

Evaluation of nursing care using Gordon's functional health patterns model in a patient undergoing percutaneous transluminal coronary angioplasty: a case report

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ABSTRACT

Coronary artery disease remains a leading global cause of mortality, where timely percutaneous transluminal coronary angioplasty (PTCA) is critical for restoring myocardial perfusion. This case report presents the individualized nursing care of a 58-year-old male with a history of coronary disease and hypertension who presented with acute inferior STEMI and underwent primary PTCA with RCA stenting. Nursing care was systematically structured using Gordon's Functional Health Patterns Model and NANDA-I taxonomy. Key identified diagnoses included acute pain, risk for bleeding, risk for infection, anxiety, disturbed sleep pattern, and ineffective health maintenance. Tailored nursing interventions spanned emergency admission, intensive care surveillance, and discharge planning, focusing on continuous hemodynamic monitoring, procedural safety, psychological reassurance, and lifestyle education. Consequently, the patient achieved significant pain relief, avoided procedural complications, gained emotional stability, and successfully completed comprehensive discharge education. This case underscores the value of structured nursing frameworks in optimizing recovery in interventional cardiology.

Keywords: Angioplasty; balloon; coronary, coronary artery disease, nursing assessment, nursing process, case reports

INTRODUCTION

According to the World Health Organization (WHO), cardiovascular diseases are among the leading causes of death globally, accounting for approximately 32% of all mortalities, with 85% of these deaths resulting from myocardial infarction (World Health Organization, 2025). Annually, ST-elevation myocardial infarction (STEMI) develops in more than 3 million individuals worldwide, while STEMI findings are detected in over 4 million people (Salari et al., 2023). According to data from the Turkish Statistical Institute (TURKSTAT), diseases of the circulatory system accounted for 35.4% of mortalities in Türkiye in 2024, with ischemic heart diseases comprising 42.9% of these cases (Turkish Statistical Institute, 2025).

Acute coronary syndromes (ACS) are classified into three subgroups: unstable angina pectoris (UAP), ST-elevation myocardial infarction (STEMI), and non-ST-elevation myocardial infarction (NSTEMI) (NICE, 2020). Coronary artery diseases are characterized by narrowing and occlusion in the vascular lumen resulting from atherosclerotic plaque accumulation, where plaque rupture remains a primary trigger for myocardial infarction (Bhatt et al., 2022). In recent years, percutaneous transluminal coronary angioplasty (PTCA) with stent deployment has become a primary revascularization strategy, achieving high initial procedural success rates in STEMI management (Abubakar et al., 2023).

Nursing care plays a critical role in preventing complications, maintaining hemodynamic stability, and supporting overall recovery following PTCA (Roffi et al., 2024; Zhang & Qi, 2021). In this context, Gordon's Functional Health Patterns (FHP) Model provides a structured framework to systematically assess an individual's physical, psychological, and social needs across 11 functional health domains (Hakyemez & Koç, 2021).

This case report is presented to demonstrate that nursing care requirements for a patient undergoing PTCA following STEMI extend beyond acute cardiac surveillance. Rather, it highlights the educational value of systematically evaluating multidimensional nursing care areas-including lifestyle modifications, adherence to cardiac rehabilitation, anxiety management, pain control, early mobilization, and discharge education-through the application of Gordon's FHP model. In this context, the nursing diagnoses of the patient were determined according to the North American Nursing Diagnosis Association (NANDA) taxonomy, and the care plan was comprehensively evaluated using Gordon's framework.

Nursing Care in Percutaneous Coronary and Valvular Interventions

Nursing care provided to patients undergoing invasive medical procedures is delivered in alignment with the nursing process.

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Patient care needs are analyzed, and nursing diagnoses are established based on the patient's medical history, physical examination, hemodynamic monitoring, and medical diagnoses. Interventions must be implemented and evaluated according to these nursing diagnoses. In patients undergoing PCI, nursing care encompasses the peri-procedural period as well as post-procedural follow-up, risk-factor management, patient education, and secondary prevention (Wennberg et al., 2025). Within this scope, the responsibilities of the nurse include:

Prevention of Potential Complications

The prevention of potential complications and the early identification of risk factors represent one of the most critical factors influencing patient prognosis in interventional procedures. In particular, vigilant assessment of the vascular access site is essential for the early identification of complications such as bleeding, hematoma, and pseudoaneurysm following cardiac catheterization (Clark & Hyrkas, 2024). In addition to preventing complications, individualized, patient-specific nursing care throughout the pre-, intra-, and post-procedural periods is essential for ensuring patient safety and optimizing clinical outcomes.

Patient and Family Education

Patient and family education regarding the disease, the procedure, and discharge planning begins at the time of admission. Disease risk factors, post-procedural care, and home care processes are planned on an individual basis. Lifestyle modifications, post-procedural follow-up appointments, exercise, and dietary management must be coordinated with the patient and family, utilizing the educational role of the nurse. Following PCI, patient education should address lifestyle modification, risk-factor management, physical activity, dietary habits, medication adherence, and recognition of symptoms that require medical attention (Wennberg et al., 2025).

