NURSES' PERCEPTIONS OF PAIN ASSESSMENT AND PAIN MANAGEMENT FOR PATIENTS WITH MYOCARDIAL INFARCTION IN A CORONARY CARE UNIT

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Abstract

Background: Pain is one of the most common medical problems that occur in hospitals; in spite of its incidence, there are many patients who suffer with untreated pain. Unrelieved pain can negatively impact a person's quality of life, causing activity life disturbances like psychological distress; anxiety, depression and lack of sleep. Cardiovascular disorder is a significant global health problem, which accounts for the death of a third of people of the world. Chest pain is the most common symptom of heart attacks. However, some patients will present with pain in other areas like pain in arm, shoulder, neck, teeth, jaw and back pain. In literature there is little observational research to investigate actual pain assessment and management practices of critical care nurses in routine clinical practice for patients with myocardial infarction.

Aim: The aim of this study was to explore nurses' perceptions regarding pain assessment and pain management for patients with Myocardial Infarction in a coronary care unit.

Methodology: The study was a qualitative design, using semi structured interviews. Ten critical care nurses who work in a coronary care unit were interviewed. The author used a qualitative content analysis approach to analyze the interviews by doing the manual analyzing and having different themes.

Result: Three main themes were indentified in this study and each theme had different categories which are presented as the following: Dealing with patients who have myocardial infarction pain is challenging; there are different approaches in pain assessment including subjective and the third theme is Holistic approaches to pain management.

Conclusion: Critical care nurses need more skills and knowledge to practice good pain assessment and effective pain management when they deal with patients who have myocardial infarction pain. In this study patients who do not verbalized their pain lack the proper assessment of pain due to inability to communicate their pain. More research is needed in this area of pain assessment and management especially for patients with myocardial infarction.

Key words: Pain, Myocardial Infarction, Critical Care Nursing, Coronary Care Unit, Perception, Pain assessment, Pain management.

Background

The experience of pain is a complex phenomenon, and it involves social, cultural, emotional, psychological and physiological components. Pain in critical care areas is triggered by anxiety, fear and difficulties in communication (Adam & Osborne, 2005). It is estimated that the majority of patients in America suffer from pain and many of those patients suffer from acute or chronic pain during their hospitalizations (McCarberg, Nicholson, Todd, Palmer, & Penles, 2008).

Overview of pain

Pain is one of the most common medical problems that occur in hospitals; in spite of its incidence, there are many patients who suffer with untreated pain (McCarberg et al., 2008). Pain is a complex, subjective phenomenon; it means unpleasant feeling, which results from tissue injuries. Moreover, pain induces many harmful effects, which inhibit early recovery from critical illness (Morton & Fontaine, 2009). According to Lindberg & Engström (2011, P.164) the International Association for the Study of Pain (IASP) defines pain as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage". Words like "hurt, discomfort, unpleasant" are concepts that are linked to pain (Montes-Sandoval, 1999).

It is documented in literature that pain should be considered to be the fifth vital sign, and to be measured and documented regularly as heart rate, blood pressure, respiratory rate and temperature (Shannon & Bucknall, 2003). There are three types of pain; mechanical, thermal and chemical pain. Mechanical pain occurs when a person has high pressure in the site of pain. Thermal pain occurs if a person is exposed to extreme heat or cold. The chemical pain is caused by outside agents, for example acids cause stomach pain. Acute pain refers to limited pain duration; usually the autonomic nervous system is activated and it responds well to analgesia (Mann & Carr, 2006).

Pain is one of the most important stressors that patients experience in critical care units. It works synergistically with sleeplessness and contributes to confusion and results in increased morbidity and mortality (Glynn & Ahern, 2000). It is reported by physicians that pain has a negative impact on the quality of life of persons who suffer from pain; patients with chronic pain reported that pain had harmful effects on their mental health, employment status, sleep, and personal relationships (Montes-Sandoval, 1999; McCarberg et al., 2008).

Unrelieved pain can negatively impact a person's quality of life, causing activity life disturbances like psychological distress; anxiety, depression and lack of sleep (Montes-Sandoval, 1999; McCarberg et al., 2008). Shannon & Bucknall (2003) state in their study that there are physiological complications associated with pain, including increased pulmonary complications and increased cardiac work as well as depression and anxiety. Pain is known to be an important symptom to be considered for treatment in critical care areas. It is important for nurses and physicians to do a proper assessment and achieve adequate pain relief, because the majority of patients in critical care units mention that they experienced moderate to severe pain during their admission (Gelinas, 2007). In critical care areas patients experience different stressors, although painful memories are blurred by different drugs but patients can still recall their pain experience during their admissions (Morton & Fontaine, 2009).

