Medications

1. **Amitiza/Lubiprostone**
   (Chloride channel activator)
   For constipation (Jones & Bartlett, 2020).
   Nursing assessment: Administer with food and water to reduce nausea. Monitor blood pressure for hypotension and assess for dyspnea within 3 hours of administering (Jones & Bartlett, 2020).
2. **Azulfidine/Sulfasalazine**
   (Salicylate-sulfonamide)
   To treat ulcerative colitis (Jones & Bartlett, 2020).
   Nursing assessment: Patients are susceptible to infections, monitor for new infections throughout therapy. Monitor BUN, creatinine, CBC, and liver enzymes. Monitor I/O, rash, and lesions, for indication of hypersensitivity (Jones & Bartlett, 2020).
3. **Creon/Pancrelipase**
   (Pancreatic enzymes)
   To treat exocrine pancreatic insufficiency including steatorrhea (Jones & Bartlett, 2020).
   Nursing assessment: Double check for a pork allergy. Administer before or with meals and follow with water or juice. Mix powder with fluid, soft, or nondairy food. Give immediately because enteric coating will dissolve after contact with food. Assess for chest tightness, dyspnea, congestion, or wheezing after administration. Check stool for fecal fat content, monitor for iron deficiency anemia and blood glucose. Monitor for abdominal pain because fibrosing colonopathy may occur (Jones & Bartlett, 2020).

Demographic Data

Admitting diagnosis: Cystic fibrosis with pulmonary manifestations, constipation, hemoptysis

Age of client: 17

Gender: Female

Weight in kgs: 58.8 kg

Allergies: No known allergies

Date of admission: 6/6/21

Psychosocial Developmental Stage:

Identity vs. Role confusion (Ricci et al., 2021)

Cognitive Developmental Stage:

Formal operational

(Ricci et al., 2021)

Admission History

On 6/6, a Caucasian 17 y/o female was admitted for cystic fibrosis with pulmonary manifestations, constipation, and hemoptysis. Patient was coughing blood, experiencing chest pain and had trouble breathing at home. Patient complained of hemoptysis 5 days ago and was recommended by her pcp to start Bactrim, 5-day course of prednisone, and continue hypertonic saline and vest. Patient was not feeling any better, complained someone sitting on her chest and continued coughing blood. On arrival, she was given IV levofloxacin and was to hold CPT and nebulization.

Pathophysiology

Disease process: Cystic fibrosis is an inherited disease most common in European descent. On the cellular level, it is a defect on chromosome 7 at the cystic fibrosis transmembrane conductance regulator which causes the cells not being able to produce chloride and water transport (Ricci et al., 2021). When this occurs, thick secretions are produced throughout the body. In females, thick secretions limits penetration of sperm which results in decreased fertility (Ricci et al., 2021). Sweat glands are affected, leading to electrolyte imbalances and dehydration (Ricci et al., 2021). Pancreatic enzymes are lost which results in malabsorption of essential nutrients such as fats, proteins, and carbohydrates (Ricci et al., 2021). The respiratory tract becomes plugged with thick mucus and cause difficulty in breathing and it may also cause a secondary bacterial infection which contributes to obstruction and inflammation (Ricci et al., 2021).

S/S of disease: small/thin frame associated with poor weight gain and growth (Ricci et al., 2021). Barrel chest, chronic cough, fine or course crackles, or localized wheezing. Clubbing of nailbeds, abdominal pain, constipation and bulky greasy stools (Ricci et al., 2021).

Medications continued

4. **Levofloxacin/Levaquin**

(Fluoroquinolone)

To treat acute exacerbation of chronic bacterial bronchitis caused by H. influenzae, H.parainfluenzae, M.cattarrhalis, S.pneumoniae, or Staphylococcus aureus (Jones & Bartlett, 2020).

Nursing assessment: Obtain culture and sensitivity test before levofloxacin is given. Monitor renal function and avoid giving within 2 hours of antacids. Stop at the first sign of hypersensitivity such as jaundice and rash because it may lead to anaphylaxis (Jones & Bartlett, 2020).

