Hypertrophic Obstructive Cardiomyopathy

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What is Hypertrophic Obstructive Cardiomyopathy?

Hypertrophic obstructive cardiomyopathy (HOCM) is a genetic disease that is described as thickening of the left ventricle, which obstructs the blood flow to the body (Yue-Cheng et al., 2013). HOCM is often asymptomatic but can be treated. One of the main goals of treatment is to focus on treating the symptoms. HOCM can be asymptomatic or symptomatic and can cause some major complications. Some of the complications of HOCM are arrhythmias and sudden cardiac death, which is defined as death due to cardiac causes, heralded by abrupt loss of consciousness within one hour of the onset of acute symptoms (Spirito et al., 2009, p. 176).

Pathophysiology and Diagnosis of HOCM

"HOCM is an autosomal dominant disease characterized by left ventricular hypertrophy and left ventricular outflow tract obstruction" (Yue-Cheng et al., 2013, p. 48). In the majority of cases, a continuous or systolic murmur occurs, which is also a common symptom of HOCM. This murmur is produced by the increased pressure gradients across the left ventricular outflow tract (LVOT). The disability level and hybridization with LV pressure and aortic valve leaflets move forward, causing the LVOT to become narrowed or obstructed (Yue-Cheng et al., 2013, p. 48). The obstruction decreases coronary pressure and causes decreased cardiac output (Whitten, 2008).

The most drastic symptom of HOCM is sudden cardiac death (SCD), which is common in young patients and previously asymptomatic patients (Prez, F., Berent, D., Berent, K., & Fehr, 2011).

"HOCM is an autosomal dominant disease characterized by left ventricular hypertrophy (LVH) and left ventricular outflow tract (LVOT) obstruction (Yue-Cheng et al., 2013). In HOCM the myocardial sarcoplasmic reticulum (SR) pumps result in muscle dyssynchrony and fibrosis, ultimately causing inappropriate left ventricular hypertrophy (Ommen, 2013). This abnormality is causing the muscle of the heart to thicken. The wall dividing the right and left ventricles becomes thick and gets in the way or obstructs the flow of the blood to the rest of the body (Hypertrophic Cardiomyopathy, 2014). Because of the hypertrophy LV during the systolic phase the hypertrophic interventricular septum protrudes into the left ventricular outflow tract (LVOT) and the aortic valve leaflets move forward, causing the LVOT to become narrowed or obstructed (Yue-Cheng et al., 2013, p. 48). The obstruction decreases coronary pressure and causes decreased cardiac output (Whitten, 2008).

Hearing a systolic murmur or holding an electrocardiograph (ECG) that looks abnormal could indicate that the patient has HOCM. Confirmation of HOCM is made with an echocardiograph. An echocardiograph shows LV hypertrophy. Once the diagnosis of HOCM is made, screening should be done for the immediate family for the autosomal dominant disorder (Nishimura & Holmes, 2004).

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HOCM is a disease that will require lifelong treatment and management. HOCM can be defined as thickening of the left ventricle with obstructive outflow obstruction. Chest pain, syncope, and shortness of breath are common symptom to see in patients with HOCM. HOCM can be treated with medications and surgical procedures for advanced cases where medications no longer work. "Surgical treatment is a role in the knowledge of HOCM and how to detect problems early on” (Whitten, 2008 p. 52).

Medical Therapy

When pharmacological treatment is not enough, other options need to be considered. Two invasive procedures, surgical myectomy and percutaneous transapical septal myocardial ablation (PTSMA), can be done to patients where medication is not working. "Surgical myectomy involves a section of a particular part of the heart, the subaortic septum. Surgical myectomy may reduce this condition in about 70% of patients" (Whitten, 2008, p. 50). PTSMA is reduced in 1959 as an alternative to myotomy and has been shown to reduce the LVOT obstruction and associated symptoms" (Jensen et al., 2011 p. 256). PTSMA involves injecting ethanol into one or more the septal perforator arteries, producing a controlled infection of the myocardial septum. A successful PTSMA results in septal thinning with reduction in the LVOT obstruction" (Whitten, 2008, p. 50). Between the two procedures surgical myectomy is the treatment of choice with HOCM patients. PTSMA is recommended for older patients or patients that absolutely do not want to have surgery (Maron & Maren, 2013).

Implications for Nursing

Nurses need to understand the pathophysiology, management, features, and consequences of HOCM (Whitten, 2008, p. 50). Nurses should talk with the patient regarding their medications and why they have remained the same with what some of the major complications of HOCM are. When patients arrive to nurse units most procedures, nurses should be monitoring vitals, accessing the access site for signs and symptoms of hemorrhage, swelling, and causes of bleeding.

Surgical Treatment

HOCM is a disease that will require lifelong treatment and management. HOCM can be defined as thickening of the left ventricle with obstructive outflow obstruction. Chest pain, syncope, and shortness of breath are common symptom to see in patients with HOCM. HOCM can be treated with medications and surgical procedures for advanced cases where medications no longer work. "Surgical treatment is a role in the knowledge of HOCM and how to detect problems early on” (Whitten, 2008 p. 52).

Conclusion

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References