Gate control theory of pain

According to Mann & Carr (2006) the gate control theory of pain is described by Melzack & Wall in 1965, wherein they used their physiological and psychological knowledge to propose this theory. The transmission impulses from afferent fibers to spinal cord transmission to the T-cells are modulated by a gating mechanism. There are different fibers that influence the gate mechanism. There are two types of fibers; small and large fibers. Usually the large fibers try to inhibit transmission by closing the gate while the small fibers tend to open the gate and facilitate the transmission of impulses. The spinal gating mechanism is influenced by nerve impulses that go down from the brain. When the amount produced of the spinal T-cells exceeds a critical level, it activates the action system and the person experiences pain.

Myocardial infarction pain

Cardiovascular disorder is a significant global health problem, which accounts for the death of one third of the people in the world. In critical care units; the management goal for patients with cardiac disorders is to maximize cardiac output and reduce cardiac workload (Morton & Fontaine, 2009). The majority of cases that are presented with heart attack and chest pain are due to having a clot or a plaque that occludes blood vessels. When there is an occlusion to the arteries, it causes a block in the blood flow and when this occurs the heart is starved of oxygen and therefore, the heart cells die (Chen& Zieve, 2011). Chest pain is the most common symptom of heart attacks, however, some patients will present with pain in other areas like pain in arm, shoulder, neck, teeth, jaw and back pain. The characteristics of heart attack pain will be as following; heavy chest, squeezing heavy pressure on chest, anxiety, cough, dizziness, irregular heartbeats, shortness of breath, sweating, nausea or vomiting (Chen & Zieve, 2011; Hwang, Ahn &Jeong, 2012).

Pathophysiology of pain in myocardial infarction

Atherosclerosis is the narrowing or the occlusion of a coronary artery, which may be caused by the presence of thrombus. Having good artery blood flow is very important for the myocardium function. The coronary arteries being open are

important in the maintenance of normal cardiac performance. Failure to meet the demands of the myocardium of oxygen as a whole may lead to congestive heart failure. Ischemia of certain areas may lead to the clinical symptom of cardiac pain or disturbances of impulse formation and conduction in the form of arrhythmias. If the ischemia is sustained, actual injury e.g. myocardial infarction, may develop (Blumgart & Zoll, 1960; Marieb, 2006).

Diagnosis of myocardial infarction

Different blood tests are used to diagnose myocardial infarction. In myocardial infarction; time is very important because there are correlations with patient symptoms, electrocardiograms (ECG), and angiographic studies. There are different biomarkers, which have a clear association with acute myocardial infarction (Morton & Fontaine, 2009). The total Creatine Kinase (CK) is a simple and inexpensive test that is available in many hospitals. Yet, its elevation is not a specific indicator for myocardial infarction (Medical libraries: Mercer the University school of Medicine, 2012). Creatine Kinase MB (CK-MB) is a more specific test for cardiac muscle. It usually increases within three to four hours of myocardial necrosis, then peaks in a day and returns to normal within 36 hours (Medical libraries: Mercer the University school of Medicine, 2012). Also there is another test and it is called Troponin; Troponin T and I are components of cardiac muscle. They will increase if there is myocardial injury. Troponins increase post MI within three to 12 hours, about the same timeframe as CK-MB. Troponin "I" remains elevated longer than CK-MB up to five to 10 days, and up to 2 weeks for troponin "T". Moreover, there are other blood tests that include Myoglobin, B-type Natriuretic Peptide and C-reactive protein (Medical libraries: Mercer the University school of Medicine, 2012). If a patient with a heart attack is stable with normal vital signs and consciousness, the patient can go

for coronary angiography test. And in this test, X-ray is used to see how the blood flows through the main arteries (Adam & Osborne, 2005; National Institute for Health and Clinical Excellence, 2010).

Management of myocardial infarction

Pharmacological management of myocardial infarction

Emergency treatment includes close observation in the emergency room, giving oxygen, and administering some medications like Nitroglycerin, Morphine for vasodilatation action to relieve pain, anti platelet and anti thrombin agents.

