

group case study: emphysema essay sample



**ASSIGN
BUSTER**

D. Z., a 65-year-old man, is admitted to a medical floor for exacerbation of his chronic obstructive pulmonary disease (COPD; emphysema). He has a past medical history of hypertension, which has been well controlled by Enalapril (Vasotec) for the past 6 years. He has had pneumonia yearly for the past 3 years, and has been a 2-pack-a-day smoker for 38 years. He appears as a cachectic man who is experiencing difficulty breathing at rest. He reports cough productive of thick yellow-green sputum. D. Z. seems irritable and anxious; he complains of sleeping poorly and states that lately feels tired most of the time. His vital signs (VS) are 162/84, 124, 36, 102 F, SaO₂ 88%. His admitting diagnosis is an acute exacerbation of chronic emphysema.

CHART VIEW

Physician's Orders

Diet as tolerated

Out of bed with assistance

Oxygen (O₂) to maintain Sa O₂ of 90%

IV of D5W 1/n NS with 20KCl meq/L to run at 50 ml/hr

Continuous ECG monitoring

Pulmonary function tests (PFT's) in AM

Arterial blood gases (ABGs) in AM

CBC with differential and Na⁺ /K⁺ now

Basic metabolic panel (BMP) now and fasting in AM

Chest x-ray (CXR) on admit and QAM

Sputum culture now (obtain culture prior to starting antibiotics) Albuterol 2. 5

mg plus ipratropium 250 mcg nebulizer treatment STAT Incentive

Spirometry Q10x's per hour while awake

1. Explain the pathophysiology of emphysema.

Abnormal permanent enlargement of lung spaces distal to terminal

bronchioles accompanied by destruction of walls without obvious fibrosis.

This leads to decline in alveolar surface area available for gas exchange.

Loss of alveoli leads to airflow limitation in 2 ways: first, loss of the alveolar

walls results in a decrease in elastic recoil (leads to airflow

limitation). Second, loss of the alveolar supporting structure leads to airway

narrowing, which further limits airflow.

2. Are D. Z.'s vital signs and SaO₂ appropriate? If not, explain why. vital

signs (VS) are 162/84, 124, 36, 102 F, SaO₂ 88%.

Tachypnea and tachycardia indicates body is having trouble oxygenating

tissues. SaO₂ 88% is too low. Orders are to administer O₂ as needed to keep

it > 90% HTN: part of the COPD pathway is pulmonary hypertension, which

then leads to cor pulmonale (R ventricular hypertrophy) These vital signs are

expected for an exacerbation, but not necessarily "appropriate" (we would

like to see oxygen sat above 90%, normal HR, RR, BP)

3. Describe a plan for implementing these physician's orders. Administer

oxygen via nasal cannula to get SaO₂ > 90% and put on continuous ECG

monitoring Call for lab draw for the following:

Basic metabolic panel now and fasting in AM

CBC with diff and Na⁺/K⁺

ABG

Sputum culture now

Pulmonary function test (pre-albuterol)

Albuterol 2.5 mg plus ipratropium 250 mcg nebulizer treatment STAT IV of D5W 1/NS with 20KCl meq/L to run at 50ml/hr (set up IV while nebulizer going) Pulmonary function test (pre-albuterol)

Chest x-ray QAM

Can have breakfast as tolerated. Wait ~30 minutes before Incentive Spirometry.

4. Identify three independent nursing actions you would try to improve D. Z.'s oxygenation. Administer low flow oxygen (humidified) (nasal cannula) Sit upright (tripod; high fowlers if tripod not tolerated)

Incentive spirometry

Nebulizer treatments as prescribed

Turn, cough, deep breathe

LABS are as follows:

WBC-15

RBC-10

Hgb-37

Hct-57

Na+-126

K+ -5.2

5. Based on these results, prioritize your next actions.

Priority 1: Potassium high

Call provider to discuss discontinuing IV fluids with 20KCl and possibly

adding diuretic (since BP also high) Monitor EKG

Priority 2: WBC high

Call provider to discuss culture+sensitivity and possible antibiotics Low sodium

Expected with high potassium, so if we decrease potassium (exp change IV fluids) then we can expect sodium excretion to slow down. Hct high (this is expected with COPD—body's response to low oxygen) Hb high (this is expected with COPD—body's response to low oxygen) RBC count (this is expected with COPD—body's response to low oxygen)

6. Give an explanation (rationale) for all abnormal results

See above

CHART VIEW

Medication Administration Record

Methylprednisolone (Solu-Medrol) 125 mg IVP q8h

Doxycycline (Doryx) 100 mg PO q12h for~ 10 days

Azithromycin (Zithromax) 500 mg IVPB q24h for~ 2 days then 500 mg PO for~ 7 days Fluticasone/salmeterol (Advair) 100/50 mcg 2 puffs bid

Heparin 4000 units subcut q12h

Enalapril (Vasotec) 10mg PO q AM

Albuterol 2.5 mg/ipratropium 250 mcg nebulizer treatment q6hour

7. Indicate the expected outcome for D. Z. that is associated with each of the medications he is receiving. Methylprednisolone (Solu-Medrol) 125 mg IVP q8h

Systemic corticosteroid

Decreases inflammation

Doxycycline (Doryx) 100 mg PO q12h for~ 10 days

Antibiotic to treat infection

Azithromycin (Zithromax) 500 mg IVPB q24h for~ 2 days then 500 mg PO for~ 7 days Antibiotic to treat infection

