Jackson.

Ms. Takashi identifies the following nursing diagnoses for Mr. Jackson:

**DIAGNOSES**

- Impaired health maintenance related to lack of knowledge about diet restrictions
- Activity intolerance related to impaired cardiac output
- Impaired fluid volume related to impaired cardiac pump and salt and water retention

**EXPECTED OUTCOMES**

The expected outcomes specify that Mr. Jackson will:

- Demonstrate loss of excess fluid by weight loss and decreases in edema, jugular venous distention, and abdominal distention.
- Demonstrate improved activity tolerance.
- Verbalize understanding of diet restrictions.

**PLANNING AND IMPLEMENTATION**

Ms. Takashi plans and implements the following selected nursing interventions for Mr. Jackson:

- Hourly vital signs and hemodynamic pressure measurements.
- Administer and monitor effects of prescribed diuretics and vasodilators.
- Weigh daily; strict intake and output.
- Enforce fluid restriction of 1500 mL/24 hours: 600 mL day shift, 600 mL evening shift, 300 mL at night.
- Auscultate heart and breath sounds every 4 hours and as indicated.
- Administer oxygen per nasal cannula at 2 L/min. Monitor oxygen saturation continuously. Notify physician if less than 94%.
- High Fowler's or position of comfort.
- Notify physician of significant changes in laboratory values.
- Teach about all medications and how to take and record pulse. Provide information about anticoagulant therapy and signs of bleeding.

(continued)
THE CLIENT WITH PULMONARY EDEMA

Pulmonary edema is an abnormal accumulation of fluid in the interstitial tissue and alveoli of the lung. Both cardiac and noncardiac disorders can cause pulmonary edema. Cardiac causes include acute myocardial infarction, acute heart failure, and valvular disease. Cardiogenic pulmonary edema, the focus of this section, is a sign of severe cardiac decompensation. Noncardiac causes of pulmonary edema include primary pulmonary disorders, such as acute respiratory distress syndrome (ARDS), trauma, sepsis, drug overdose, or neurologic sequelae. Pulmonary edema due to ARDS is discussed in Chapter 36.

Pulmonary edema is a medical emergency: The client is literally drowning in the fluid in the alveolar and interstitial pulmonary spaces. Its onset may be acute or gradual, progressing to severe respiratory distress. Immediate treatment is necessary.

PATHOPHYSIOLOGY

In cardiogenic pulmonary edema, the contractility of the left ventricle is severely impaired. The ejection fraction falls as the ventricle is unable to eject the blood that enters it, causing a sharp rise in end-diastolic volume and pressure. Pulmonary hydrostatic pressures rise, ultimately exceeding the osmotic pressure of the blood. As a result, fluid leaking from the pulmonary capillaries congests interstitial tissues, decreasing lung compliance, and interfering with gas exchange. As capillary and interstitial pressures increase further, the tight junctions of the alveolar walls are disrupted, and the fluid enters the alveoli, along with large red blood cells and protein molecules. Ventilation and gas exchange are severely disrupted, and hypoxia worsens.

Digoxin and coumadin has been assessed and reinforced. Ms. Takashi confirms that he is able to accurately check his pulse and can list signs of digoxin toxicity and excessive bleeding.

Critical Thinking in the Nursing Process

1. Mr. Jackson’s medication regimen remains the same after discharge. What specific teaching does he need related to potential interactions of these drugs?
2. Mr. Jackson tells you, “Talk to my wife about my medications—she’s Tarzan and I’m Jane now.” How would you respond?
3. Design an exercise plan for Mr. Jackson to prevent deconditioning and conserve energy.
4. Mr. Jackson tells you, “Sometimes I forget whether I have taken my aspirin, so I’ll take another just to be sure. After all, they are only baby aspirin. One or two extra a day shouldn’t hurt, right?” What is your response?
5. Mr. Jackson is admitted to the neuro unit 6 months later with a cerebral vascular accident (CVA). What is the probable cause of his stroke?

See Critical Thinking in the Nursing Process in Appendix C.

Manifestations of Pulmonary Edema

The client with acute pulmonary edema presents with classic manifestations (see box below). Dyspnea, shortness of breath, and labored respirations are acute and severe, accompanied by orthopnea, inability to breathe when lying down. Cyanosis is present, and the skin is cool, clammy, and diaphoretic. A productive cough with pink, frothy sputum develops due to fluid, RBCs, and plasma proteins in the alveoli and airways. Crackles are heard throughout the lung fields on auscultation. As the condition worsens, lung sounds become harsher. The client often is restless and highly anxious, although severe hypoxia may cause confusion or lethargy.

As noted earlier, pulmonary edema is a medical emergency. Without rapid and effective intervention, severe tissue hypoxia and acidosis will lead to organ system failure and death.

RESPIRATORY
- Tachypnea
- Labored respirations
- Dyspnea
- Orthopnea
- Paroxysmal nocturnal dyspnea
- Cough productive of frothy, pink sputum
- Crackles, wheezes

CARDIOVASCULAR
- Tachycardia
- Hypotension
- Cyanosis
- Cool, clammy skin
- Hypoxemia
- Ventricular gallop

NEUROLOGIC
- Restlessness
- Anxiety
- Feeling of impending doom

Nursing Care Plan

A Client with Heart Failure (continued)

- Design an activity plan with Mr. Jackson that incorporates preferred activities and scheduled rest periods.
- Instruct about sodium-restricted diet. Allow meal choices within allowed limits.
- Consult dietitian for planning and teaching Mr. and Mrs. Jackson about low-sodium diet.

EVALUATION

Mr. Jackson is discharged after 3 days in the cardiac unit. He has lost 8 pounds during his stay and states it is much easier to breathe and his shoes fit better. He is able to sleep in semi-Fowler’s position with only one pillow. His peripheral edema has resolved. Mr. and Mrs. Jackson meet with the dietitian, who helped them develop a realistic eating plan to limit sodium, sugar, and fats. The dietitian also provided a list of high-sodium foods to avoid. Mr. Jackson is relieved to know that he can still enjoy Chinese food prepared without monosodium glutamate (MSG) or added salt. Ms. Takashi and the physical therapist designed a progressive activity plan with Mr. Jackson that he will continue at home. He remains in atrial fibrillation, a chronic condition. His knowledge of digoxin and coumadin has been assessed and reinforced. Ms. Takashi confirms that he is able to accurately check his pulse and can list signs of digoxin toxicity and excessive bleeding.

Critical Thinking in the Nursing Process

1. Mr. Jackson’s medication regimen remains the same after discharge. What specific teaching does he need related to potential interactions of these drugs?
2. Mr. Jackson tells you, “Talk to my wife about my medications—she’s Tarzan and I’m Jane now.” How would you respond?
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5. Mr. Jackson is admitted to the neuro unit 6 months later with a cerebral vascular accident (CVA). What is the probable cause of his stroke?

See Critical Thinking in the Nursing Process in Appendix C.