Relief of pain is one of the most important aspects when treating patients with myocardial infarction. Intravenous Opioids, for example Morphine, are the analgesic most commonly used. Administration of aspirin and heparin reduces the incidence of subsequent re-infarction (Van de Werf, Bax, Betriu, Blomstrom-Lundqvist & Crea et al., 2008). Patients with MI are admitted to critical care units especially coronary care units to receive thrombolytic therapy and have close monitoring (National Institute for Health and Clinical Excellence, 2010).

Non pharmacological management of myocardial infarction

Patients with cardiac diseases develop anxiety and therefore, the assessment of anxiety should be a part of regular nursing care because the nursing assessment of anxiety can help patients to adapt to the diseases and help those patients to have a better outcome (Trotter, Gallagher & Donoghue, 2011). The values of the holistic care which include; symptom management, interaction with patients and their family, holistic care, therapeutic environment, and identification of patients' needs should be connected with nursing (Kolcaba, Tilton & Drouin, 2006). Nurses play an important role in pain management. In critical care units nurses practice

doing messaging for patients, diversion activities and practice deep breathing. Having non-pharmacological interventions may help in alleviating patients suffering of pain and it increases quality of nursing care by reducing stress and anxiety (Lindberg & Engström, 2011).

Coronary Care Units

The first coronary care unit (CCU) was developed in the mid 1960s to treat patients with myocardial infarction. Since that time critical care nurses have expanded their roles to take care of all cardiovascular disorders (Morton & Fontaine, 2009). There is various equipment in the CCU, including advance machines, defibrillators, resuscitation carts and emergency drugs (Adam & Osborne, 2005). Advanced technology influences every aspect of critical care units and it is integral to the assessment and monitoring of patients and the treatment. It also helps to access vital information and enhances data communication (Funk, 2011). Critical care areas provide care for patients who need close observation and special treatment that cannot be provided in general wards. Patients who are admitted to coronary care areas need to have special care, which is provided by well-trained personnel including critical care nurses (Adam & Osborne, 2005).

Critical Care Nurses

Nurses in critical care areas should be competent, knowledgeable and well trained to deal with critically ill patients (Shannon & Bucknall, 2003). There are many challenges in a critical care nursing unit, for instance dealing with critically ill patients, different diagnoses, and cultural diversities among people, multilingual staff and sophisticated technology (Morton & Fontaine, 2009). According to St Marie (2002) Henderson defined nursing as "the unique function of the nurse is to assist the individual, sick or well, in the performance of those activities contributing to health or its recovery (or to peaceful death) that he would perform unaided if he had the necessary strength, will or

knowledge and to do this in such a way as to help him gain independence as rapidly as possible" (P.483).

In addition, human experience of pain occurs in different contexts for example; physical, psycho spiritual, socio-cultural, and environmental contexts (Kolcaba, Tilton & Drouin, 2006). Nurses in critical care units owe the duty to take care of all patients who need help; moreover nurses have responsibility and accountability to maintain patients' integrity and safety when patients have pain (Morton & Fontaine, 2009).

Critical care nurses depend on teamwork with other staff in providing optimum care for the patients in critical care units. Physicians are required to prescribe medications, including analgesics and sedatives, which are often utilized synergistically to control pain in critical care units. In spite of staff knowledge and skills development, there is documented information of delayed recognition of patients with acute illnesses (Shannon & Bucknall, 2003).

Collaborative work in critical care areas are documented in the literature and this of course leads to better outcomes for patients. Good critical care practice leads to prevent emergency situations by applying a proper assessment and close observation (Adam & Osborne, 2005). However, poor early recognition and lack of skills to recognize patients with acute illness lead to poor outcomes for patients and increases the mortality rate (Shannon & Bucknall, 2003; Adam & Osborne, 2005). Nurses in cardiological units play an important role in improving quality of care. Nurses are in a unique position to implement the correct practice in critical care units. Moreover, bedside nurses have firsthand knowledge about compliance to follow up patient care (Hyden &Fields, 2010).

Comfort care theory in nursing

Comfort care theory is considered as art in nursing (Kolcaba, Tilton & Drouin, 2006). This includes a process of comforting actions, which are performed by a nurse on a patient. According to comfort theory, patients need comfort in stressful health care situations; family members of those patients also need to have comfort and support. Many patients' needs can be identified by a nurse who then implements comfort measures to meet the patients' needs. Providing comfort enhances healthy behaviors and peaceful death. Using this theory of comfort helps to release patients' suffering and distress; it also can support the patients to experience a feeling of comfort (Kolcaba, Tilton & Drouin, 2006).

