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Cardiac Tamponade

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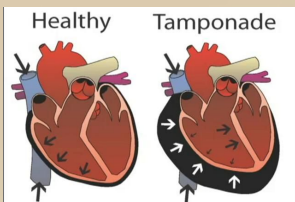
Cardiac Tamponade

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Introduction

What is the topic?

- Cardiac tamponade



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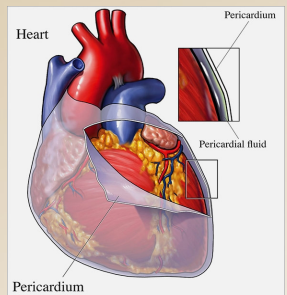
Why choose cardiac tamponade?

- Emergent complication requiring prompt recognition and immediate intervention
- Directly relates to my nursing practice in a cardiac focused medical ICU
- Requires diligent nursing assessments and monitoring of vital signs in at risk patients
- Rare and fatal complication of certain procedures
- Can be fatal if not recognized and treated quickly
- Iatrogenic complications are the leading cause of cardiac tamponade (Orbach, Schliamser, Flugelman, & Zafrir, 2016)

Pathophysiological Processes

Underlying Pathophysiology

- The heart is surrounded by a layer of tissue called the pericardium.
- Between the pericardium and the wall of the heart is approximately 50mL of pericardial fluid that helps to reduce friction on the surface of the heart (Hoit, 2017).
- The pericardium can only stretch so far before it becomes too stiff for the heart to effectively pump (Hoit, 2017).
- A larger volume of fluid is termed a pericardial effusion (Hoit, 2017). This fluid may contain pus, blood, clots, or gas (Rapp, Devendorf, Solo, Murray, & Jordan, 2018).
- When the pericardial effusion becomes large enough that the pericardium is too stiff for the heart to effectively pump, this is considered cardiac tamponade (Hoit, 2017).
- The stiff pericardium compresses all the chambers of the heart causing a shock picture.
- Cardiac tamponade may be caused by infection, malignancy, trauma, or as a complication of a procedure among many other things (Hoit, 2017).



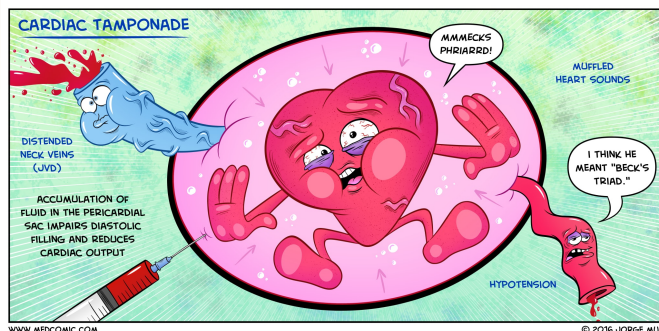
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Significance of Pathophysiology

- "Cardiac tamponade is a life-threatening condition which requires urgent evacuation of pericardial effusion" (Chandraratna, Mohar, & Sidarous, 2014).
- By understanding the anatomy of the heart, one is able to visualize the process that occurs during cardiac tamponade.
- Too much fluid between the pericardium and the heart wall make it difficult for the heart to mechanically function as a pump to squeeze adequate amounts of blood to the rest of the body.
- If a large effusion is left untreated, eventually there will be electrical activity without mechanical activity leading to PEA and death (Rapp, Devendorf, Solo, Murray, & Jordan, 2018).

Signs & Symptoms

- Beck's Triad (Rapp, Devendorf, Solo, Murray, & Jordan, 2018):
 - Low BP
 - Distended neck veins
 - Muffled heart tones
- Chest pain
- Syncope
- Peripheral edema
- Shortness of breath
- Tachypnea
- Sinus tachycardia
- Elevated jugular venous pressure (Hoit, 2017)
 - Venous distention in the forehead and scalp
- Pulsus paradoxus: abnormally large decrease in systolic BP on inspiration (Hoit, 2017)
- Pericardial rub (Hoit, 2017)



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Implications for Nursing Care

- Close monitoring of BP, HR, respirations
- Focused cardiac assessment for muffled heart tones, pericardial friction rub, chest pain, dizziness
- Focused lung assessment for bilateral breath sounds, shortness of breath
- If an emergent pericardiocentesis is done at the bedside, the nurse should assist in monitoring the patient during the procedure and be aware of potential complications such as perforation of the myocardium, arrhythmias, pneumothorax, and vagal reactions (Rapp, Devendorf, Solo, Murray, & Jordan, 2018)

Implications for Nursing Care

- Some clinicians may decide to leave a pericardial drain in place after draining an effusion for assessment of reaccumulating fluid.
- Nurses are responsible for monitoring the amount of drainage hourly and monitoring the dressing and drain site.
- Monitor the drain insertion site for redness and swelling suggesting inflammation
- Monitor the sterile dressing for any extra drainage
- Immediately consult the physician if drainage exceeds 100mL or suddenly stops draining (Rapp, Devendorf, Solo, Murray, & Jordan, 2018)
- As always, educate patients about the signs and symptoms of cardiac tamponade, infection, and when to follow up with a physician (Rapp, Devendorf, Solo, Murray, & Jordan, 2018):

Conclusion

Cardiac tamponade is a life threatening condition. Without prompt recognition and evacuation of the pericardial effusion, one's heart will quit pumping and death occurs. Nurses must remain vigilant in assessing for this complication in at risk individuals, and notify a healthcare provider immediately of any deterioration in a patient.

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