

NURS3015 HEALTH VARIATIONS 4

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Question 1: Pathogenesis and pathophysiology in clinical manifestations

Explanation

Pathogenesis is a process of developing disease or changes in health conditions in human beings that result in a disease. According to Wang *et al.* (2020), The patient has high blood pressure, which can be a cause of pitting oedema, which has been found from the nursing assessment of the patient. Interstitial oedema has been found from the chest x-ray of the patient's costophrenic angle. This is the main cause of shortness of breath. The pathogenesis for this patient includes Cardiomyopathy that causes difficulties for pumping blood in the heart. Heart Failure shows the evidence of the above sentence.

Evidence

The patient has asthma and short breathing symptoms due to ***“chronic inflammatory disorder”*** that causes coughing, shortness of breath, chest tightening and wheezing. As per Pezato *et al.* (2019) observation, the pathogenesis of Mr. Aloha Das's present manifestation can be caused by genetics and environmental pollution or some other health conditions such as smoking, exercise, seasonal changes, and respiratory infections and colds. Genetics plays an important role in developing shortness of breath in patients due to a lack of proper balance in regulating ***“cohort inflammatory mediators”*** like cytokines or growth factors and ***“genetic IGE making”***. As per the illustration of Doucette *et al.* (2020), ***“High sensitivity Troponin T”*** is high in patients (25 ng/L), which shows evidence of damage in the heart and indicates a chance of having a heart attack.

Hyperlactatemia is found in the patients' test results which can be determined by the 4mmol/L amount of lactase present in ABG. It results from reduced delivery of oxygen and

defective mitochondrial utilization of oxygen. This condition can cause several symptoms in the patients, including muscle weakness, nausea, rapid breathing, stomach pain, and muscle ache. The patients' Urea nitrogen (BUN) is 14.00 mmol/L that indicates kidney related health disorders. This can cause a lack of fluids in the body, and inadequate water intake can explain these pathogenic symptoms.

Question 2: Nursing intervention

Explanation

The most appropriate nursing intervention for this patient would involve monitoring signs of respiratory distress. It would give pulmonary hygiene, which would reduce the chances of atelectasis and the chances of respiratory infections. As per Sun *et al.* (2019) illustration, administering oxygen can be prescribed for this patient to maintain stress levels and improve energy levels. Keeping the head of the bed elevated would help reduce aspiration and “*ventilator-associated pneumonia*” (VAP). It should also include regular monitoring of ABG or “*Arterial blood gas*” to maintain its appropriate value in the blood. An imbalance in the ABG values can lead to respiratory problems and respiratory failures. The value of PaO₂ should be more than 60 mmHg, and the value of PaCO₂ should be more than 50 mmHg.

Evidence

This particular nursing intervention would be appropriate for alleviating patients' health care system. This intervention would assess the ABG level in patients which would help the nurses and medical team to determine the condition of patients. Moreover, these processes would support the health condition of the patient. As illustrated by Liu, Song & Hao (2018), this would not only provide healthcare to their patients but also provide vital services such as mental,

physical, emotional and social services to the patient. These nursing interventions would be effective for improving health conditions of North point while providing positive impacts on the patient.

If this intervention is not performed to the patient it would increase several risks related to the health care of the patient. Lack of implementation of this intervention can lead to improper regulation and balance in ABG value which can increase the risk for having heart attacks or heart failure. As per the viewpoint of Liu, Song & Hao (2018), without this nursing intervention, it would be difficult to provide proper care and proper support (both mentally and physically) to the patient.

Question 3: Mechanism of “Furosemide 40 mg IV Stat” and “Glyceryl Trinitrate IV Infusion” 10 mcg/min starting rate

Mechanism of action

“Furosemide 40 mg IV Stat” inhibits sodium and chloride in the proximal and distal tubules and these results in excessive excretion of sodium, chloride, magnesium, water and calcium (Ncbi, 2021). **“Glyceryl Trinitrate IV Infusion”** is used for the relaxation of smooth vascular muscle. It is worked by widening the blood vessels (both arteries and veins). This helps to increase the flow of oxygen in heart muscles that helps in reducing chest pain or shortness of breath.

Diagnosis

This patient is suggested to intake these medicines for reducing chest pain by increasing oxygen flow in the blood vessels. As the patient has difficulties in breathing **“Glyceryl Trinitrate IV Infusion”** or GTI would be beneficial for this patient to reduce his heart pain and shortness of

breath. ***“Furosemide 40 mg IV Stat”*** would be appropriate for treatment of this patient as it would increase the amount of magnesium, calcium and other minerals in the patients' body, which would help in contract and relax the heart muscles.

Nursing considerations

As the patient is taking ***“Glyceryl Trinitrate IV Infusion”***, he may experience resistance to drugs and medicines. Nurses play an important role in evaluating therapeutic effects in the patient's body. The nurses would take possible measures such as removing all metals from the body of the patient before going to test for cardio version. Nurses check ***“Periodic blood pressure”*** which is important for monitoring and maintaining the patient's health.

Clinical response

Possible improvement in the patient's health condition can be observed by the medical team. It can be assumed that patients' ABG value would be improved and ***“High sensitivity Troponin T”*** value would be under control. It would also reduce the chance of heart failure and reduce the issues in shortness of breath.

Clinical observations

Clinical observation by the nurses needs continuation for a long time suggested by the doctor. Nurses would regularly follow and monitor blood pressure, pulse, ABG values, value of Cardiac enzyme, ECG, X-Ray reports and blood reports including BUN, chloride, potassium, creatinine, sodium and potassium levels in patients.

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