Nurses' role in pain assessment

Different approaches have been used in hospitals to assess pain clinically, for example self-report, behavioral-observational methods and using different scales (Hadjistavropoulos & Craig, 2004). Pain assessment is challenging in critical care units (Skrobik, 2008). In any critical care unit a patient assessment includes the following, history, physical assessment, electro cardio gram (ECG), invasive and noninvasive monitoring, biochemical and hematological tests, chest x-ray and other diagnostic tests (Adam & Osborne, 2005).

Pain is one of the most common problems and stressors in any critical care area including CCU. Therefore, nurses in critical care areas need to have a clear meaning of the concept of pain assessment to achieve effective pain control (Morton & Fontaine, 2009).

Using nursing models and assessment tools to assess pain makes nursing care a continuing process. Assessment tools and other nursing models help to optimize the quality of care and improve the outcome for patients who have acute illness. If nurses can assess patients' pain correctly,

pain can be treated more effectively, and patients will report less pain and suffering (O'Connor, 1995). A study has been done by Valen, Vuuren, Domburg, Woerd, Hofland & Bogers (2012), which showed that when nurses use the protocol "a nurse-driven pain protocol" in patients with post-cardiac surgery there was an absolute reduction in pain scores. Moreover, the use of a nurse-driven pain protocol was safe and effective in many cases; an evaluation of patients' safety showed no readmission of patients to an ICU because of any factor related to administration of pain medication (Hadjistavropoulos & Craig, 2004; Morton & Fontaine, 2009).

There are varied circumstances present in critical care units which interfere with pain assessment, for example acuity of the patients' conditions, altered level of consciousness, inability of a patient to communicate pain and the patient's immobility (Hadjistavropoulos & Craig, 2004; Morton & Fontaine, 2009). Critical care nurses and doctors try to obtain the patient's self report of pain and do a good assessment; although there are different factors that interfere with a proper assessment. The factors that interfere with pain include the use of sedation, mechanical ventilation and inability of patients to communicate verbally (Ge´linas & Johnston, 2007).

There are other predisposing factors that restrain adequate pain assessment; they include the presence of technology and the rapidly changing situations of patients. The factors that interfere with pain assessment are common in critical care units and they limit nurses' ability to make a proper decision regarding pain assessment and also implement their decisions regarding pain management (Shannon & Bucknall, 2003; Puntillo, Smith, Arai & Stotts, 2008).

For patients who are unable to do a self-report of pain or communicate well, nurses need to have observable behavioral and physiologic indicators, which are

used as indicators for the assessment of pain. Furthermore; patients who are not able to provide their self-report of pain verbally or with other signs (e.g., head nodding, pointing to a scale), the use of a valid behavioral pain scale is strongly recommended (Hadjistavropoulos & Craig, 2004; Ge´linas & Johnston, 2007; Puntillo, Smith, Arai & Stotts, 2008; Gelinas, Arbour, Michaud, Vaillant & Desjardin, 2011).

Since the 1980s there has been documentation that pain assessment improves pain management, and decreases patients' suffering. Yet, there is a lack of pain assessment documentation, which indicates a gap between research and practice. Also there is little observational research to investigate actual pain assessment practices of critical care nurses in routine clinical practice (Shannon & Bucknall, 2003).

Nurses' roles in pain management

The management of pain includes pharmacologic, non-pharmacologic, or a combination of both and nurses are expected to develop the skill of balancing those treatment options (Puntillo, Smith, Arai & Stotts, 2008). In contemporary nursing, early recognition of pain and proper intervention enhances good patient outcomes, moreover; early recognition of pain shortened hospital stay and decreased cost. Organizations have a responsibility to ensure staff competency in pain assessment and management because an individual has a right to have proper pain management when needed (St Marie, 2002).

Organizations' performance is measured by ensuring patients' satisfaction, and meeting needs and expectations (St Marie, 2002). Ethically, pain management depends on a professionals' understanding of a patients' pain. Health care providers have to examine and assess what forms quality of life for their patients, especially, when a patient is in pain and with patients with a cognitive impairment who are not able to communicate their pain (Hadjistavropoulos & Craig, 2004).

Patients have the right to receive optimal pain relief and to be involved in their pain management. Patient advocacy; nurses have an obligation to explore all the options of pain managements within the scope of nursing practice. Patients who may not be able to communicate their pain should have close observation and proper pain management. Liabilities resulting from improper pain management means the failure of adherence to good practice (St Marie, 2002).