Rehabilitation

The rehabilitation process involves the concurrent management of physical, psychological, and social dimensions. The individual must recognize risk factors associated with their disease, know when to seek medical attention, effectively manage stress, organize diet and exercise plans, and comprehend the risks related to tobacco and alcohol consumption. Cardiac rehabilitation and secondary prevention following PCI should incorporate lifestyle modification, regular physical activity, healthy dietary practices, risk-factor management, and appropriate psychological support (Wennberg et al., 2025). Furthermore, patients undergoing PCI may experience psychological changes such as anxiety and depression in addition to physiological symptoms, emphasizing the importance of comprehensive assessment and psychosocial support during the rehabilitation process (Calegari et al., 2025).

In individualized and structured nursing care-particularly during the post-procedural period and the home care process-it is of paramount importance that nurses follow the latest developments and literature from their undergraduate years onward, and actively participate in scientific nursing activities to ensure accurate and effective patient and family education.

Within this framework, Gordon's FHP model, which is one of the conceptual frameworks utilized in nursing care, addresses the needs of individuals across 11 functional areas, thereby ensuring the delivery of comprehensive care (Butcher & Jones, 2021). This case report aims to present the care plan categorized according to Gordon's FHP model and the diagnoses determined via the NANDA taxonomy for a patient monitored and treated in the coronary intensive care unit (CICU) following a PTCA procedure. The nursing care of the case was additionally planned using data obtained from a relevant literature review. In [Table 1](#), the case assessment according to Gordon's FHP Model and the nursing diagnoses identified through the NANDA taxonomy are presented in tabular form.

CASE REPORT

The patient received the interventions outlined below in October 2023. Following the emergency department presentation and completion of all necessary procedures, the patient completed a 72-hour monitoring period in the intensive care unit and was subsequently discharged with the knowledge and approval of the attending physician.

Sociodemographic Characteristics

A.H. is a 58-year-old male patient who is a high school graduate, retired, married, and has two children. There is no family history of coronary artery disease.

Past Medical History

The patient has been receiving treatment for coronary artery disease (CAD) for 23 years and Hypertension (HT) for 10 years. He underwent a coronary artery bypass graft (CABG) operation in 2001. He has no known food or medication allergies, but has a documented allergy to silk medical tape. The patient stated that prior to his diagnosis, he smoked one and a half packs of cigarettes per day and consumed alcohol at least 2-3 days a week (minimum of three glasses per occasion); however, after being diagnosed, he attempted to quit and managed to reduce his consumption instead. He noted that for the past ten years, he has smoked half a pack of cigarettes (10 cigarettes) per day and consumed alcohol once a week (3-4 drinks), a pattern he currently maintains.

Medical History

The patient, who is monitored with diagnoses of CAD and HT, presented to the emergency department with complaints of severe chest pain, cold sweating, and numbness in the left arm. Following the initial evaluation, he was admitted to the CICU. The patient's vital signs were recorded as follows: blood pressure 155/98 mmHg, heart rate 120 beats/min, oxygen saturation 93%, body temperature 36,5 °C, and a pain score of 9/10.

Emergency department medications administered included 300 mg aspirin peroral (PO), 0.6 ml Enox (enoxaparin) subcutaneous (SC), and 600 mg clopidogrel (PO). A 12-lead electrocardiogram (ECG) and an echocardiogram (ECHO) were requested. Intravenous access was established to evaluate cardiac enzymes, and blood samples were drawn for laboratory testing. The relevant and significant laboratory values of the patient are presented in [Table 2](#).

Table 1. Evaluation and nursing care of the case according to gordon's functional health patterns model**1) Health perception and health management**

During the clinical interview, the patient reported a history of smoking 1.5 packs of cigarettes per day and alcohol consumption of 2-3 days per week (at least 3 drinks per session) prior to diagnosis. Following the diagnosis, he reported attempting to quit these habits but was unable to achieve complete cessation, maintaining a reduced intake of half a pack per day. Furthermore, the patient expressed difficulty adhering to recommended lifestyle modifications and the cardiac rehabilitation program.

NANDA domain 1: health promotion, class 2: health management

Nursing diagnosis 1: Ineffective Health Maintenance related to difficulty adhering to the cardiac rehabilitation program and insufficient knowledge, as evidenced by verbalization of non-adherence and continued tobacco and alcohol use.	Expected outcomes: The patient will demonstrate willingness to participate in health-maintaining behaviors. The patient will initiate adherence to the cardiac rehabilitation program and commit to long-term lifestyle modifications, including smoking and alcohol cessation follow-up.	Interventions: The patient's educational needs regarding the disease process and treatment plan were assessed. Information regarding the importance of the cardiac rehabilitation program was provided, and family members were integrated into the education process to enhance support. Facilitators and barriers to program adherence were identified. Referral to the smoking cessation clinic and outpatient cardiac rehabilitation unit for post-discharge follow-up was initiated.	Evaluation: The patient demonstrated increased health awareness through active engagement and compliance with the treatment plan, accepting the established lifestyle goals. Furthermore, the patient expressed strong adherence to the prescribed therapeutic regimen and a willingness to maintain recommended follow-up visits post-discharge.
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2) Nutritional-metabolic pattern

The patient's oral intake is monitored in accordance with their clinical status. Following the PTCA procedure, controlled intravenous fluid hydration was administered to facilitate the renal elimination of the radiopaque contrast agent and to protect renal function. The patient's fluid intake and output are strictly monitored, and a risk for fluid volume imbalance exists secondary to contrast agent administration and hemodynamic monitoring.

