Pericardiocentesis: Ongoing Management of an Indwelling Pericardial Drain (Medical-Surgical Units)

Site Applicability

SPH Acute Care

Practice Level

RN Basic

- Pericardial drains may be managed by RNs outside of critical care who have reviewed this standard

Policy Statements

1. Pericardial drain insertion must be performed in a critical care area, where continuous monitoring of ECG rhythm and patient's responses, including oxygenation, LOC, BP, pain, SOB, can occur throughout the procedure. Patients may be transferred to a non-critical care unit after the procedure and when stable, with a physician's order. Stable is defined as:
    i. VS within normal range for patient for 4 hours post-procedure
    ii. Minimal bleeding at site
    iii. Pain controlled

2. A CICU physician is responsible for:
    i. Instilling medications into the pericardial sac through a pericardial drain
    ii. Flushing pericardial catheters
    iii. Manually aspirating pericardial fluid with a syringe from a pericardial drain
    iv. Removing pericardial drains

Need to Know

A pericardial effusion (see Appendix A) is an abnormal accumulation of more than 50 mL of fluid in the pericardial sac. This accumulation of fluid can be evaluated using a chest x-ray, echocardiography, and clinical findings. Pericardial effusion can impair both cardiac filling (compromising preload and cardiac output) and cardiac emptying (also compromising cardiac output), and can lead to cardiac tamponade. Signs of cardiac tamponade are related to low cardiac output and increased venous congestion, and include: narrowing pulse pressure (less than 30 mmHg between systolic and diastolic pressure),

hypotension, tachycardia (a compensatory mechanism for reduced cardiac output), and neck vein distension.

Pericardiocentesis is performed to drain abnormal accumulations of pericardial fluid. This procedure is indicated when the effusion is compromising hemodynamic status or causing cardiac tamponade, or for obtaining fluid for a definitive diagnosis. The most commonly used site for pericardiocentesis is the subxiphoid. Pericardiocentesis is always performed with transthoracic echocardiogram guidance because it allows for more accurate identification for the location and size of the pericardial effusion.

Protocol

ASSESSMENT	Interventions
1. Once transferred to a general medical-surgical unit, assess **Q4H until pericardial drain is removed**: • Heart sounds (clarity) • Breath sounds • VS (BP, HR, RR, SpO_2, T) • Insertion site (monitor for bleeding) • Drainage (amount, character)	Notify the physician immediately if assessment findings reveal: • Decreased BP • Change in mental or respiratory status • Distant (muffled) heart sounds • Bleeding or hematoma at drainage site • Decreasing hemoglobin Empty drainage Q12H
2. Continue Q4H assessments for an additional 24 hours after pericardial drain has been removed	Assess site for signs of infection (erythema, edema, purulent or foul-smelling drainage, T greater than 38^0C)

Documentation

1. **Pericardial Drain Assessment Flowsheet** (PHC- NF509)**:**
    a. Heart sounds, VS (WNL or not), dressing and site, amount and characteristics of pericardial fluid collected from closed wound suction kit (e.g. Davol drain)

2. **Interdisciplinary Progress Notes** (PHC-NF205):
    a. Removal of pericardial drain (if applicable), noting physician who performed procedure.

3. **24-hour Fluid Balance Record** (PHC-NF036) or MEWS Vital Signs Flowsheet (PHC-NF498):
    a. Volume of pericardial drainage

    NOTE: *Pericardial drains are usually removed when the drainage has decreased to less than 50 mL over the preceding 24 hours.*

4. **24-hour Patient Care Flowsheet** (e.g. PHC-NF204 or NF508 or NF494, NF499) or Interdisciplinary Flow Sheet (NF205):
    a. Physical assessment findings

Patient and Family Education

Explain reason for drain to patient and/or family.

Instruct patient to report any pain or discomfort or new drainage at drain site or symptoms of shortness of breath, dizziness, unusual weakness or fatigue or chest discomfort.

Related Documents

1. B-00-13-10205 - Pericardiocentesis in Critical Care Areas

References

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Persons/Groups Consulted

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Appendix A

Pericardial Effusion

The heart sits in a thin sac called the pericardial sac. An abnormal accumulation of excessive fluid (greater than 50 mL) in the pericardial space is called a pericardial effusion; presence of excessive fluid in the pericardial space can restrict and squeeze the heart, restrict cardiac filling and emptying, and progress to a life-threatening emergency called **cardiac tamponade**.

Clinical presentation of pericardial effusion depends on two factors: the 1) amount of fluid that has accumulated in the pericardial space, and 2) how rapidly the fluid accumulated. A slow, gradual build-up (days to weeks) of fluid in the pericardial space may provide time for the pericardial sac to stretch, accommodating up to 1 to 2 litres without causing cardiac compression. Rapid (minutes to hours) build-up of fluid in the pericardial space does not allow the pericardial sac to stretch and cardiac compression can occur with volumes of only 80 to 200 mL. Treatment for pericardial effusion is directed at removing the fluid in the pericardial space either through a single aspiration or with an indwelling drain attached to a drainage collection system (e.g. a Davol or Hemovac).

Appendix B

To Empty Davol Drain

1. Perform hand hygiene
2. Put on gloves and eye protection (PPE)
3. With an open specimen container or graduated cylinder within easy reach, open the plug marked on the drain 'empty port". This will release the suction and the device will expand as air enters the chamber.
4. Carefully tip the device to pour contents into prepared container, note volume
5. Place the Davol on a flat surface with open port facing upward
6. Press down on the Davol until the bottom and top are in contact (squeezed together), close the port.
7. Re-secure the device to prevent tension and accidental removal
8. Discard waste in appropriate receptacle
9. Remove PPE, perform hand hygiene
10. Record volume of drainage on appropriate flow sheet