According to Lindberg & Engström (2011), assessment and treatment of patient's pain in postoperative care is crucial and it is a common task for critical care nurses. Nurses' knowledge in the field is essential because patients are looking to receive optimal nursing care. If a patient is pain free after a surgery, it means that comfort has increased and the period of hospital admission is reduced (Puntillo, Smith, Arai & Stotts, 2008).

Critical care nurses and physicians maintain themselves to have a strong commitment to pain relief, but still there is documented statistics of underestimation and under-treatment of their patients' pain (Skrobik, 2008). In some studies there are a number of barriers that avoid effective pain management in critical care units. These barriers include inability to communicate with patients, presence of complicated technology, less nursing knowledge and having limited time to attend to patients' care. Moreover, critical care nurses continually fail to deal with these barriers and to assess patients' pain accurately (Montes-Sandoval, 1999; Shannon & Bucknall, 2003).

Perception

Nurses deal with pain from a holistic perspective as with other symptoms (Montes-Sandoval, 1999). Nurses' awareness, attitudes and beliefs regarding pain have a significant impact on the effectiveness of pain management. Therefore nurses' roles in pain management are considered to

be an important aspect in order to evaluate the effectiveness of nursing care (Edwards et al., 2001). National Open University of Nigeria (2009, P.18) defines perception as "important cognitive factors of human behavior or psychological mechanism that enable people to understand their environment". Also perception is defined as "the processes whereby people select, organize, and interpret sensory stimulations into meaningful information about their work environment" National Open University of Nigeria (2009, P.18).

Cambridge Dictionary Organization (2012) defines perception as "a belief or opinion often held by many people and based on how things seem".

Also "Perception is defined as an act of being aware of one's environment through physical sensation, which denotes an individual's ability to understand" (Cambridge Dictionary Organization, 2012).

In this study, perception means the nurses' awareness, beliefs and experiences which the nurses perceive or gain when they do pain assessment and pain management for patients who have myocardial pain. Since perception as a concept has different meanings in nursing this may influence nurses' practices.

Problem statements

It has been reported that nurses underestimated the patients' pain in half of patients who have myocardial infarction, mostly when the patients were in severe pain (O'Connor, 1995). Nurses' documentation of the pain assessment was inadequate with respect to severity and duration of the patients' pain (O'Connor, 1995). There is development in nursing knowledge every year. Despite this development there is documented data that critical care nurses underestimate and under medicate the patients with pain (Glynn &Ahern, 2000). Finally, good pain assessment and pain management for patients in critical care units is a significant factor in maximizing patients' recovery.

Although, with this proof there is little evidence in clinical practice that critical care nurses have improved their pain assessment and pain management practices (Shannon & Bucknall, 2003; Skrobik, 2008). Therefore, studying nurses' perceptions, which includes knowledge and experiences of nurses, becomes a very important part in nursing research.

Aim

The aim of this study was to explore nurses' perceptions regarding pain assessment and pain management for patients with Myocardial Infarction in a coronary care unit.

Methodology

Methods

The study was a qualitative design, using semi structured interviews (Polit & Beck, 2008). Content analysis is a research method that has been used in health studies and it is a qualitative study, which includes analyzing narrative materials (Hsieh & Shannon, 2005). Qualitative content analysis research deals with contextual meaning of the text. It aims to provide an understanding of given texts. It uses the subjective interpretation of the content of text data through the systematic classification process of coding and identifying themes or patterns (Hsieh & Shannon, 2005). Further, content analysis is a research method that provides an objective means of describing data or other documents (Elo & Kynga, 2008). It enhances understanding of the different data especially narrative. In the content analysis, it is possible to make the words of transcribing data condensed by placing them in categories. Moreover in content analysis the same data, which shares the same meaning, is classified into the same categories. One of the purposes of content analysis is to make a model, conceptual system or categories (Elo & Kynga, 2008).

Participants and procedure

The participants were ten critical care nurses who have more than one year of experience in the CCU. They used to deal with myocardial infarction patients in the selected unit. The author did the selection of the participants randomly with the cooperation of the charge nurses in the chosen ward by using the inclusion criteria. All the ten nurses met the author and were given the written and oral information about the study (see Appendix III). The author explained to the participants the voluntariness and ability to withdraw from the study anytime during the study; after that the author met each nurse separately and explained the study aim, method and ethical consideration. Finally, the author conducted the interviews in different shifts with the voluntary nurses.

Inclusion criteria

The participants spoke the English language and had a diploma or a Bachelor degree in nursing. The study included nurses who work full time in the coronary care unit and who were willing to participate in this study.

