Acute Heart Failure and COPD Nursing Case Study

Posted on September 8, 2023

Mrs. J. is a 63-year-old married woman who has a history of hypertension, chronic heart failure, and chronic obstructive pulmonary disease (COPD). Despite requiring 2L of oxygen/nasal cannula at home during activity, she continues to smoke two packs of cigarettes a day and has done so for 40 years. Three days ago, she had a sudden onset of flu-like symptoms, including fever, productive cough, nausea, and malaise. Over the past 3 days, she has been unable to perform ADLs and has required assistance in walking short distances. She has not taken her antihypertensive medications or medications to control her heart failure for 3 days. Today, she has been admitted to the hospital ICU with acute decompensated heart failure and acute exacerbation of COPD.

The clinical manifestations of Mrs. J's condition can be revealed through subjective and objective information. Mrs. J is suffering from acute decompensated heart failure and acute exacerbation of COPD, which is evident through the clinical manifestations. The signs and symptoms of acute decompensated heart failure include shortness of breath, elevated jugular venous pressure, pulmonary crackles, and orthopnea. Her cardiac gallops are measured at S3, and she is also experiencing a ventricular rate of 132 and atrial fibrillation. She also appears to have hepatomegaly, as her measurement indicates a value that is 4 cm below the costal margin (Abdo, A. S, 2017). The signs and symptoms of acute exacerbation of COPD include reduced physical activities. Additionally,

being unable to perform activities of daily life such as walking, eating, and drinking are also symptoms of the same. The patient required assistance to walk short distances, which made her feel exhausted, revealing the reduced function of the lungs and making her always feel like she did not get enough air.

Rationale and Appropriateness of Nurses' Intervention at Admission

The interventions taken at the time of admission were accurate and were aimed at controlling her symptoms. Mrs. J presented symptoms of heart failure; therefore, intravenous Furosemide (Lasix) was correctly administered to reduce the symptoms. Since patients suffering from heart failure experience ineffective blood circulation, this leads to fluid accumulation in the lungs and other parts of the body. The intravenous Furosemide (Lasix) is a diuretic medication that assists in removing excess sodium from the body, thereby enabling the kidneys to remove fluid, resulting in improved heart rate (Dobler, C. C, 2020). To lower her blood pressure, Enalapril (Vasotec) was correctly administered. Enalapril (Vasotec) is an ACE inhibitor that blocks angiotensin II from forming, resulting in unclogged blood arteries and increased blood pressure. The administration of Metoprolol (Lopressor) was also a valid intervention because of its role in regulating abnormal heart rates by lowering them. Morphine sulfate was administered intravenously. This, too, was the correct intervention for Mrs. J's condition. Since morphine is classified as an opioid, it is effective in the treatment of severe pain that Mrs. J was suffering from. ProAir HFA was required to help ease her breathing by relaxing the lung muscles and opening her breathing passages. Flovent HFA is a corticosteroid that helps inhibit repeated episodes of shortness of breath by reducing the inflammation of the lungs (Grymonprez, M, 2019). Lastly, at the time of admission, Mrs. J was experiencing severe breathlessness, so the immediate intervention of delivering oxygen at 2L/NC was an appropriate measure.

Cardiovascular Conditions and Intervention

Heart failure may result from several cardiovascular conditions. These include hypertension, myocarditis, cardiomyopathy, and coronary artery diseases (Rayner-Hartley, E, 2018). Each condition requires a different nursing intervention to prevent heart failure. For hypertension, drugs are administered. These include diuretics, calcium-channel blockers, alpha-blockers, and beta-blockers. Myocarditis can be controlled using ACE inhibitors, beta-blockers, and diuretics. For cardiomyopathy, the best intervention is the use of a mix of IV furosemide (Lasix), Enalapril (Vasotec), and Metoprolol (Lopressor). This helps in regulating the heart rate by lowering blood pressure and preventing water retention. For coronary artery disease, administering aspirin and a statin is the ideal intervention. It helps lower the cholesterol levels in the blood and prevent heart failure.

Prevention of Multiple Drug Interactions

The challenge of multiple drug interactions can be addressed through various nursing interventions. First, it is important to teach patients the importance of record-keeping for all medications taken. This would provide the nurses and the doctors with an overview of the drugs already being taken and prevent them from prescribing any medications that may interact with them. Secondly, patients must be advised to use medicine organizers to ensure the intake of the appropriate dosage and frequency. Thirdly, it is important to advise patients to have one primary care physician so that the care plan does not overlap and multiple drug interactions can be prevented. Lastly, patients must be advised to consult with their medical health providers before taking any herbal medications which may interact with the drugs prescribed by the doctor (Buvneshkumar, 2018).

Health Promotion and Restoration Plan for Mrs. J

The ideal plan for Mrs. J's health promotion and restoration would be to equip her with the skills to manage her condition. A teaching plan with a focus on educating Mrs. J on assessing her symptoms, making correct decisions, and seeking solutions would be appropriate. For this, she must be advised to seek assistance from a range of resources, including a personal trainer and a nutritionist. She must devise an action plan to adjust to a healthier lifestyle. A change of lifestyle would not only help her manage her symptoms but would enable her to become independent in her daily activities.

Educating Mrs. J

The most effective teaching method for educating Mrs. J is one-on-one sessions. Advising Mrs. J to organize her medication according to the time and frequency of intake would help avoid any confusion. This would also prevent multiple drug interactions and enable her to keep a follow-up of her treatment medications.

COPD Triggers

There are various triggers of COPD that may exacerbate Mrs. J's condition and promote her return to the hospital. Since she suffers from shortness of breath, contact with pollution, dust, fumes, or pollen may trigger it again. Insufficient sleep or irregular sleeping patterns may also be a trigger of her condition. In Mrs. J's case, since she has a history of smoking, continuing to smoke would worsen her situation. Therefore, the best smoking cessation intervention that can be offered to Mrs. J is the administration of non-nicotine medication such as Varenicline or Bupropion.

References

Dobler, C. C., Morrow, A. S., Beuschel, B., Farah, M. H., Majzoub, A. M., Wilson, M. E., ... & Wang, Z. (2020). Pharmacologic therapies in patients with exacerbation of chronic obstructive pulmonary disease: a systematic review with meta-analysis. *Annals of Internal Medicine*, *172*(6), 413-422.

Abdo, A. S. (2017). Hospital management of acute decompensated heart failure. *The American Journal of the Medical Sciences*, *353*(3), 265-274.

Buvneshkumar, M., John, K. R., & Logaraj, M. (2018). A study on prevalence of depression and associated risk factors among elderly in a rural block of Tamil Nadu. *Indian journal of public health*, *62*(2), 89.

Grymonprez, M., Vakaet, V., Kavousi, M., Stricker, B. H., Ikram, M. A., Heeringa, J., ... & Lahousse, L. (2019). Chronic obstructive pulmonary disease and the development of atrial fibrillation. *International Journal of Cardiology*, *276*, 118-124.

Rayner-Hartley, E., Virani, S., & Toma, M. (2018). Update on the management of acute heart failure. *Current Opinion in Cardiology*, *33*(2), 225-231.