NANDA domain 2: nutrition, class 5: hydration

Nursing Diagnosis 2: Risk for imbalanced fluid volume related to radiopaque contrast agent administration and intravenous hydration therapy.	Expected outcomes: To ensure that the patient's fluid intake and output remain balanced and fluid volume stability is maintained, to keep blood pressure and electrolyte levels within normal limits, to facilitate the safe elimination of the radiopaque contrast medium from the body, and to detect and prevent potential complications early.	Interventions: The patient's hourly intake and output were monitored, with fluid supplementation tracked. To facilitate radiopaque contrast medium elimination, fluid intake was supported orally and intravenously (at least 2500 cc within 24 hours). The patient's consciousness, vital signs, and laboratory values were closely monitored. The patient was monitored for signs and symptoms of fluid and electrolyte imbalance (such as altered skin turgor, nausea, thirst, weakness, jugular venous distension, edema, and a weak, rapid pulse).	Evaluation: The patient's hourly intake and output were monitored post-PTCA. Oral fluid intake was encouraged, and intravenous therapy was maintained. Vital signs and laboratory values remained within normal limits. No contrast agent complications or fluid-electrolyte imbalances were observed.
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3) Elimination pattern

Urinary elimination is provided via an indwelling urinary catheter. Additionally, the patient has a peripheral venous catheter and a PTCA procedure site, both of which constitute risk factors for the development of infection.

NANDA domain 11: safety/protection, class 1: infection

Nursing diagnosis 3: Risk for infection related to hospitalization, urinary catheterization, invasive procedure (PTCA), and presence of peripheral venous catheters.	Expected outcomes: To recognize early signs and symptoms of infection in the patient, and to detect and prevent potential infections and complications.	Interventions: The patient was assessed for infection risk factors, including hospitalization, urinary catheterization, the PTCA insertion site, and peripheral venous catheter sites. Clinical signs of infection were closely monitored. Strict aseptic technique was maintained during all invasive procedures. Daily care and site maintenance of the urinary and vascular catheters were performed. Education on adherence to hygiene practices was provided to the patient and their family.	Evaluation: The patient was monitored for potential infections and complications associated with hospitalization and invasive devices. No infection developed during the intensive care unit stay. The patient and their family adhered to hygiene rules in line with the education provided, and discharge instructions regarding the continuation of home hygiene practices were delivered.
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4) Activity-exercise pattern

During ECG monitoring in the CVICU, ST-segment elevation and arrhythmia were observed, accompanied by clinical manifestations of tachycardia and dyspnea. Following the PTCA procedure, the patient was admitted for close hemodynamic monitoring. Furthermore, following the administration of the antiplatelet agent "Brilinta" (ticagrelor) included in the post-procedure treatment regimen, dyspnea and a transient ineffective breathing pattern were observed, attributed to potential adverse effects of the medication. Approximately half an hour post-administration, an anxious/restless facial expression associated with respiratory discomfort was identified.

NANDA domain 4: activity/rest, class 4: cardiovascular/pulmonary responses

Nursing diagnosis 4: Ineffective Breathing Pattern related to potential adverse effects of antiplatelet therapy (Brilinta/ticagrelor), as evidenced by verbalization of dyspnea, respiratory distress, and a restless facial expression	Expected outcomes: To alleviate the patient's complaint of dyspnea and maintain an effective breathing pattern within normal parameters.	Interventions: Vital signs and oxygen saturation (SpO ₂) were monitored hourly. Respiratory rate, depth, and breath sounds were closely tracked. The patient was placed in a semi-Fowler's position to reduce respiratory effort. Following the onset of dyspnea half an hour post-medication administration, supplemental oxygen therapy was initiated via nasal cannula at 2 L/min.	Evaluation: The patient stated that his breathing was significantly more comfortable compared to the initial administration of the medication. His facial expression was observed to be relaxed, and his breathing pattern returned to baseline.
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NANDA domain 4: activity/rest | class 4: cardiovascular/pulmonary responses