Data Collection

The data were collected in five days and in different shifts "morning, evening and night time" by doing semi-structured interviews using an interview guide. To test the credibility of the questions; the author tested the questions by doing two pilot interviews with two nurses who work in the same unit, and no changes were made to the original questions since they were clear to nurses. Both tested interviews answered to the aim of the study, and thereby were included in the result (Polit & Beck, 2008).

The author did ten interviews including the two pilot interviews. Each interview lasted for 20 minutes and was done on the coronary care unit in one hospital. The interviews included open-ended questions to help the participants to explain

their perceptions regarding pain assessment and pain management (Polit & Beck, 2008). Moreover, the author asked some follow up questions during the interviews to make questions and answers more clear (see Appendix IV). A tape recorder was used in order to help the author in the transcription of data. The nurses accepted to be tape recorded (Polit & Beck, 2008). The interviews were transcribed verbatim, and the author reviewed the transcripts to ensure accuracy of collected data during transcription (Graneheim & Lundman, 2004).

Data Analysis

The author used a qualitative content analysis to analyze the interviews by doing the manual analyzing, as described by Graneheim & Lundman, (2004). Each interview was read by the author to get a comprehension of the data. The author read all transcribed data several times again, and all the meaning units were identified. All the data were transcribed verbatim and relevant information was extracted (Graneheim & Lundman, 2004). The transcribed data was entered into a word program in the author's computer to keep data safe through all the process of transcriptions. Then meaning units were written in tables followed by writing the condensed meanings for each text. The condensed meanings were put under different codes, which share the same meanings. The codes, which have common meaning, were set in varied categories. The last step of the analysis included the formation of themes (see Appendix I). Finally the author got three main themes, which were latent meaning (Table 2). The author used the aim of the study to guide the analysis of data.

Ethical considerations

The study was done with approval from the hospital administration and nurses' services department (see Appendix II). Written information about the study was given to all participants before doing the interviews. The names of the participants were not revealed for

confidentiality issues. International council of nurses' code of ethics takes care of the participants' information and voluntariness so the author considered this aspect during processing the study (International Council of Nurses, 2012). The author considered the autonomy of the participants in answering the questions, according to the Declaration of Helsinki; the author considers the participants' rights to withdraw from the study or to refuse to answer the questions for any reason (World Medical Association [WMA], 2012). During the interviews the author considered the privacy of the place and confidentiality of the participants, so the interviews took place in the nurses' sitting room in the chosen CCU as it

was preferred by the nurses. The interviewees were coded with no references to their names. The author respected information and ideas of the participants and during the transcription the author spoke honestly during all the research process with no alteration to the original data.

Results

In the result there are three main themes, which refer to nurses' perceptions regarding pain assessment and pain management for patients who have myocardial infarction in a coronary care unit. The demographic data of participants are shown in Table 1.

Dealing with patients who have myocardial infarction pain is challenging

In this theme there are two categories, which the author formulates after analyzing the data. The categories explain how nurses find dealing with myocardial infarction cases as challenges because there are some barriers, obstacles and difficulties, which, may happen during pain assessment or pain management.

Critical situations during pain management

In this category there are different situations, which are seen by nurses as critical situations because of the presence of emergency events

Sex	Native language	Experience in the CCU	Position
Female	Non-Arabic speaking	Three years	Charge nurse
Female	Non-Arabic speaking	Six years	Charge nurse
Female	Non-Arabic speaking	One year+ three years in operation room	Staff nurse
Female	Non-Arabic speaking	Two years+ two years in other department	Staff nurse
Male	Arabic-speaking	One year	Staff nurse
Female	Non-Arabic speaking	11 years+ nine years in other wards	Charge nurse
Female	Non-Arabic speaking	Ten years + two and a half years in other wards	Charge nurse
Female	Non-Arabic speaking	Eight years and ten years in other wards	Charge nurse
Female	Non-Arabic speaking	Five years	Charge nurse
Female	Non-Arabic speaking	Ten years	Charge nurse

Table 1: Demographic data of the participants

Themes	Categories
Dealing with patients who have myocardial infarction pain are challenging	Critical situations during pain management
	Presence of obstacles during pain assessment
Different approaches in pain assessment	Objective nursing assessments of pain
	Subjective approaches of pain assessments
Holistic approaches in pain management	Pharmacological therapies are used by doctors
	Non pharmacological interventions used by nurses
	Collaborative management in multi- professional teams

Table 2: Three main themes and each theme has different categories

or serious complications. Nurses state if a patient develops any complication of MI like complete heart block; emergency medications, and equipment should be available too for rapid intervention in case of arrhythmia.

