

1. CASE STUDY:

2. Frannie Failure, a patient on 4P, calls the nurse and states, "I feel really puffy. My rings feel so tight on my fingers and I am having trouble catching my breath." The patient is lying flat in the bed and is alert and oriented x 3. Normal saline 0.9% @ 125mL/HR is running.

3. Assessment: 4. Vital Signs: T 97.9 oral, HR 120, RR 24, SpO2 86% RA, BP 152/94, pain 0/10. 5. Respiratory: Lung sounds- crackles throughout bilaterally, non-productive cough. 6. Cardiac: Heart sounds- S3, pedal pulses not palpable, 3+ pitting edema bilateral feet and ankles. 7. Skin intact, pale and cool. 8. Gastrointestinal: Bowel sounds x4 WNL, BM yesterday morning. 9. Intake/Output: Patient has had 900ml in and 200ml out over the last 8 hours.

10. What additional information would you want/need to know?

a. Some additional information I'd need to know is their labs, specifically their kidney function (creatinine and BUN), radial pulse assessment, when their symptoms started, if it's happened before, a focused neuro assessment, and a 12 lead reading, if their a diabetic, have a history of heart disease or heart problems, and if they smoke.

11. What assessment/ interventions would be appropriate for this patient?

a. Some interventions that would be appropriate for this patient include discontinuing the infusion, high fowlers positioning, oxygen through either a nasal cannula or simple face mask, assess for urine retention if they need straight cathed, huff coughing or splinting, use of incentive spirometer, and an order for a diuretic to remove the excess fluid. I would also assess their blood pressure and oxygen every hour, and do a neuro assessment because their oxygen was low. I would also check abdominal distension, restlessness, confusion, blood-tinged sputum, pallor, and cyanosis.

12. What would you anticipate the healthcare provider to order?

a. An order for an osmotic diuretic, NPO status, titrated oxygen via NC to maintain SpO2 >94%, long-term low sodium diet and or sodium restriction, carb counting, daily weight, liver function test, CBC, and BMP (if not done already), chest x-ray, and an ECG to look for ventricular or atrial enlargement.

13. What medications would be appropriate for this patient (include all pertinent from the Pharmacology List) ? Doses? Nursing Interventions? You will pick three of these medications to complete the ATI Medication Templates.

a. Some medications that are appropriate for this patient include **loop diuretics, potassium-sparing diuretics, Cardiac Glycosides/Inotropics, Inotropic/Sympathomimetics, and Inotropic/Phosphodiesterase Inhibitors**. For a loop diuretic, if it is given IV, it should be in an undiluted form and should be administered slowly to prevent ototoxicity. This should be stored away from light and at a controlled room temperature. I would monitor their blood glucose if they're diabetic, monitor uric acid levels, and report elevated uric acid levels. If they're diabetic, their dosage for a loop diuretic would have to be higher and or adjusted. For **potassium-sparing diuretics (like Spironolactone)**, this prevents hypokalemia and therefore prevents dysrhythmias from occurring.

However, this could cause hyperkalemia, so telemetry would be implemented. Their serum potassium levels should be monitored closely during treatment. This medication should be given orally and with

food to enhance absorption. They can also be crushed and mixed. Menstrual irregularities and abnormal hair growth should be monitored.

Digoxin helps increase the contractility of the heart to increase the overall cardiac output. I would monitor for vomiting which can induce bouts of hypokalemia. I would monitor changes in the cardiac rhythm, and I would monitor for s/s of Digoxin toxicity. Digoxin can be given orally as tablets or IV. The IV form should be given over five minutes. For the dosage of **loop diuretics**, specifically **furosemide**, 20-40mg should be given and repeated in 1-2 hours.

This can be titrated by 20mg until the desired response is obtained. For **potassium-sparing diuretics**, specifically **Spironolactone**, the serum potassium level should be less than or equal to 5 mEq/L. The oral tablet dosing should be 25mg once daily and may be increased by 50mg once daily. For **Cardiac Glycosides/Inotropics**, specifically, **Digoxin**, 0.5-1mg should be given at 50% of the available dose, then one-quarter of the initial dose in each of two subsequent doses at 6-12 hour intervals. This should be done to prevent toxicity from occurring. For **thiazide diuretics**, like **hydrochlorothiazide**, this promotes excretion of sodium and chloride.

