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**Review Article**

# Nursing approach to myocardial infarction

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## ABSTRACT

Myocardial infarction (MI) is still a primary cause of death and disability globally, needing early, professional, and comprehensive healthcare measures. Nurses have an important role in all phases of MI treatment, from emergency response and acute clinical management to rehabilitation, education, and long-term follow-up. This study focuses on nurses' numerous tasks, which include fast evaluation, ECG monitoring, medication administration, emotional support, patient and family education, and multidisciplinary care coordination. Nurses in critical care settings help to prevent problems while also contributing considerably to quality improvement and evidence-based procedures. Nurse-led cardiac rehabilitation and follow-up clinics have shown improved outcomes and decreased recurrence. Furthermore, nurses promote patient autonomy, make ethical decisions, and participate in cardiovascular research. Addressing issues including intense workload, fatigue, and patient nonadherence is critical to improving nursing care. Following a MI, a thorough, patient-centered, and evidence-informed nursing strategy is required to improve survival, improve rehabilitation, and promote lifestyle modification.

**Keywords:** Myocardial infarction, Nursing management, Cardiac rehabilitation, Nursing interventions, Cardiovascular care

## INTRODUCTION

Cardiovascular illnesses, notably Myocardial infarction (MI), continue to pose a considerable health burden worldwide. MI, sometimes known as a heart attack, is defined as permanent heart muscle necrosis caused by persistent ischemia from a lack of coronary blood flow.[1] The first hours after onset are critical for reducing myocardial damage and increasing survival. Nurses are critical healthcare providers in this setting, from emergency response to patient education and follow-up.

Nursing care in MI extends across the care continuum, including emergency response, stabilization, monitoring, medication administration, emotional support, and long-term lifestyle changes. This review provides a comprehensive overview of the nursing method, which combines clinical protocols with evidence-based practices.

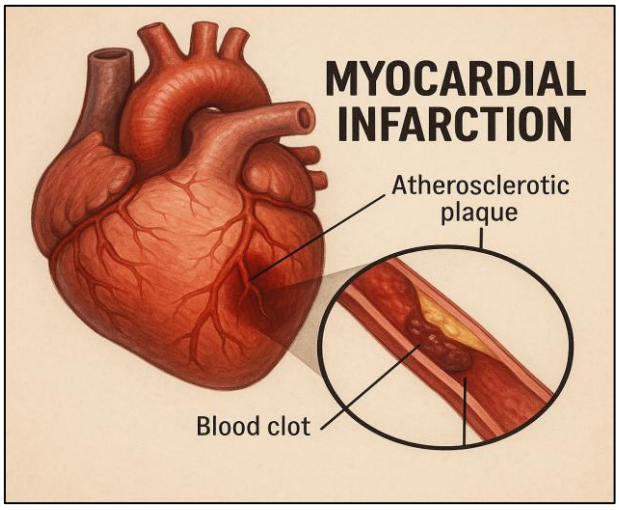


**Figure 1: Myocardial infarction.**

## PATHOPHYSIOLOGY OF MI

MI pathogenesis involves coronary artery blockage caused by atherosclerotic plaque rupture, followed by thrombus development. If reperfusion is not achieved within the "golden hour," myocardium's oxygen supply is reduced, resulting in anaerobic metabolism, acidosis, loss of contractile function, and eventually, myocardial necrosis.[2]

The affected zones of myocardium can be classified into: Zone of infarction: Irreversible damage, zone of injury: May be salvageable and zone of ischemia: Reversible if promptly managed.

Understanding these zones helps the nurse recognize symptoms and provide prompt interventions.[3]

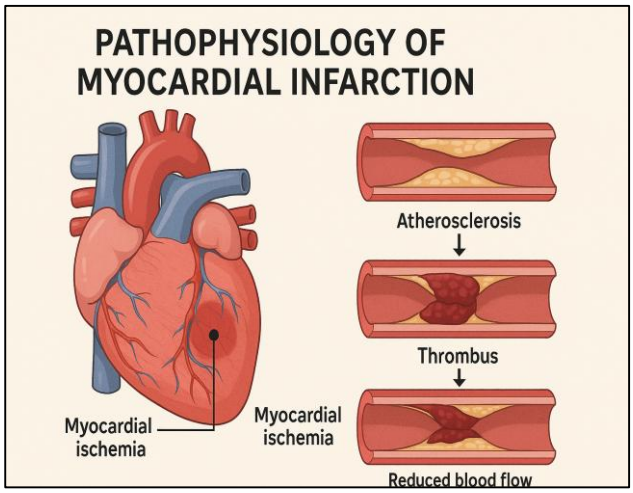


**Figure 2: Pathophysiology of MI.**

## CLINICAL MANIFESTATIONS

MI often presents with chest pain: Crushing, substernal, radiating to jaw or arm, shortness of breath, diaphoresis, nausea/vomiting, anxiety and palpitations and fatigue and weakness