"We should keep crash cart stand there and the defibrillator we do not know maybe a patient get cardiac arrest any time"

Nurses verbalize other serious situations especially when a patient has sudden deterioration at the time of discharge from a hospital. Unexpected situations have been seen as critical situationsin the nurse's perception. Moreover, some nurses explain myocardial infarction diagnosis as difficult because it is complicated and if the diagnosis is not correct the patient might be damaged by incorrect treatment. Failing to get the correct diagnosis is a very difficult experience for nurses. Further, nurses in the coronary care unit perceive management of the patient with acute MI as a challenging situation and it needs rapid interventions and good monitoring to save the patient's life.

"When we do ECG we get to know it is already MI, it is complicated and it is not easy situation"

Thrombolytic therapy is one of the most common treatments that are used to treat patients with MI. However there are some complications of thrombolytic therapy as nurses mentioned during pain management, including bleeding and arrhythmia. Nurses must be aware and alert all the time to observe the patient in case complications occur. Nurses in the CCU perceive situations with complications are really serious and critical.

" In thrombolytic therapy we should be careful with a patient, we should set the patient and observe him, sometimes there is some arrhythmia, sometimes bleeding

during the thrombolytic therapy and other complications, so we need to observe the patient seriously plus we need to have all emergency equipments near to the patient"

Presence of obstacles during pain assessment

In this category there are varied factors that interfere with pain assessment. Nurses see these factors as obstacles that affect good assessment. Language barriers are very important factors that are verbalized by many nurses. Another obstacle, which happens during pain assessment, is to have non-verbalizing patient who cannot verbalize his pain. Moreover, some patients will not give correct, timing of onset of pain, which leads to improper pain management.

"Because of language barrier I cannot really assess clearly what is the quality of pain but the quantity of pain I can do...I have a problem with language, it is difficult because of language barriers I cannot assess them properly"

Some nurses explain that it can be difficult to perform a clear assessment because of unclear symptoms as well as the presence of other diseases like diabetes mellitus. Also some patients will have a silent attack and this silent attack can delay the good assessment timing, therefore the management also will be affected.

" Some patients will not complain of pain, so this is a problem, they have a silent attack like stroke. It is a silent symptom"

Nurses state the importance of having good skills to do a proper assessment, otherwise lack of these skills and experience will affect a patients' care negatively. Also lacking experience is one of the obstacles that faces nurses every day and make the situation most difficult.

"You know only thing we lacking is experience, practice makes everything perfect"

Nurses face other difficulties when they need to have consent for high-risk procedures or management especially if a patient has no attendant or interpreter.

Although there is a pain scale for unconscious patients but still some nurses are not aware about how to use the scale and some of them will neglect the patient's pain. Another obstacle occurs when a nurse neglects the patient's pain because some though that patients malinger the pain.

"Because some patients who stay long time here, they will malinger, they will say they still have pain even if they do not have pain, sometime I intend to neglect their pain"

Nurses express the need of more staff, either doctors or nurses because they have shortage of staff that affects early assessment and doing improper intervention.

In the chosen CCU the nurses handle about four patients at a time and this under staffing makes it difficult for nurses to do the required assessment. Moreover, the communication with the doctors becomes difficult when they are busy with many patients.

"Sometimes it is difficult because here in CUU we should handle one to one ratio, but we are under staffed"

Pressure at work and shortage of staff can cause communication problems between nurses and doctors. Other obstacles that interfere with pain assessment is having uncooperative patients due to having severe pain. On the other hand some patients deny having pain and this will delay proper assessment and intervention.

"Sometime doctors have many patients their mood will not be ok because of many patients; some doctors will come and shout at us"

"Patients can deny the pain even though a patient on severe pain will say mild"

Different approaches in pain assessment

Objective nursing assessments of pain

Objective assessments include the procedures that nurses do during nursing assessment, for example physical assessment and evaluating diagnostic tests, and assessment of myocardial infarction signs when a patient is admitted to the CCU. Nurses will perform different diagnostic procedures and follow some diagnostic tests to confirm the diagnosis of MI. The first thing that nurses do is to check the severity of pain by using different scales. One scale is the numerical scale that can be used if a patient is conscious.

