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Heart Failure with Preserved Ejection Fraction
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Introduction
• Heart failure with preserved ejection fraction (HFpEF) is a disease of the heart, characterized by cardiac dysfunction and symptoms of heart failure. Although HFpEF is becoming more prevalent with the aging American population, it is often not recognized or appropriately managed by healthcare providers.
• HFpEF accounts for $30 billion in healthcare spending annually, with 870,000 new cases being diagnosed every year (Tawil & Gelzinis, 2016).

Disease Process
• HFpEF consists of a combination of cardiovascular disease processes that become apparent in advanced age. As the patient ages, the cardiovascular system begins to fail, and the production and utilization of ATP decreases cause the inability of the ventricles to relax as well as stiffness resulting in issues with ventricular compliance and filling (Singh & Mehta, 2018).

Underlying Pathophysiology
• In normal physiology, the heart achieves optimal cardiac output through the augmentation of stroke volume and heart rate. Myocardial contractility, the Frank-Starling law of stretch, and atrial and ventricular coupling determine the stroke volume. HFpEF causes blood to back up into the lungs and cause an acute on chronic exacerbation of HFpEF. This acute on chronic exacerbation of HFpEF leads to a significant increase in hospital admissions in patients 65 years of age or older (Farris et al., 2017).

Signs and Symptoms
• General fatigue and weakness
• Dyspnea, paroxysmal nocturnal dyspnea, or orthopnea
• Edema
• Jugular venous distension
• S3 heart sound
• Displaced apical impulse

Risk Factors
• Age > 70
• Female sex
• Obesity
• Hypertension
• Tobacco use
• Diabetes mellitus
• Coronary artery disease
• Valvular heart disease

Significance of Pathophysiology
• As the ventricle hypertrophies and becomes stiff, the cardiac output will decrease. This causes blood to back up into the LA and into the pulmonary circulation. The backflow of blood into the pulmonary vasculature causes pulmonary edema, and acute, life-threatening disorder that must be managed in an acute care setting and may require advanced resuscitation techniques and aggressive medication and airway management.

Implications for Nursing Care
• The management of HFpEF requires diet and lifestyle changes in addition to medications to improve quality of life and reduce hospital admissions. Patients that develop an acute on chronic exacerbation of HFpEF may be admitted to inpatient units. In order to properly prepare the patient for the acute exacerbation of HFpEF, the patient must be able to manage acute exacerbations on their own (Cavalcanti & Pereira, 2014).

Conclusion
• HFpEF is a complex medical condition that affects a significant portion of the population and poses many unique clinical considerations for the healthcare provider.
• It is incumbent on healthcare providers to be aware of the pathophysiology and considerations related to HFpEF in order to make evidence-based decisions involving the care of patients who present with the disease.
• As the population ages, the prevalence of HFpEF is increasing significantly (Tawil & Gelzinis, 2016).
• Although treatment for HFpEF does not exist, symptoms can be managed with medication and lifestyle changes. The nurse is in a unique position to provide education to the HFpEF patient to improve quality of life (Cavalcanti & Pereira, 2014).

References

Figure 1. Specific biological phenotypes in HFpEF (Lewis et al., 2017).

Figure 3. An illustration of heart muscle hypertrophy in HFpEF (“Diseased heart failure, 2020”).