Fluticasone/salmeterol (Advair) 100/50 mcg 2 puffs bid

Corticosteroid/long acting bronchodilator

Anti-inflammatory and dilation of bronchioles to assist in breathing. Heparin 4000 units subcut q12h

Most patients admitted to hospital will be put on heparin due to immobility-related DVT Pt. also has high RBC counts ☹ makes blood more viscous

Enalapril (Vasotec) 10mg PO q AM

ACE inhibitor to treat hypertention (he is previously on this) Albuterol 2.5 mg/ipratropium 250 mcg nebulizer treatment q6hour Beta 2

agonist/anticholinergic

Beta 2 agonist reduces bronchospasm (side effect of tachycardia) (for bronhiles—the small airways) Anticholinergic act as bronchodilators—for bronchi (large airways)

8. Since D. Z. is on azithromycin (Zithromax), what nursing actions need to be added to the plan of care? Select all that apply.

a. Monitor IV site for inflammation or extravasation

this is standard practice

b. Assess liver function studies and bilirubin levels

it's hepatotoxic, so yes.

c. Obtain a hearing test prior to initiating therapy

may cause irreversible sensorineural hearing loss

d. Carefully dilute the medication in the proper amount of solution

Azithromycin is a drug that needs to be reconstituted/diluted. Either

pharmacy or the RN will do this, depending on facility protocol e. Place D. Z.

on intake and output

this is standard practice

f. Administer the medication over one-half hour

no. should be given at minimum over 1 hour

LABS are back- Basic Metabolic Panel (BMP)

Albumin: 4.5 g/dL

normal: 3.5-5.5 g/dL

Alkaline phosphatase: 125 IU/L

normal

normal: 44-147 IU/L

ALT (alanine aminotransferase): 30 IU/L

normal: 10-40 IU/L

AST (aspartate aminotransferase): 29 IU/L

normal 10-40 IU/L

BUN (blood urea nitrogen): 22 mg/dL

high

normal: 7-20 mg/dL

Calcium: 8.6 mg/dL

normal: 8.5-10.2 mg/dL

Chloride: 96 mmol/L

normal: 95-105 mmol/L

CO₂ (carbon dioxide): 22 mmol/L

normal= 20-29 mmol/L

Creatinine: 1.6 mg/dL **

high

normal: 0.6-1.2 mg/dL (males)

0.5-1.1 mg/dL (females)

Glucose test: 110 mg/dL

9. Based on the above lab results, describe (prioritize) your next actions and provide your rationale for your actions. Call provider—kidney function tests indicated because high creatinine and BUN. Continue to monitor ALT and AST (higher side of normal)

Continue to monitor glucose (on high side, but expected with medications)

10. D. Z. is ordered heparin 4000 units subcutaneous q12 hr. The following vial is available. How many milliliters will D. Z. receive? Shade in the dose on the tuberculin syringe. This is 5000 units/1mL. we want 4000 units:
 $(4000/5000) = .8\text{mL}$

11. What are two of the most common side effects of bronchodilators?

Tachycardia

Fine tremors

13. D. Z. states he gets very hungry but after eating even a few bites he loses his appetite. What might be some of the reasons for his sudden loss of appetite? Identify four strategies that might improve his caloric intake.

Increased work of breathing while eating causes him to lose appetite. Eat

soft foods that are easy to swallow, thick soups. Colds foods might help you feel less full (smoothies, milkshakes). Clear airways prior to eating. Frozen foods so you don't have to expend energy prepping meals. High protein, high calorie foods in smaller amounts often throughout day.

14. List six other educational topics that you need to explore with D. Z.

Smoking cessation

Diet (want to increase weight).

Incentive spirometry at home

Hand washing/infection prevention (avoid sick people, crowds) Vaccinations

Follow-up appointments

Medication regimine (complete antibiotic course. Teach about MDI etc.)

15. What other health care professional would probably be involved in D. Z.'s treatments and how? Dietician

Physical therapist/occupational therapist

Pulmonologist

Psychologist

Respiratory therapist

CASE STUDY PROGRESS

D. Z.'s wife approaches you in the hallway and says, " I don't know what to do. My husband used to be so active before he retired 6 months ago. Since then he's lost 35 pounds. He is afraid to take a bath, and it takes him hours to dress—that's if he gets dressed at all. He has gone downhill so fast that it scares me. He's afraid to do anything for himself. He wants me in the room with him all the time, but if I try to talk with him, he snarls and does things to

irritate me. I have to keep working. His medical bills are draining all of our savings, and I have to be able to support myself when he's gone. You know, sometimes I go to work just to get away from the house and his constant demands. He calls me several times a day asking me to come home, but I can't go home. You may not think I'm much of a wife, but quite honestly, I don't want to come home anymore. I just don't know what to do." 16. How would you respond to her statement? What Resources are available to them?

Listen and don't judge

Offer support

Provide resources for family therapy

Ask about additional support/care for husband. (provide low cost help alternatives) Resources for financial support for medical supplies/therapies.

17. List 2 other treatment options or patients with advanced emphysema/COPD and briefly describe what each option entails. Ginkgo biloba: a chinese herb that may strengthen lungs. Add to diet. Sulfur: used to reduce inflammation, mucus and increase O2 flow. Surgery (but not used on elderly)—bullectomy (removal of the large bullae (the dead space) from the lungs)