Elderly patients and females may come with unusual symptoms such as dizziness, stomach discomfort, or confusion, prompting a thorough nursing examination.[4]

## DIAGNOSTIC INVESTIGATIONS

Nurses assist in and interpret various diagnostic tools including:

***Electrocardiogram (ECG)***

ST-segment elevation or depression and T-wave inversion, or new Q waves.

***Cardiac biomarkers***

Troponin I/T and CK-MB

***Chest X-ray***

Chest X-ray rule out differential diagnoses.

***Echocardiography***

It assesses the wall motion abnormalities.

***Coronary angiography***

It identifies occluded arteries.[5,6]

Nurses play a critical role in preparation, monitoring during procedures, and post-procedure care.

## ACUTE PHASE NURSING MANAGEMENT

***Immediate nursing interventions***

Rapid assessment using the MONA protocol: morphine, oxygen, nitrates, aspirin, positioning: semi-fowlers to reduce preload, IV access and continuous cardiac monitoring, oxygen therapy if $SpO_2$<90% and defibrillation readiness in the case of arrhythmias.[7]

***Medication administration***

Administer and monitor side effects for: antiplatelets (aspirin, clopidogrel), anticoagulants (heparin), thrombolytics (alteplase), beta-blockers, ACE inhibitors and statins.[8] Nurses must educate patients on the importance of adherence to medications.

***Monitoring and documentation***

Vital signs-every 15-30 minutes in acute phase, cardiac rhythm-especially for arrhythmias like VT/VF, urine output as a measure of renal perfusion, pain scale assessments and response to analgesics and fluid balance and intake/output charting.[9]

## PSYCHOLOGICAL SUPPORT AND COMMUNICATION

Patients with MI frequently experience worry, dread of death, and depression.

Nurses should provide reassurance and clarify procedures, encourage family involvement, use therapeutic communication, screen for psychological distress, and refer to counselling or psychiatric services as needed.[10]

## REHABILITATION AND LONG-TERM NURSING CARE

***Cardiac rehabilitation phases***

*Phase I (In-hospital):* It includes early mobilization, education, and risk factor assessment.

*Phase II (Outpatient):* It includes structured exercise, dietary management and stress reduction.

*Phase III (Maintenance):* It includes ongoing support to sustain lifestyle changes.[11]

***Lifestyle modification education***

Nurses play a key role in teaching:

*Diet:* Low-fat, low-sodium and high-fiber.

*Exercise:* Guided and progressive.

Smoking cessation, weight management, blood pressure and diabetes control also guided.[12]

Education must be patient-centered, considering literacy, cultural background, and family support.

## NURSING CARE PLAN FOR MI

Nursing care plan describes in Table 1 below.

**Table 1: Nursing care plan.**

| Nursing diagnosis | Goals | Interventions | Evaluation |
|---|---|---|---|
| **Acute pain related to myocardial ischemia** | Patient will report pain relief within 30 mins | Assess pain; administer nitroglycerin; provide oxygen; reassure patient | Pain reduced from 9/10 to 1/10 |
| **Decreased cardiac output** | Maintain BP and heart rate within normal range | Monitor vitals; administer medications; monitor ECG | Vitals stable, no arrhythmias |
| **Anxiety related to fear of death** | Patient expresses reduced anxiety | Provide emotional support; educate about condition; involve family | Patient verbalizes understanding and is calm |
| **Knowledge deficit related to lifestyle changes** | Patient will describe 3 lifestyle modifications | Educate about diet, exercise, smoking cessation | Patient demonstrates knowledge and adherence |

## EVIDENCE-BASED NURSING PRACTICES

Studies show that nurse-led interventions such as: Early mobilization decreases hospital stay and improves coronary function. Patient-centered education reduces recurrence. Nurse-run clinics enhance therapy adherence. Telemonitoring aids in early diagnosis of problems.[13,14]

Nursing research supports the role of advanced practice nurses (APNs) in managing post-MI care and reducing readmissions.

