis", but denies ever being intubated or cared for in the ICU. He denies hx of asthma, denies hx of benzene, asbestos, or any known toxin exposure, 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" last November that was normal. He notes "a little swelling in my legs at the end of a long day". He denies fever, chills, HA, dizzy, orthopnea, PND, abdominal pain, N/V/D/C, melena, hematochezia, dysuria, hematuria, or rash. He states he has lost 5 pounds over the last 5 years.

Past Medical Hx: HTN, GERD, OA bilateral knees, BPH
Past Surgical Hx: Appendectomy (at age 22)
Allergies: Sulfa (rash)
Medications: HCTZ 25 mg daily; Famotidine 20 mg BID; Terazosin 2 mg HS; Tylenol prn (states meds refilled by IMC resident even though not seen in office in 3 years)

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
Family History: Father deceased age 40 from gun shot; Mother alive age 84 with Alzheimer's dementia, HTN, hyperlipidemia

ROS: see above
Review of EMR: stress-echo 11-08 – normal LV, normal wall motion and augmentation with adequate stress; CTA chest 11-08 – multiple upper lobe blebs, no PE, no nodules or masses, no infiltrates; CBC, BMP, LFT, FLP, UA, TSH all within normal limits; DC summary shows final discharge diagnosis of "Exacerbation of COPD", meds as above except prednisone 2 week taper and albuterol HFA inhaler

Vitals: Afebrile 97.6 126/84 90 bpm 18 resp/min 92% on RA Ht 72 inch Wt 160# BMI 21.7 kg/m2 Peak flows 300, 310, 300 (L/min)
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 thyroidmegaly
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: PPP
Neuro: Grossly intact

Please use the GOLD guideline to help answer the following questions (link below)

https://goldcopd.org/wp-content/uploads/2020/11/GOLD-REPORT-2021-v1.1-25Nov20_WMV.pdf

1. What is the global prevalence of COPD? (pg. 7)

2. What are some of our patient's symptoms which are consistent with the diagnosis of COPD? (pg. 23-24)

3. What are some of the differential diagnosis of COPD, and what are some of the suggestive features of each differential diagnosis? (pg. 39- Table 2.7)

4. Is our patients history, physical and multiple key indicators enough to diagnose him with COPD, or should it be confirmed with spirometry? (pg. 27)

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 are the 4 aspects of COPD assessment to consider prior to initiating therapy? (pg. 30)

7. What grade of COPD does our patient have? (Table 2.4)

a. What are the other grades?

8. What are the modified MRC scale and CAT assessment, what is the difference between them? (pg. 31-33)

a. Which is currently recommended?

9. Use the refined ABCD assessment tool to classify our patient (assuming his CAT score is 14) (pg. 35)

If you feel you need more education on the interpretation of pulmonary function tests, please click the link found at Summalearner at the bottom of the didactics section here:

for a nice short article which reviews PFTs:

https://www.summalearner.com/didactics

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.

10. What are the goals for the treatment of stable COPD? (Table 4.1/pg. 87)

11. 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. 88)

12. 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. 46-47)

The patient asks if there are any other medications or therapies that can help him with his dyspnea, other than his albuterol inhaler. He also asks for some Tussionex (his brother had it when he had a cold and said it was "great stuff, made me feel REAL good").

13. What are key points for inhalation of drugs? (Table 4.4)

14. What are the key points for the use of bronchodilators? (Table 4.5)

15. Is monotherapy with inhaled glucocorticoids recommended? (Table 4.6)

a. When are inhaled glucocorticoids recommended?

16. How about long term oral glucocorticoids (if he is not in an exacerbation)? (Table 4.6) 17. What do you tell the patient regarding Tussionex? (Table 4.7) 18. For Groups A, B, C, and D, what are the recommended initial treatments? (Figure 4.1)

- Follow-up treatments? (Figure 4.3)

- When do you consider ICS therapy? (Figure 4.3)

19. In what groups is pulmonary rehab recommended? (pg. 98)

20. What are the requirements for home oxygen therapy? (pg. 101)

a. From the information above, is our patient eligible?

21. When should you recheck to see if oxygen is still indicated and/or effective?

You counsel the patient on smoking cessation, set him up with pulmonary rehab, start him on tiotropium daily, 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 1⁄2 PPD of tobacco; despite your advice, he refuses nicotine replacement therapy, bupropion or varenicline. He thanks you for all you help. Unfortunately one month later he shows up in 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. Peak flows are 250, 260, 250 L/min. He is afebrile, but has diminished lungs with diffuse wheezing. He desperately wants to avoid hospitalization. You ask the MA to immediately give him an albuterol aerosol treatment.

22. What are the 3 classes of medications most commonly used for COPD exacerbations? (pg. 114)

23. Review the key points for managing COPD exacerbations (Table 5.3).

24. What are some indications for hospital admission for exacerbations? (Table 5.1)

- What are indications for ICU admission (Table 5.4), NIV (Table 5.5) and invasive mechanical ventilation? (Table 5.6)

- When should follow up from hospital admission for COPD exacerbation occur? (pg. 121)

- What are some recommendations for post hospital follow up? (Table 5.7)

25. What are some common comorbidities seen in patients with COPD that health care providers should monitor for? (pg. 34)

Bonus: If the patient was treated with prednisone taper and moxifloxacin, what potential musculoskeletal issue is he at increased risk for? (This is not in the GOLD guidelines)

Bonus: For more COPD diagnosis and management analysis, please review the ACP COPD guidelines: http://annals.org/aim/article/737452/diagnosis-management-stable-chronic- obstructive-pulmonary-disease-clinical-practice-guideline

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