

**Type:** Case Study

**Subject:** Advanced Physiology and Pathophysiology

**Subject area:** Nursing

**Education Level:** Masters Program

**Length:** 2 pages

**Referencing style:** APA

**Preferred English:** US English

**Spacing Option:** Double

**Instructions:** 76-year-old female patient complains of weight gain, shortness of breath, peripheral edema, and abdominal swelling. she has a history of congestive heart failure and admits to not taking her diuretic, as it makes her “have to get up every couple hours to go to the bathroom.” she now has to sleep on two pillows in order to get enough air. in your case study, remember to write 1-2 pages explaining the following: • the cardiovascular and cardiopulmonary pathophysiologic processes that result in the patient presenting these symptoms. • any racial/ethnic variables that may impact physiological functioning. • how these processes interact to affect the patient.

## **Case Study**

Student's Name

Institutional Affiliation

Course Name and Number

Instructor's Name

Date

## **Case Study**

### **Introduction**

The various body systems are closely interlinked in function to enhance normal body function. Some of these systems are closely associated such that when one system is affected for

instance due to a chronic disease, the functioning of the other system also becomes compromised. The cardiovascular and the respiratory system are examples of such systems, and patients often present with symptoms that cut across both systems (Carter et al. 2019). The purpose of this paper is to analyze a case study presented of a patient who is known to have congestive heart failure, who came complaining of symptoms related to both the cardiovascular and respiratory systems.

### **The Cardiovascular and Cardiopulmonary Pathophysiologic Processes That Result In the Patient Presenting These Symptoms**

Congestive heart failure occurs when the heart is unable to pump enough blood into the circulation, thereby causing impaired tissue perfusion. It is a common chronic condition globally, and is mainly prevalent among the elderly population (Dharmarajan & Rich, 2017). The inability of the heart to pump blood to other parts of the body causes buildup of fluids in the heart and lungs, resulting in symptoms such as shortness of breath, increased fatigability and body swelling. Patients also experience shortness of breath during exercise or while sleeping, and even end up waking from sleep. The first drug of choice for management of congestive heart failure are diuretics, which help with the elimination of the excess fluid in the body, thereby providing symptomatic relief (Dharmarajan & Rich, 2017). Unless the principal cause of the congestive heart failure is addressed, withdrawal of the diuretics could result in the worsening of the symptoms of heart failure, and increase the risk of death.

The pathophysiology behind the development of congestive heart failure is the decreased efficiency of heart muscles responsible for pumping blood which could be due to damage of the heart muscular wall (Dharmarajan & Rich, 2017). Due to systole or diastole dysfunction, there is reduced stroke volume, and an enhanced end systolic volume due to inadequate contractility of

the heart. The heart of the affected individual undergoes various structural and functional changes, which later result in the pathophysiology of the disease. With the structural and functional changes, the heart is unable to adequately pump blood.

There is reduced venous return to the heart due to congestion, resulting in fluid buildup in the body which can present as peripheral edema and abdominal swelling (Dharmarajan & Rich, 2017). The buildup of the fluids within the lungs impairs gaseous exchange, causing shortness of breath, especially while lying flat and during exercise when oxygen demand rises. Most of these patients tend to sleep with many pillows stuck on their back, or even while sitting upright in more advanced diseases, as a way of increasing area for gaseous exchange and relieving symptoms associated with difficulty breathing. Weight gain however, is not always associated with congestive heart failure (Dharmarajan & Rich, 2017). When the weight gain is excessive and the patient is obese, they tend to also present with symptoms similar to those with congestive heart failure such as shortness of breath.

### **Racial/Ethnic Variables That May Impact Physiological Functioning**

Cardiovascular diseases such as chronic heart diseases are less prevalent and has less effects among the Hispanic population. Hispanics are less likely to develop chronic heart diseases compared to the non-Hispanic whites (Benjamin et al., 2018). Besides, they are also less likely to die from heart diseases compared to the non-Hispanic whites. This shows the existing racial and ethnic variabilities on the impact of the disease across the population (Benjamin et al., 2018).

### **How the Processes Interact To Affect the Patient**

Impaired functioning of the heart, as aforementioned result in fluid up, which result in swelling seen as peripheral edema and abdominal swelling. The buildup of the fluids in the lungs impairs gaseous exchange, resulting in shortness of breath with slight exercise or while lying flat (Dharmarajan & Rich, 2017). These symptoms can be attributed to failure by the patient to adhere to the diuretics medications prescribed for the congestive heart failure.

### **Conclusion**

The cardiovascular and respiratory systems are closely related. Pathologies of either the systems affect the functioning of the other system. The patient with congestive heart failure presents with these symptoms since failure to take the diuretics resulted in fluid buildup in the body, and resulted in her presentation with the highlighted symptoms.

### **References**

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