Cardiac Tamponade

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Introduction
What is the Topic? The topic the author chose to research is cardiac tamponade. Cardiac tamponade occurs when fluid builds up in the pericardial cavity, which is the cavity that surrounds the heart. Cardiac tamponade can occur due to various reasons, including medical emergencies, such as heart disease, trauma, and placement of various wires. Palpitations, shortness of breath, and chest pain are common symptoms that occur with cardiac tamponade. Patients and a pericardial window are two interventions that are used to treat cardiac tamponade. Cardiac tamponade is a medical emergency and requires immediate medical intervention, which may lead to cardiac arrest and possible death. Why was the Topic Chosen? The author chose cardiac tamponade because she has some past knowledge of the condition. The author previously worked in an emergency department. Two years ago, the author assisted another nurse in caring for a patient who was being treated for a heart rate of 18 beats per minute. The nurse was also being trained for other patients with similar heart rates. The cardiologist on call placed a tranvenous pacer wire. The author knows the condition because the author has knowledge of this condition. The author previously worked on a cardiac step department. Two weeks ago, the author worked on a cardiac step department and performed pericardial windows. Currently, the author works in an emergency department. Two weeks ago, the author assisted another nurse in caring for a patient who was being treated for a heart rate of 18 beats per minute. The nurse was also being trained for other patients with similar heart rates.

Underlying Pathophysiology
Cardiac tamponade occurs as fluid accumulates in the pericardial sac and causes increased compression on the heart. Accumulation of fluid can cause increased pressure on the heart chambers from filling poorly. Because the right side of the heart has lower diastolic pressures, the atrium and ventricle are the first to be affected. The impeding filling of the right atrium and the right ventricle lead to signs of right-sided heart failure, such as hepatomegaly and jugular vein distention. Cardiac arrest can then occur if the left atrium becomes affected due to the minimal filling and circulatory collapse. Cardiac tamponade has many causes, including infections, trauma, surgery, and placement of pericardic wires, a pacemaker, or a central venous line. Cardiac tamponade can be caused by infections, mainly pericarditis. Trauma can cause cardiac tamponade due to perforation of the pericardial sac and resulting accumulation of fluid. Surgery and placement of pericardic wires or central lines also cause cardiac tamponade due to perforation of the pericardial sac. Cardiac tamponade dysrhythmia can be caused by a catheter as well as a direct infusion of fluid causing the pericardial cavity to fill up. (Schub & Boling, 2015, p. 1).

Significance of Pathophysiology
The pathophysiology of cardiac tamponade is important to providers to be proactive instead of reactive. The pathophysiology is significant due to the signs that occur due to the rapid filling of the pericardial sac, it is important to monitor the patient closely. One of the most important diagnostic tests is a chest X-ray after placement of a tranvenous pacer wire and central venous line. The chest X-ray would show cardiomegaly, which would suggest cardiac tamponade. Daily chest X-rays after cardiac surgery are obtained for this reason as well. The heart is unable to withstand fluid accumulations, as long as the fluid builds up gradually. Echocardiograms would also show the size and presence of a pericardial effusion. Monitoring for heart rate and respiratory rate increases and blood pressure decreases would also alert providers to the possibility of developing tamponade. Because the signs and symptoms of cardiac tamponade are not specific until it becomes acute, it is important to quickly rule out other conditions, including acute myocardial infarction while the patient and nurses. The pathophysiology is significant for providers to recognize the signs and symptoms of cardiac tamponade to intervene before the condition becomes severe and causes death.

Pathophysiological Processes
The cardiologist at call placed a tranvenous pacer wire. The patient who was being treated for a heart rate of 18 beats per minute. Two weeks ago, the author worked on a cardiac step department. Currently, the author works in an emergency department. The cardiologist on call placed a tranvenous pacer wire. The author knows the condition because the author has knowledge of this condition. The author previously worked on a cardiac step department. Two weeks ago, the author worked on a cardiac step department and performed pericardial windows. Currently, the author works in an emergency department. Two weeks ago, the author assisted another nurse in caring for a patient who was being treated for a heart rate of 18 beats per minute. The nurse was also being trained for other patients with similar heart rates.

Graph 1. Pressure/volume curve of the pericardium with fluid accumulating pericardial fluid leading to cardiac tamponade with a smaller volume (A) compared to the slowly accumulating pericardial fluid reaching cardiac tamponade only after larger volumes (B).

Graph 2. Cardiac tamponade due to hemopericardium

Signs and Symptoms
- Dyspnea
- Tachycardia
- Feeling of anxiety
- Musculoskeletal pain
- Feeling of restlessness

References

Other References

Cardiac tamponade: a life-threatening emergency that can result in death if not treated quickly and appropriately. If a patient presents with hypoxemia, hypotension, muffled heart sounds, and jugular vein distention, chest imaging, such as a chest X-ray should be obtained as soon as possible. An electrocardiogram would also be useful in determining the presence of a pericardial effusion, which usually precedes cardiac tamponade. Nurses, doctors, and other healthcare providers need to be knowledgeable on the presentation of cardiac tamponade to intervene quickly and prevent further complications, such as cardiogenic shock from causing a patient’s death.

Conclusion