## ETHICAL AND LEGAL CONSIDERATIONS

Informed consent for interventions, privacy and confidentiality of cardiac data, advance directives and end-of-life discussions and documentation of all care delivered is a legal and ethical necessity.[15]

## HEALTH EDUCATION OR ADVISE ON DISCHARGE

Nurse-provided health education at the time of discharge after a MI is critical for enhancing long-term outcomes and lowering recurrence rates. Effective education enables patients and family to detect warning signals, take prescribed drugs as directed, make required lifestyle changes, and seek medical assistance on time.

Nurses are uniquely qualified to provide patient-centered, comprehensive care based on the patient's physical, psychological, and social needs.

***Understanding the disease and treatment***

Before release, nurses inform the patient about the nature of MI, its pathophysiology, and the specific treatments used during hospitalization, such as thrombolysis, percutaneous coronary intervention (PCI), or coronary artery bypass grafting (CABG).[16] Patients should be informed about their diagnosis, the severity of coronary artery disease, and the importance of lifelong risk factor management.

***Medication adherence***

One of the most important aspects of teaching is drug adherence. Nurses must explain each recommended medication's purpose, dosage, adverse effects and timing.[17]

**Table 2: Medication's purpose.**

| Medication class | Purpose |
|---|---|
| **Antiplatelets** | Prevent further thrombus formation |
| **Beta-blockers** | Reduce myocardial oxygen demand |
| **ACE inhibitors** | Prevent cardiac remodelling |
| **Statins** | Lower lipid levels |
| **Nitrates** | Relieve or prevent angina |

Patients must appreciate the significance of not missing doses and avoiding self-discontinuation of drugs without medical supervision. Educating patients about adverse

effects and when to report them improves safety and adherence.[18]

***Lifestyle modifications***

Nurses provide structured guidance on lifestyle changes necessary to prevent future cardiac events.[19]

*Diet:* Low-fat, low-salt, high-fiber diet, emphasis on fruits, vegetables, whole grains, and lean proteins and Avoidance of processed foods and sugary beverages.

*Physical activity:* Gradual reintroduction of light physical activity, such as walking, enrolment in cardiac rehabilitation programs is encouraged and avoid strenuous exertion in the early weeks post-discharge.

*Smoking and alcohol:* Absolute smoking cessation with referral to cessation programs and limit or avoid alcohol consumption based on medical advice.

*Weight management:* Maintaining a healthy BMI reduces cardiovascular risk, **e**ducation on portion control and healthy meal planning.

***Symptom recognition and emergency action***

Patients and families must be taught to recognize early signs of cardiac distress: Chest pain or discomfort, Shortness of breath, Nausea, sweating, light-headedness and palpitations or fainting.

In case of any of the above, patients should be instructed to take prescribed nitroglycerin and seek emergency help immediately if symptoms persist beyond the five minutes.[20]

***Resumption of activities***

Nurses counsel patients on gradually returning to daily routines, including:

*Driving:* Often allowed after 2-4 weeks, based on physician advice.

*Sexual activity:* Safe to resume once the patient can tolerate moderate activity without symptoms.

*Work:* Return depends on the nature of the job and recovery progress.[21]

***Emotional and psychosocial support***

Nurses treat the emotional effects of MI, such as despair, fear, and worry. They provide reassurance, encourage emotional expression, and direct people to mental health providers or support groups as needed. Psychological healing is critical for avoiding future events and increasing quality of life.[22]

***Involving family and caregivers***

Family education promotes compliance and offers emotional support. Nurses should involve family members in education sessions, teach them about medication schedules, provide CPR knowledge as needed, and encourage family engagement in lifestyle modifications.[23]

***Follow-up and rehabilitation***

It is critical to educate patients about the benefits of follow-up care and cardiac rehabilitation. Nurses offer follow-up appointments, lab instructions (e.g., lipid profile, glucose), and referrals to outpatient rehabilitation services.
Provide contact information for medical inquiries and emergencies.

## CONCLUSION

The role of the nurse in managing MI is multidimensional, encompassing clinical expertise, patient education, emotional support, and leadership in care coordination. From the critical initial moments of emergency response to long-term rehabilitation and secondary prevention, nurses provide evidence-based interventions that significantly improve patient outcomes. Their responsibilities include timely assessment, continuous monitoring, administration of life-saving medications, prevention of complications, and guiding patients through lifestyle modifications. Nurses are also vital in educating patients and families, ensuring medication adherence, and reducing anxiety through psychosocial support. By leading discharge planning, facilitating cardiac rehabilitation, and promoting patient empowerment, nurses help bridge the gap between hospital care and home recovery. Their advocacy, empathy, and commitment to holistic care not only reduce mortality and morbidity but also enhance the quality of life for MI survivors.

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