Nursing diagnosis 5: Decreased Cardiac Output related to myocardial ischemia and cardiac arrhythmia, as evidenced by tachycardia, ST-segment elevation on ECG, and dyspnea.	Expected outcomes: The patient will maintain heart rate and rhythm within safe physiological limits. Hemodynamic stability will be preserved, and potential post-PTCA complications will be prevented or detected early.	Interventions: The patient was continuously monitored post-PTCA. Vital signs (heart rate, blood pressure, SpO ₂ body temperature) were tracked hourly. Serial 12-lead ECGs were obtained and monitored for persistent or new arrhythmias. Peripheral tissue perfusion was evaluated via skin color, temperature, and capillary refill time (<3 seconds). Cardiac enzymes, arterial blood gases, and laboratory parameters were closely monitored. The PTCA access site and peripheral lines were assessed for signs of bleeding, hematoma, or vascular complications. Hourly fluid intake and urinary output were recorded to monitor fluid balance.	Evaluation: The patient's heart rate returned to normal baseline limits (averaging 70-80 beats/min). Prescribed pharmacological therapy was administered for the ongoing cardiac rhythm irregularities observed on ECG. Arterial blood gas values remained within physiological ranges. No bleeding or procedural complications developed at the access site.
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NANDA Domain 4: activity/rest, class 4: cardiovascular/pulmonary responses

(table continues)

Table 1. Evaluation and nursing care of the case according to gordon's functional health patterns model (table continues)

Nursing Diagnosis 6: Activity Intolerance related to imbalance between oxygen supply and demand secondary to myocardial ischemia and post-procedure immobility, as evidenced by verbalization of activity-induced discomfort and fatigue.	Expected outcomes: To enable the patient to maintain desired activities of daily living and to support the achievement of these goals by planning activity targets for cardiac rehabilitation.	Interventions: Initial mobilization following the procedure was performed under the supervision of the primary nurse with fall prevention precautions. The patient was monitored for dizziness, mobility level, and balance coordination during mobilization. The importance of physical movement was explained, an appropriate schedule was established for activities of daily living, and vital signs were thoroughly assessed before and after mobilization.	Evaluation: Initial mobilization was performed under nurse supervision without complications. The patient reported mild activity-induced pain that did not significantly restrict activities of daily living.
NANDA domain 12: comfort, class 1: physical comfort			
Nursing diagnosis 7: Acute Pain related to biological injury agents (myocardial ischemia) and physical injury agents (post-PTCA vascular access site), as evidenced by a VAS score of 6/10, verbalization of chest pain, and restlessness.	Expected outcomes: To ensure that the patient verbalizes and non-verbally demonstrates a reduction or relief of pain after appropriate interventions.	Interventions: The frequency, severity, and radiation of chest and procedure site pain were assessed using the VAS (rated 6/10). Past pain coping mechanisms were explored, deep breathing exercises were encouraged, hourly vital signs were tracked, and prescribed analgesics were administered.	Evaluation: Following interventions, the patient reported a decrease in pain (VAS: 3/10) and pain-induced restlessness subsided. The patient noted occasional mild activity-induced pain.
NANDA domain 11: safety/protection, class 2: physical injury			
Nursing Diagnosis 8: Risk for Bleeding related to pharmacological agents (anticoagulant and antiplatelet therapy) and invasive vascular access site (post-PTCA).	Expected outcomes: To identify early signs and symptoms of bleeding and to prevent potential bleeding events and related complications.	Interventions: The patient was monitored for signs of bleeding (hematoma, ecchymosis, petechiae, hematuria, hematemesis, hypotension) and the procedure site was closely inspected. Coagulation profiles and complete blood counts (platelets, Hct, PT, aPTT) were tracked. Unnecessary invasive procedures were avoided, and prolonged manual pressure was applied to necessary intervention sites.	Evaluation: No bleeding or associated complications developed. Comprehensive discharge education regarding post-discharge anticoagulant therapy and bleeding risk was provided.
5) Sleep-rest			
The patient stated that they had no prior history of sleep disturbances; however, following hospitalization, they experienced insomnia, difficulty falling asleep, and frequent nighttime awakenings. They noted that due to poor sleep quality at night, they felt fatigued during the day, and they had not implemented any interventions to resolve this issue.			
NANDA domain 4: activity/rest, class 1: sleep/rest			
Nursing diagnosis 9: Disturbed Sleep Pattern related to environmental sensory alterations (ICU noise and lighting) and physical discomfort, as evidenced by verbalization of frequent nighttime awakenings.	Expected Outcomes: To identify and eliminate the factors disrupting the patient's sleep quality, and to ensure an improvement in their overall sleep quality.	Interventions: The physiological and psychological factors disrupting the patient's sleep pattern were explored. Factors such as pain, intensive care unit conditions (noise, light, etc.), and the treatment process were identified. The administration times of analgesics used for pain management were rearranged according to the patient's sleep schedule. The patient was encouraged to perform breathing exercises before sleeping. The intensive care unit conditions were explained to the patient, and they were psychologically supported by reassuring them that this situation is temporary.	Evaluation: The factors related to the patient's pain were eliminated. The patient stated that their pain subsided before falling asleep and that they slept more comfortably. They noted that nighttime awakenings related to hospitalization continued, but the frequency of these awakenings had decreased. It was observed that the patient practiced the breathing exercises that had been taught to them.
6) Cognitive-perceptual pattern			
The patient is conscious and oriented to time, place, and person. No pathological findings were detected during the neurological examination.			
7) Self-perception- self-concept pattern			
The patient is able to express themselves verbally and perceives no negative changes regarding their self-esteem or body image. They possess a realistic awareness of their current health condition. No nursing diagnosis was identified within the scope of this pattern.			
8) Role-relationship pattern			
During the interview, the patient stated that they live with their spouse and children, and that their family communication is good. They noted that since being diagnosed with CAD (coronary artery disease), their spouse and children have been supportive throughout the treatment process. When the patient was transferred from the intensive care unit to the inpatient ward, their spouse and children took turns accompanying them as caregivers and supported their adherence to the cardiac rehabilitation process.			
9) Sexuality-reproductive pattern			
The patient stated that they do not experience any problems in their sexual life.			
10) Coping-stress tolerance pattern			
The patient expressed anxiety regarding the experienced myocardial infarction and the interventional procedure; however, they stated that they avoided discussing this situation with their family because they believed it stemmed from their own unhealthy habits. They noted that being monitored in the intensive care unit caused them apprehension. Throughout their stay in the intensive care unit, an anxious and restless facial expression was observed.			
NANDA Domain 9: coping/stress tolerance, class 2: coping responses			
Nursing Diagnosis 10: Anxiety related to threat to current health status and intensive care environment, as evidenced by an anxious and restless facial expression.	Expected outcomes: To reduce the patient's fears and anxieties, to physically observe that the patient is relaxed, and to enable them to express this state of relaxation verbally.	Interventions: An interview was conducted with the patient to identify the circumstances causing fear and anxiety. Information regarding the disease and treatment process was provided in collaboration with the physician, and the patient was encouraged to ask questions. The patient was supported in communicating with their family. Coping mechanisms for dealing with the disease were explored, and the patient was assisted in selecting an appropriate coping strategy for themselves.	Evaluation: The circumstances causing fear and anxiety in the patient were identified. Information regarding the implemented treatment plan and the rehabilitation process was provided. The patient's questions and uncertainties were resolved. The patient determined that praying was an effective coping mechanism for them. They communicated with their family about their illness. They stated that as they began to adhere to the treatment, their sense of guilt toward their family decreased and they felt happy, which consequently brought them peace of mind.

