Chest Pain Management (Outside Critical Care): Care of Patient

Site Applicability

Acute Care In-patient areas

Practice Level

Basic Skill: RN, RPN, LPN

Need to Know

Causes of acute chest pain can be cardiac, pulmonary, vascular, gastro-intestinal, musculoskeletal or psychological in nature. **All chest pain/discomfort must be treated immediately and assumed to be cardiac in origin until proven otherwise.**

Chest pain may be a sign of myocardial ischemia. Myocardial ischemia occurs when coronary blood flow is insufficient to meet the oxygen requirements of the heart's myocardial cells. Three main mechanisms may cause ischemia:

1) Reduced blood flow due to an atherosclerotic plaque or thrombus obstructing a coronary artery(ies)
2) Reduced blood flow caused by vasoconstriction/spasm or
3) Significant increased demand (usually accompanied by reduced supply) e.g. fever, sepsis

Chest "pain" due to myocardial ischemia may be felt as an uncomfortable pressure, fullness, squeezing or pain in the centre of the chest. Discomfort may spread to the shoulder, neck, arms, and jaw, in the back or between the shoulder blades or epigastrum – or may be in those places without being present in the chest. Patients with myocardial ischemia may also experience lightheadedness, fainting, sweating, nausea, weakness, or shortness of breath. A general feeling of distress, anxiety or impending doom may also be present. Most men and women present with the symptoms listed above; however, some people have other symptoms such as isolated unusual fatigue and this may be slightly more common in women. Women are also more likely than men to report throat, jaw or neck pain.

Protocol

Assessment

1. Perform thorough pain assessment with each reported pain episode using appropriate pain scale (e.g. Numeric pain scale, Verbal pain scale, etc.)
2. Identify precipitating event, if any; identify frequency, duration, intensity and location of pain (**O**nset, **P**rovocation, **Q**uality, **R**adiation/region, **S**everity, **T**ime)
3. Ask whether this is typical pain for the patient
4. Assess for associated symptoms: shortness of breath, diaphoresis, nausea, dizziness, indigestion
5. Measure and document vital signs (HR, BP, SpO_2, RR, Temperature)
6. For cardiac units – obtain and analyze rhythm strip

Interventions:

** indicates Provider (Physician/Nurse Practitioner) order required*

1. Restrict patient's activity to bed rest
2. Place patient in semi-Fowler's position. Limit HOB to a maximum of 30° if within 4 hours after angiogram (SCA) or percutaneous coronary intervention (PCI) via femoral approach
3. Administer oxygen by nasal prongs to maintain SpO_2 goal or if evidence of respiratory distress
4. ***If not contraindicated***, administer one dose nitroglycerin***** sublingual spray per orders

   Avoid Nitroglycerin if:

   - SBP is below 90 mmHg
   - SBP drops more than 30 below baseline after first spray, or
   - HR below 50 bpm
   - Patient has used Sildenafil (Viagra), Vardenafil (Levitra) within 24 hours or Tadalafil (Cialis) within 48 hours
5. Assess patient's response to intervention: Measure and document vital signs, and assess chest pain (PQRST) 5 minutes after nitroglycerin dose
6. ***If not contraindicated*** and chest pain persists, give second dose of nitroglycerin sublingual spray as per orders
7. If chest pain unresolved after second dose, **consider notifying Provider** before administering a third dose of nitroglycerin
8. If chest pain/discomfort is not resolved and/or patient becomes hemodynamically unstable, call for assistance or Code Blue as necessary

Morphine* IV may be used in addition to nitroglycerin for pain unrelieved by nitroglycerin. Obtain order for morphine from Provider. **Always inform Provider of any ischemic chest pain unrelieved by nitroglycerin**.

For cardiac units:

If hemodynamic status deteriorates (decreased LOC, decreasing BP, respiratory distress and/or angina **with** significant increase or decrease in heart rate) – initiate telemetry. Chest pain or other signs of ischemia **without** evidence of changes in rhythm (e.g. a significant increase or decrease in heart rate) does not necessarily warrant the initiation of telemetry.

Documentation:

1. Interactive View and I&O:
    - Vital signs (HR, BP, SpO_2, RR, Temperature)
    - Chest pain/Ischemic symptoms (OPQRST)
    - Any associated symptoms (e.g. shortness of breath, nausea, etc.)
    - Ischemia management (e.g. medications administered, patient education, Provider notification, etc.)
    - Patient's response to interventions
    - Provider Notification (including details of event, name of Provider notified and any Provider requested interventions)
2. Medication Administration Record (MAR) – any medications given
3. On cardiac unit, or where telemetry is available:
    - ECG Rhythm Strip Flow Sheet – analyze and mount ECG rhythm strip with any chest pain and change in rhythm or vital signs.

Patient Education:

- Instruct the patient to notify nurse with onset of ANY episode of chest pain/discomfort, or whatever was the symptom leading to admission. Emphasize that even "minor" discomfort should be reported to the nurse.
- Discharge teaching:
    - Instruct patient on how to manage chest pain/discomfort (including how to take nitroglycerin, if prescribed).
    - Within the Heart Centre, follow "Discharge Guidelines Angina or Heart Attack Patients" and refer patient to a cardiac rehabilitation program in their home community.
    - Outside the Heart Centre, discuss referral to a cardiac rehabilitation program with Provider.

Related Standards & Resources:

1. PDTM – Nitroglycerin, Morphine
2. Lexicomp – Nitroglycerin, Morphine
3. B-00-13-10062 – Cardiac Cath Lab: CICU/5A/B Patient Undergoing Percutaneous Transcatheter or Electrophysiology Procedures

4. B-00-13-10063 – Cardiac Cath Lab: Post Procedure Care

References

1. Kloner, R.A., & Chaitman, B. (2017). Angina and Its Management. *Journal of Cardiovascular Pharmacology and Therapeutics*, 22(3), 199–209.
2. Perpetua, E. M., & Keegan, P. (2020). Cardiac Nursing (7th ed.). Wolters Kluwer Health. https://wolterskluwer.vitalsource.com/books/9781975106348
3. Wong, G. C., Welsford, M., Ainsworth, C., Abuzeid, W., Fordyce, C. B., Greene, J., Huynh, T., Lambert, L., Le May, M., Lutchmedial, S., Mehta, S. R., Natarajan, M., Norris, C. M., Overgaard, C. B., Perry Arnesen, M., Quraishi, A., Tanguay, J. F., Traboulsi, M., van Diepen, S., … So, D. (2019). 2019 Canadian Cardiovascular Society/Canadian Association of Interventional Cardiology Guidelines on the Acute Management of ST-Elevation Myocardial Infarction: Focused Update on Regionalization and Reperfusion. *Canadian Journal of Cardiology*, *35*(2), 107–132.

Persons/Groups Consulted:

5A/B Clinical Nurse Leaders

Clinical Nurse Specialist Transcatheter Heart Valve Program and Acute Coronary Syndrome Program

Clinical Nurse Specialist Medicine Program PHC

Revised By

Andrea Fong and Jennifer Mutch, Nurse Educators Cardiac Medicine and Surgery Wards

First Released Date:	June 1998
Posted Date:	01-JUN-2023
Last Revised:	01-JUN-2023
Last Reviewed:	01-JUN-2023
Approved By:	PHC
(committee or position)	Professional Practice Standards Committee
Owners:	PHC
(optional)	Cardiology