This ultimately promotes increased urine output and increased potassium excretion. Good kidney function is needed for this drug to work. Some interventions include monitoring serum electrolyte levels, and s/s of electrolyte imbalances like twitching, weakness, and nausea. Blood glucose should be monitored in diabetic patients as dose will need to be increased. Uric acid levels should also be monitored. This can be given as capsules, tablets, and IV forms.

They can be given alone or in a fixed-dose combo. This should be given with food and the last dose of 12.5-100mg/day should be given before 1500 to prevent sleep loss or nocturia. For **Inotropic/Sympathomimetics**, like **Dobutamine**, this activates beta 1 adrenergic receptors to increase cardiac contractility to improve cardiac output. The patient cardiac rhythm should be monitored and the BP should be monitored continuously throughout the infusion treatment. Titrate or D/C infusion at onset of dysrhythmias. This can be administered through IV infusion for only hospitalized patients.

Vital signs, urine output, ECG, and CO should be monitored. Use dedicated IV line of 2.5-15mcg/kg/min to prevent medication incompatibilities. For **Inotropic/Phosphodiesterase Inhibitors**, like **Milrinone**, this works by inhibiting the enzyme that breaks down cyclic AMP to prevent accumulation of cyclic AMP. This helps increase cardiac output and contractility. Some interventions include correcting fluid deficits and hypokalemia before starting a loading dose of 50mcg/kg, then a continuous infusion of 0.5mcg/kg/min. Monitor vital signs and cardiac rhythm. Decrease dosage if dysrhythmias occur or chest pain.

14. What patient education would you include?

a. Some patient education that I would include about **Furosemide** includes teaching the patient to take the drug as directed and not double dose. I would caution the patient to move positions slowly. Alcohol, exercise during hot weather, or standing for long periods may exacerbate orthostatic hypotension. I would also educate the patient to weigh themselves daily and at the same time every day to monitor for weight gain from possible water retention. I would advise the patient to contact their HCP if they have a weight gain of more than three pounds in one day. I would instruct them to consult with their HCP about taking herbal supplements and OTCs.

I would also instruct them to wear sunscreen and protective clothing to prevent photosensitivity reactions. For **Spirolactone**, I would educate the patient to continue taking the medication as ordered. This should be taken PO at the same time every day. Take missed doses as soon as remember and do not double dose. I would caution the patient to avoid salt substitutes and foods that contain high levels of potassium. I would educate them that the medication can cause dizziness and avoid driving until realizing the response to the medication.

I would educate them to notify their provider before taking any OTCs and herbal supplements. I would educate them to notify their provider about a developed rash, muscle weakness or cramps, fatigue, severe N/V, or diarrhea occurring. I would educate male patients on the possibility of gynecomastia and females to talk to their doctor before thinking of getting pregnant. A follow-up appointment should occur with their HCP. With **Digoxin**, I would educate the patient to take their medications as ordered, at the same time everyday. Missed doses should be taken within 12 hours of the scheduled dose.

Do not double dose. The medication should only be discontinued with the direction of an HCP. I would educate them that their pulse should be reported if it's less than 60 or more than 100. I would also educate the patient on signs of digoxin toxicity including N/V, diarrhea, headache, confusion, anxiety, weakness, and palpitations. I would also educate the patient on checking with their provider before they take herbal supplements and OTCs. I would also educate the patient on carrying identification that describes their disease process and their medication regimen.

With **Hydrochlorothiazide**, I would educate my patient to take this medication at the same time every day, take missed doses as soon as remembered, but not right before the next dose is due. They should monitor their weight biweekly, change positions slowly, use sunscreen, and undergo yearly skin cancer screenings. With **Dobutamine**, I would educate my patient that they will need to be frequently monitored, to inform nurse of new onset of chest pain or dyspnea, or site pain. I would teach them to care for their home IV equipment and teach the caregiver s/s of heart failure. With **Milrinone**, I would educate my patient for the reasoning for administration. I would teach them that this is a measure to control heart failure symptoms, as it is not a cure.