(table continues)

Table 1. Evaluation and nursing care of the case according to gordon's functional health patterns model (table continues)**11) Value-belief pattern**

The patient stated that they have no cultural and/or religious beliefs that hinder the implementation of their treatment. They expressed that during their hospitalization, they pray whenever they feel unwell, and that believing their illness comes from Allah comforts them. They also noted that the healthcare professionals involved in their care respect their values and beliefs.

NANDA: North American Nursing Diagnosis Association, PTCA: Percutaneous transluminal coronary angioplasty, ECG: Electrocardiogram, CVICU: Cardiovascular intensive care unit, VAS: Visual analog scale, Hct: Hematocrit, PT: Prothrombin time, aPTT: Activated partial thromboplastin time, ICU: Intensive care unit, SpO₂: Peripheral oxygen saturation, CAD: Coronary artery disease

Table 2. Patient's laboratory results

Parameters	Results	Reference range
CK-MB	31.4 ng/ml ↑	0-4.9 ng/ml
Hs troponin T (emergency)	784.2 pg/ml ↑	0-19 pg/ml
HGB	15.7 g/dl ↑	11.9-15.4 g/dl
LDL	147 mg/dl ↑	60-130 mg/dl
Triglyceride	283 mg/dl ↑	50-150 mg/dl
LDH	635 U/L ↑	313-618 U/L
NE %	82.4% ↑	40.3-74.8%
LYM %	10.9% ↓	12.2-47.1%
LYM#	0.81 x10 ³ cells/μL ↓	0.85-3 cells/μL

Urea, creatinine, potassium (K), sodium (Na), calcium (Ca), C-reactive protein (CRP), free thyroxine (T₄), thyroid-stimulating hormone (TSH), and hepatitis panel markers were found to be within normal reference ranges. CK-MB: Creatine kinase-MB isoenzyme, hs-Troponin T: High-sensitivity cardiac troponin T, HGB: Hemoglobin, LDL: Low-density lipoprotein, LDH: Lactate dehydrogenase, NE%: Neutrophil percentage, LYM%: Lymphocyte percentage, LYM#: Absolute lymphocyte count

The patient was transferred from the emergency department to the coronary intensive care unit, where clinical monitoring was initiated. Due to the presence of ST elevations on the ECG, informed consent was obtained, and preparations for angiography were initiated. Subsequently, the patient was diagnosed with an "Inferior STEMI." In the angiography laboratory, the patient underwent a PTCA procedure and stent placement in the right coronary artery. After completing 72 hours of observation in the coronary intensive care unit, the patient was discharged in a stable clinical condition following the provision of individualized cardiac rehabilitation education to both the patient and their family members. The patient's clinical course and follow-up are summarized in [Table 3](#).

Medical treatment in the CICU: Coversyl Plus 10/2.5 mg 1x1 PO, Brilinta 90 mg 2x1 PO, Saneloc 50 mg 2x1 PO, Urikoliz 300 mg 1x1 PO, and Enox 6000 Anti-Xa IU/0.6 ml 2x1 SC.

