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Pathophysiology of Heart Failure

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Introduction

As a nurse in the Emergency Department, I have encountered many patients who suffer from symptoms and complications of heart failure. Heart failure describes a condition in which the heart is unable to pump blood efficiently, thus limiting oxygen and nutrient delivery to the body's tissues and organs.

Heart failure can be caused by several factors: hypertension, coronary artery disease, valvular heart disease, myocardial infarction, cardiomyopathy, congenital heart disease, and others. It is a complex condition that affects the entire cardiovascular system, leading to fatigue, shortness of breath, swelling, and other symptoms.

The pathophysiology of heart failure involves the heart's inability to pump blood effectively due to heart muscle weakness, valve dysfunction, or other factors. This results in the heart's inability to pump blood to the body effectively, leading to symptoms such as shortness of breath, swelling, and fatigue.

Signs and Symptoms

- Shortness of breath during even mild physical activity
- Persistent swelling in the legs, abdomen, or underarms
- Fatigue or weakness
- Rapid or irregular heartbeat
- Palpitations
- Ankle, foot, or wrist swelling
- Difficulty sleeping

Understanding the pathophysiology of heart failure is crucial for effective management and treatment. It allows healthcare providers to identify the underlying cause of the condition and develop individualized treatment plans for patients.

Pathophysiology of Heart Failure

Underlying Pathophysiology

As previously mentioned, the disease process of heart failure can be caused by multiple factors. There are three contributing factors: heart remodeling, ventricular dysfunction, and congestion. These factors individually and collectively contribute to the development of heart failure.

Heart remodeling refers to the adaptive changes in the heart's structure and function in response to chronic pressure and volume overload. This results in the heart's ventricles dilating and thickening, which ultimately reduces their ability to pump blood effectively.

Ventricular dysfunction, on the other hand, involves the failure of the heart's ventricles to contract properly, leading to a decrease in cardiac output, which is the volume of blood pumped by the heart per minute.

Congestion occurs when the heart's ability to pump blood is impaired, leading to the accumulation of fluid in various parts of the body, such as the lungs, liver, and extremities.

Significance of Pathophysiology

Understanding the pathophysiology allows caregivers to determine which type of heart failure the patient has and what signs and symptoms to expect. This information also provides the necessary knowledge for effective treatment and management of heart failure.

Risk Factors

- Hypertension
- Diabetes mellitus
- Coronary artery disease
- Valve disease
- Congenital heart defects
- Familial predisposition

Nursing Implications

- Education and self-care management
- Monitoring and management of fluid balance
- Medication management
- Symptom management
- Referral and discharge planning

References
