Hypertrophic Obstructive Cardiomyopathy

Tiffany Branson
Otterbein University, tiffany.branson@otterbein.edu

Follow this and additional works at: https://digitalcommons.otterbein.edu/stu_msn
Part of the Cardiovascular Diseases Commons, Medical Pathology Commons, and the Nursing Commons

Recommended Citation
Branson, Tiffany, "Hypertrophic Obstructive Cardiomyopathy" (2014). Master of Science in Nursing (MSN) Student Scholarship. 47.
https://digitalcommons.otterbein.edu/stu_msn/47

This Project is brought to you for free and open access by the Student Research & Creative Work at Digital Commons @ Otterbein. It has been accepted for inclusion in Master of Science in Nursing (MSN) Student Scholarship by an authorized administrator of Digital Commons @ Otterbein. For more information, please contact shickey@otterbein.edu.
Hypertrophic Obstructive Cardiomyopathy

Tiffany Branson RN, MSN
Otterbein University, Westerville, Ohio

What is Hypertrophic Obstructive cardiomyopathy?

Hypertrophic obstructive cardiomyopathy (HOCM) is a genetic disease that is described as thickening of the left ventricle or hyper thickening that obstructs the blood flow to the body (Yue-Cheng et al., 2013). HOCM is diagnostic because it is not clear, 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 arhythmias and sudden cardiac death, which is defined as natural death to due cardiac arrest, with possible irreversible brain damage within an hour of the onset of acute symptoms (Spirtido et al., 2009, p. 1764).

Signs and Symptoms

- Shortness of breath.
- Most of the time it is caused by hypertension.
- Chest pain.
- Decrease profusion.
- Syncope.

Syncope occurs if the heart is not able to increase cardiac output upon exertion (Whitten, 2008, p. 47-48).

- Chest pain.

- Syncope occurs if the heart decreases because it is thick and gets in the way or obstructs the flow of the blood to the rest of the body.

- Arhythmia.

Arhythmia. Patients with HOCM will sometimes have arhythmias due to ventricular remodeling, decreased cardiac output, microvascular ischemia, and hypertrophy. The most common types of arrhythmias seen with HOCM are Atrial Fibrillation (A fib), Atrial Flutter, supraventricular tachycardia (SVT), ventricular tachycardia (VT), and heart blocks (Whitten, 2008, p. 47-48).

- The most drastic symptoms of HOCM are sudden cardiac death (SCD), which is common in young patients and previously asymptomatic patients (Prate, Farn, Bering, Alpert, & Faber, 2011).

Pathophysiology and Diagnosis of HOCM

"HOCM is an autosomal dominant disease characterized by left ventricular hypertrophy (LVH) and left ventricular outflow tract obstruction" (Yue-Cheng et al., 2013, p. 86). In the diagnosis of HOCM is made on an echocardiogram, which shows that the hypertrophic cardiomyopathy 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). "HOCM is an autosomal dominant mutation of genes." (Gersh et al., 2011, p. 2731) and genetic testing is done to identify any relatives that may be affected with this disorder. Genetic testing is used to determine which first degree family members are at risk for developing HOCM (Gersh et al., 2011). Genetic counseling can be done prior to the testing and will help the family members better understand and the reasoning for the test, risk factors and benefits for taking the test, and can help keep reactions to the test. Many individuals in the family does have a mutation of the gene (Gersh et al., 2011).

Medical Therapy

Treatment is done to relieve the symptoms. In HOCM the goal is to improve the signs and symptoms by decreasing the heart rate, decreasing outflow obstruction, decreasing the oxygen demand, improving the heart relaxation, and improving filling parameters and preventing vascular complications (Whitten, 2008, p. 49).

- Initially the first medication used will be a beta-blocker to help slow the heart rate to enhance diastolic filling (Nishimura & Holmes, 2004). If the patient cannot tolerate beta-blockers, a calcium channel blocker like Verapamil will be used to help improve the symptoms of HOCM (Nishimura & Holmes, 2004), and Verapamil can also improve the function of the LV (Hamada, Iida, & Shigematsu, 2014). - Beat-blockers are effective in relieving clinical symptoms, and calcium antagonists, such as Verapamil, are effective in attenuating LV diastolic dysfunction (Hamada, Iida, & Shigematsu, 2014, p. 3). Antiarrhythmic medications such as Amiodarone, can be used in HOCM patients who have developed arrhythmias like A fib (Maron & Maron, 2013).

Surgical Treatment

When pharmacological treatment is not enough, others options need to be considered. Two invasive procedures, surgical myectomy and percutaneous transapical septal myotomy and ablation (PTSMA), can be done to patients where medication is not working. “Surgical myectomy involves resection of a rectangular part of the thickened subaortic septum. Surgical myectomy is performed in about 70% of patients” (Whitten, 2008, p. 50). PTSMA was introduced in 1995 as an alternative to myectomy and has been shown to reduce the LV outflow 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 infarction of the myocardial septum. A successful PTSMA results in septal thinning with reduction in the LV outflow 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 & Maron, 2013).

Implications for Nursing

"Nurses need to understand the pathophysiology, management, features, and outcomes of HOCM" (Whitten, 2008, p. 50). Nurses should talk with the patient regarding their medications and why they need them. Nurse also need to be aware of what HOCM is and what some of the major complications of HOCM are. When patients arrive to units post procedure, nurses should be monitoring vigilantly, assessing the access site for signs and symptoms of hemorrhage, firmness and infection.

Conclusions

HOCM is a disease that will require lifetime treatment and management. HOCM can be defined as thickening of the left ventricle with obstruction of the blood flow. 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 advances cases where medications no longer work. “Nurses play a role in the knowledge of HOCM and how to detect problems early on” (Whitten, 2008, p. 52).

References