Pre-Procedural Nursing Assessment Notes

The patient was received from the emergency department team and admitted to the CICU by physician decision due to his clinical presentation. Upon detecting ST elevations on the ECG, informed consent was obtained, and preparations for angiography were initiated. The patient was placed in bed and immediately monitored. Intravenous access was established, and blood samples were drawn for requested laboratory tests, including CK-MB, cardiac enzymes, D-dimer, PT and PTT, serum electrolytes, BUN, urea, creatinine, and complete blood count. The patient's chronic conditions and allergies were reviewed; history of CAD and HT was noted, and while no food or medication allergies were present, an allergy to silk medical tape was documented. The patient was informed that the angiography procedure would be performed via the femoral approach and received relevant instructions regarding the required shaving of the femoral region. The patient was assisted into a surgical gown, and upon completion of the pre-procedural angiography preparations, he was transferred to the angiography unit.

Intra-Procedural Nursing Assessment Notes

The patient was admitted to the angiography unit, the procedures to be performed were explained, and both verbal and written informed consent were obtained. The right femoral artery was selected as the access site, and local anesthesia was administered to the region. During the angiographic intervention, a PTCA procedure and stent placement in the right coronary artery were performed. Throughout the procedure, the patient remained fully conscious and in good general condition, with continuous cardiac and hemodynamic monitoring showing stable vital signs. Following the procedure, the patient was transferred back to the CICU.

Table 3. Timeline of the patient's clinical course and nursing care

Timeframe	Clinical events & medical interventions	Nursing care & follow-up
Day 1: emergency department admission	Patient presented with severe retrosternal chest pain, diaphoresis, and left arm numbness. 12-lead ECG revealed ST-segment elevation with arrhythmia and tachycardia. Patient was diagnosed with acute inferior STEMI.	Emergency nursing care initiated: continuous cardiac monitoring, peripheral intravenous access, oxygen therapy, and preparation for emergency cardiac catheterization.
Day 1: angiography & primary PTCA	Immediate transfer to the catheterization laboratory. Primary PTCA was performed, and a drug-eluting stent was successfully deployed in the RCA.	Pre- and post-procedural nursing care: access site compression, pulse monitoring, and hemodynamic stabilization during interhospital/unit transfer.
Day 1-3: intensive care unit (CVICU)	Transferred to the cardiovascular intensive care unit for close monitoring. Pharmacotherapy (including dual antiplatelet therapy with ticagrelor/Brilinta and anticoagulants) was administered and monitored.	Individualized nursing care based on Gordon's Functional Health Patterns and NANDA-I diagnoses: hourly vital signs and telemetry tracking, access site monitoring for bleeding/hematoma, pain management, dyspnea monitoring, and early progressive mobilization.
Day 4: discharge & follow-up	Patient achieved clinical stability with no active chest pain or procedural complications. Discharge cleared by the cardiology team.	Comprehensive post-discharge education provided to the patient and family regarding cardiac rehabilitation, pharmacological adherence, lifestyle modifications (smoking/alcohol cessation), and emergency warning signs.

ECG: Electrocardiogram, STEMI: ST-segment elevation myocardial infarction, PTCA: Percutaneous transluminal coronary angioplasty, RCA: Right coronary artery, CVICU: Cardiovascular intensive care unit, NANDA-I: North American Nursing Diagnosis Association International

Post-Procedural Nursing Assessment Notes

Following the PTCA procedure, the patient was received from the angiography unit into the CICU. The patient underwent PTCA and stent placement in the right coronary artery, and his clinical status is stable. Upon arrival at the CICU post-procedure, his vital signs were recorded as follows: blood pressure 121/88 mmHg, heart rate 105 beats/min, oxygen saturation 93%, body temperature 36 °C, and a pain score of 6/10. Following the PTCA procedure, manual pressure was applied to the catheter insertion site at the right femoral artery using gauze sponges for 20 minutes, followed by the application of a sandbag for 6 hours of monitored follow-up. No complications or bleeding were observed during this period.

The patient was evaluated in the intensive care unit post-procedure; his general condition was good, and he was observed to be conscious and oriented. In the cardiovascular assessment, heart sounds were normal with no murmurs detected. The patient's ECG showed sinus rhythm with intermittent tachycardia. The heart rate was recorded as 105 beats/min. In the respiratory system, no adventitious breath sounds were auscultated. Tachypnea and dyspnea were observed. In the gastrointestinal system, bowel sounds were normal, the abdomen was soft, and no rebound tenderness or sensitivity was present. The patient's urine output was normal, and he was monitored via a urinary catheter until mobilization. Other systemic examinations were evaluated as normal. Furthermore, concerns contributing to the patient's anxiety regarding cardiac rehabilitation were addressed, knowledge deficits were eliminated through patient education, adherence to healthy lifestyle behaviors was emphasized, and comprehensive discharge instruction was provided.

The assessments of the aforementioned case conducted in line with Gordon's FHP Model and the nursing care plans prepared according to the NANDA taxonomy are detailed in [Table 1](#).