Active Orders

- Tylenol PRN for chest pain.
- Treat pain, pulmonary pain, or fever with Motrin or Tylenol PRN.
- Continue IV antibiotic, Levofloxacin for respiratory culture with mixed bacterial flora to complete the 2-week course antibiotic, as of 6/11, patient is on day 4.
- Monitor for hemoptysis, patient scheduled for pulmonary function test 6/14 if improved or WNL may need shorter course of antibiotics.
- Continue pulmozyme at bedtime, Albuterol Q8 and BID 7% nebs for respiratory complications.
- Decrease vest/CPT used for cystic fibrosis and respiratory complications to qd due to PICC line.

Medical History

Previous Medical History: Cystic fibrosis, constipation, steatorrhea, failure to thrive in childhood

Prior Hospitalizations: Several previous admissions for cystic fibrosis related complications

Chronic Medical Issues: Cystic fibrosis

Social needs: Relationship with parents, self-concept and body image, importance of peers, sexuality, and dating (Ricci et al., 2021).

Pathophysiology continued

Method of Diagnosis: Cystic fibrosis is diagnosed by a sweat chloride test, sweat is collected and chloride is analyzed, cystic fibrosis is diagnosed if its above 60 mEq/L (Capriotti & Frizzell, 2018; Ricci et al., 2021). In addition to chest x-ray, abdominal x-ray, chest CT, and abdominal ultrasound (Capriotti & Frizzell, 2018).

Treatment of disease: Treatment of cystic fibrosis include maintaining patent airway by using chest physical therapy with a vest airway clearance system to promote cough like forces (Ricci et al., 2021). In addition to bronchodilators, mucolytics, and nebulizer treatments (Capriotti & Frizzell, 2018). Preventing infection by promoting pulmonary hygiene and mobilizing secretions to prevent infections (Ricci et al., 2021) and the use of antibiotics. Promoting growth and development by administering pancreatic enzymes supplements with meals and snacks to assist in digestion and absorption of nutrients (Ricci et al., 2021).

Relevant Lab Values/Diagnostics

Most of CBC is within normal limits.

CMP:

	Normal Range	Abnormal
AST	5 - 30	38
ALKP	50 - 130	170

In CF, liver enzymes such as AST and ALKP are commonly elevated due to malnutrition, nutrient deficiencies, drug toxicity, and other illnesses (Woodruff et al., 2016).

Chest x-ray: [illegible] within normal limits, [illegible] However, with CF, it may reveal hyperinflation, bronchial wall thickening, atelectasis, or infiltration (Ricci et al., 2021).

PICC Line Placement: [illegible]

Sputum Screening: [illegible] thick secretions [illegible] mobilized in the respiratory tract can cause infections (Ricci et al., 2021).

Normal sputum screening is negative, results showed moderate

Nursing Diagnosis 1 Ineffective airway clearance	Nursing Diagnosis 2 Risk for infection	Nursing Diagnosis 3 Imbalanced nutrition: less than body requirements
Rationale Patient presented to the emergency department because she had trouble breathing at home and complained of hemoptysis.	**Rationale** Patient's sputum culture had bacterial growth and results were moderate squamous epithelial cells with mixed bacterial flora.	**Rationale** Patient's AST is elevated, which is an indicator of malnutrition and nutritional deficiencies (Woodruff et al., 2016).
Interventions **Intervention 1:** Monitor for respiratory distress (Belleza, 2021). **Intervention 2:** Encourage oral fluid intake to help clear secretions (Belleza, 2021).	**Interventions** **Intervention 1:** Proper hand hygiene, signage at the patient's door for transmission-based precautions and restricting people with an infection from contact with the patient (Belleza, 2021). **Intervention 2:** Administer antibiotics as prescribed (Belleza, 2021).	**Interventions** **Intervention 1:** Administer Creon, a pancreatic enzyme with meals and snacks to help digest food (Jones & Bartlett, 2020). **Intervention 2:** Report any changes in bowel movements (Belleza, 2021).
Evaluation of Interventions Assessed vital signs to see if there was an increase in heart rate, respiratory rate, and breath sounds compared to her baseline (Swearingen & Wright, 2019).	**Evaluation of Interventions** Used hand hygiene and proper ppe in prevention of transmission.	**Evaluation of Interventions** Administered Creon and inquired about bowel movements.

References

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