Nursing Interventions and Femoral Sheath Management Post-PTCA

Following PTCA, post-procedural monitoring of the femoral sheath placed in the groin region requires meticulous attention to prevent life-threatening vascular and hemodynamic complications. In this phase, critical nursing responsibilities include preparing the necessary equipment and environment for sheath removal, maintaining the patient in a strict supine position with the affected extremity extended, and strictly prohibiting bed-rest restriction violations such as unassisted ambulation or using a bedpan. To ensure accurate fluid balance and prevent urinary retention or strain during bed rest, urine output is continuously monitored via a urinary catheter, along with strict fluid intake-output tracking (AÇT). Furthermore, post-PTCA nursing care encompasses frequent monitoring of peripheral pulses (dorsalis pedis and posterior tibial), assessment of the puncture site for hematoma formation, ecchymosis, or active bleeding, continuous vital sign monitoring, and prompt evaluation of post-procedural groin or back pain.

DISCUSSION

Narrowing or occlusion within coronary vessels can be resolved through percutaneous coronary interventions (PCI), such as balloon angioplasty or stent placement. In a PTCA procedure, a balloon located on a catheter is inflated with pressurized fluid within the stenotic segment, thereby restoring vessel patency (Fernando et al., 2024; Mutlu et al., 2022).

In our case, the patient presented to the emergency department with complaints of severe chest pain, cold sweating, and numbness in the left arm and was admitted to the CICU following the initial evaluation. Diagnostic workup revealed ST-segment elevations on the ECG, accompanied by arrhythmia, dyspnea, and tachycardia. Blood parameters were also evaluated. Consequently, the patient was diagnosed with an inferior STEMI. Following diagnosis, the patient was transferred to the angiography laboratory, where a PTCA procedure was performed and a stent was successfully placed in the right coronary artery. Monitoring was conducted for potential complications associated with the intervention, and a patient-specific nursing care plan was developed and implemented. At the end of the procedure, the patient's general status was stable, and laboratory values and systemic physical examination findings were within normal limits.

Bleeding is a recognized complication following percutaneous coronary intervention (PCI), and reperfusion arrhythmias may also occur during the procedure (Galli et al., 2022; Taha & Shaker, 2021). In this case, arrhythmia was observed, whereas bleeding did not occur. Cardiovascular monitoring and early identification of postoperative complications are key components of nursing care after PTCA. Nurses play a critical role in monitoring cardiac rhythm, assessing hemodynamic status and respiratory function, and identifying changes in the patient's overall condition, thus enabling monitoring and early intervention for complications (Zhang & Qi, 2021). Furthermore, cardiac diseases, especially acute illness and the intensive care process, can increase anxiety and psychological stress in patients (Hakyemez & Koç, 2021). In this case, which is parallel to the literature, anxiety symptoms were observed during the patient's stay in the intensive care unit. Therefore, nursing care for patients undergoing PCI should not be limited to physiological monitoring; the patient's psychological responses, coping mechanisms, sleep, activity tolerance, and responses to the disease and treatment should be systematically evaluated.

When examining studies on coronary interventions and associated cardiac rehabilitation, individualized cardiac rehabilitation programs designed to maintain health and manage disease have been reported to contribute to recovery and long-term cardiovascular health (İğrek & Yurdalan, 2022; Suematsu et al., 2026; Wang et al., 2021). In this context, it was determined that although our patient was diagnosed with coronary artery disease, they showed insufficient adherence to cardiac rehabilitation and lifestyle recommendations. It should be remembered that a successful PCI (percutaneous coronary intervention) in this patient marks the beginning of a continuous education and lifestyle program that includes lifestyle changes, secondary measures, patient education, risk factor management, and rehabilitation. Nurses play a crucial role in assessing patients' knowledge level, health behaviors,

readiness for change, and barriers to adherence, and in reinforcing individualized care and education throughout hospitalization and discharge planning (Zhang & Qi, 2021; İğrek & Yurdalan, 2022).

This case highlights the importance of identifying individual patient needs from an early stage and integrating this into clinical supervision throughout the entire peri-procedural process. In acute STEMI patients undergoing PTCA, nurses should integrate physiological assessment with psychosocial assessment, patient education, complication prevention, and self-management preparation. In this context, the use of a structured nursing assessment model can facilitate the identification of needs that may be overlooked in the acute phase of care. In this case, nursing diagnoses were determined according to Gordon's FHP Model, and care plans were structured based on the NANDA classification system. The application of Gordon's FHP Model contributed systematically to the nursing care process by providing a structured and comprehensive framework for collecting and organizing patient data across multiple dimensions of health. The model helps nurses consider various functional domains instead of focusing solely on medical diagnosis or acute physiological findings (Butcher & Jones, 2021).

In the present case, this framework facilitated the comprehensive assessment of health perception and health management, nutritional-metabolic status, activity and exercise, sleep and rest patterns, cognitive-perceptual status, coping and stress tolerance, and family support systems. Rather than focusing solely on immediate physiological parameters, Gordon's model was particularly instrumental in unveiling non-physiological nursing needs-such as the patient's difficulty in adhering to lifestyle modifications, hospitalization-related anxiety, sleep disturbances, and the critical role of family dynamics. Thus, Gordon's model successfully linked the patient's clinical findings with his behavioral, psychological, and self-management needs.

The integration of Gordon's model with NANDA-based nursing diagnoses also strengthened the connection between assessment findings, diagnostic reasoning, planning, implementation, and evaluation. Evidence from a randomized controlled trial in patients with symptomatic heart failure demonstrated that nursing care planned according to Gordon's FHP Model was associated with improved quality of life and lower 30-day hospital readmission compared with standard nursing care (Türen & Enç, 2020). Although these findings were obtained in patients with heart failure and cannot be directly generalized to patients with STEMI undergoing PTCA, they support the potential value of a structured, individualized assessment framework in cardiovascular nursing care. Accordingly, the use of Gordon's FHP Model in this case should not be viewed merely as a method for categorizing patient data. Rather, it provided a systematic basis for translating comprehensive assessment findings into individualized nursing diagnoses and care interventions. This approach enabled the nursing process to extend beyond the immediate management of STEMI and PTCA-related complications and to incorporate psychological well-being, health behaviors, rehabilitation needs, and preparation for self-management.

Patient's Perspective

During the initial period of hospitalization, the patient expressed significant anxiety regarding his acute illness and the intensive care unit environment, alongside feelings of guilt toward his family regarding his past health behaviors and lifestyle choices. To cope with this acute psychological distress, the patient utilized prayer and spiritual reflection as primary coping mechanisms. Following individualized informational sessions and comprehensive discharge education provided by the nursing team, the patient reported feeling noticeably more secure, reassured, and empowered. Consequently, his willingness and motivation to actively participate in the prescribed treatment plan, lifestyle modifications, and cardiac rehabilitation program increased significantly.

One of the key strengths of this case report is the comprehensive tracking of the entire clinical trajectory-encompassing the emergency department presentation, intensive care, and the pre-, intra-, and post-procedural phases of PTCA through to recovery. Ultimately, this systematic nursing assessment illustrates how continuous observation supports care continuity across different stages of recovery, while allowing the patient's response to treatment, clinical course, and intervention efficacy to be analyzed from a truly holistic perspective.

Conversely, a limitation of this case is the lack of accessible data regarding the post-discharge period. Although the cardiac rehabilitation process was initiated in the hospital setting, data concerning the continuity of this process and the extent of the patient's adherence to lifestyle modifications could not be obtained. Therefore, the long-term efficacy and sustainability of the rehabilitation program could not be evaluated. This limitation also demonstrates the importance of continuity of nursing care beyond hospitalization, particularly for patients requiring long-term lifestyle modification and cardiac rehabilitation. Future follow-up should include assessment of adherence to medication and lifestyle recommendations, participation in cardiac rehabilitation, symptom management, and the patient's ability to maintain self-care behaviors after discharge.

Overall, this case demonstrates that nursing care in patients undergoing PTCA extends beyond the prevention and management of immediate procedural complications. The case highlights the value of continuous assessment, individualized patient education, psychological support, rehabilitation planning, and preparation for self-management. More importantly, the integration of Gordon's FHP Model with the NANDA nursing diagnosis framework provided a systematic and holistic approach to identifying patient needs and translating assessment findings into individualized nursing interventions. Supported by evidence demonstrating the clinical value of Gordon-based nursing care and its role in comprehensive nursing assessment (Türen & Enç, 2020; Butcher & Jones, 2021), this approach may contribute to more comprehensive nursing care for patients undergoing PCI by linking acute clinical management with long-term cardiovascular health and self-management.

CONCLUSION

This case report highlights the importance of standardized and individualized pre-, intra-, and postprocedural nursing care

in patients undergoing PTCA. Gordon's Functional Health Patterns (FHP) Model and NANDA-I nursing diagnoses provided a systematic framework for identifying the patient's physical, psychological, and self-management needs and planning appropriate nursing interventions. Comprehensive nursing care, including continuous hemodynamic monitoring, procedural safety measures, psychological support, and individualized patient education, plays a critical role in preventing potential complications, maintaining patient safety, and supporting recovery. Furthermore, holistic and evidence-based nursing interventions promote continuity of care from acute clinical management to discharge and support long-term self-management. Consequently, the patient achieved significant pain relief, avoided procedural complications, gained emotional stability, and successfully completed comprehensive discharge education. This case underscores the value of structured nursing frameworks in optimizing recovery in interventional cardiology.

ETHICAL DECLARATIONS

Informed Consent

Written informed consent was obtained from the patient included in this report. Signed consent forms are retained by the authors and are available upon request.

Peer Review Process

This report underwent external peer review.

Conflict of Interest

The authors declare no conflicts of interest.

Financial Disclosure

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Author Contributions

Concept: CE, ÖK; Design: CE, ÖK; Control: CE, ÖK; Data Collection and/or Processing: CE, ÖK; Analysis and/or Interpretation: CE, ÖK; Literature Review: CE, ÖK; Article Writing: CE, ÖK; Critical Review: CE, ÖK.

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