"If they are in severe pain you can see from the facial expression, we assess the pain, how is the pain we have pain score 1-10, we ask how much the pain"

Assessment of cardiac enzymes and electrolytes are important tests that patients should have in the CCU. Nurses will send the investigation to the lab and follow up the result. When any abnormal result is occurred the nurses refer to the physician for further orders. Furthermore, nurses do the assessment of the electrocardiogram and almost all nurses are able to read the ECG and interpret the diagnosis.

There are different signs and symptoms that the nurses rely on to diagnose MI. Signs include chest pain, vomiting, sweating and having abnormal reading of ECG. Objective assessment of pain includes vital signs, doing ECG and using different scales to assess the pain. If a

patient is conscious; nurses use the numerical scale (0-10) and if the patient is unconscious nurses use the FLACC scale "Face, Legs, Activity, Cry, Consolability".

" We assess the vital signs, ECG if there is ST elevation, tachycardia, the patient is restless and he has abnormal behaviors. We have FLACC assessment scale for unconscious patients every two hours"

Doctors use invasive procedures for pain assessment like doing catheterization to visualize entire arteries if there is any block and this can help to diagnose MI by doctors in the CCU.

" We have coronary catheterization lab, and the doctor is available so we will send the patient for catheterization without medication" primary PTCA" and the patient should have normal Creatinine test"

Subjective approaches of pain assessments

In this category nurses use subjective assessment of what a patient verbalized during assessment and during taking the patient's history. Assessment of pain by taking the patients' history is very important. Nurses use Wong-Baker scale (0-10) for conscious patients to assess verbalized pain by the patient.

" We have Wong-Baker FACES pain rating scale and other one behavioral scale"

Nurses use alternative methods to communicate with a patient and assess his needs if he cannot talk for example using a piece of paper and help the patient to write his needs. Moreover, nurses use a holistic assessment approach to assess pain characteristics.

" We can ask the patient what kind of pain, is it dull pain, where is the

site of pain, central chest pain, right side pain of chest, pain from chest radiates to the right arm or at back, sometimes they will not complain of chest pain they complain of abdominal pain"*

Holistic approaches in pain management

Pharmacological therapies are used by doctors

The main treatment, which is used for patients with myocardial infarction, is pharmacological therapy. Pharmacological therapies include administration of thrombolytic therapy like Reteplase. It depends on the type of MI and duration of pain, and nurses can also give Oxygen by different modes.

"If a patient candidates for thrombolytic therapy; before we use Reteplase but now we use Alteplase, if pain between 6 hours we have special protocol, and if pain more than 6 hours we have also a special protocol...If they are in pain so we give Oxygen we can give face mask or non re breathing mask if tolerated"

Doctors prescribe Pethidine as a common medication if patients are in pain. Moreover, nurses use especial protocols to treat acute myocardial infarction. This contains administration of anti coagulants, O2, anti platelet and thrombolytic therapy.

" Usually in acute MI a doctor will confirm first, we are following certain thrombolytic protocol, we also started the anti coagulants Heparin and Aspirin and Plavix loading dose, and Oxygen should be present"

Management of pain using MONA protocol, includes "Morphine, Aspirin, O2 and Nitroglycerine, and if a patient is still in pain they do Coronary Angiography. Another treatment includes using intravenous fluids if needed especially if a patient has low blood pressure. If pharmacological medications did not relieve the patient's pain the doctor

will order an advance procedure like CAG.

"Like during hypotension also we can ask the doctor to give IV fluid so quickly if ejection fraction (EF) is good we can give bolus to increase blood pressure".

"Sometimes even if you give Morphine and Pethidine but still the patient complains of pain; the doctor will do Coronary Angiograph; and then a patient will be ok, it is diagnostic and interventional procedure"

Non pharmacological interventions used by nurses

In a non-pharmacological approach; nurses use their skills and provide independent nursing care like administer Oxygen and put the patient in a comfortable position. Another independent nursing care is to help the patient to do breathing exercises. Some nurses find the use of diversional activities are helpful and can reduce the patient's pain especially if the patient is stable, like talking to patients and help the patient to read something.

" Once a patient is stabilized we can render independent nursing care like keep a patient in a comfortable position, provide support, measures like say to the patient he will be ok, we talk to the patient because some patients will have anxiety and they are worry regarding what will happen to them and he will be able to recover"

Other nurses are used to provide a patient with psychological support and other spiritual care and the nurses feel this support helps patients and relieves their stress. Furthermore, nurses in the CCU enhance bed rest and provide necessary messaging when a patient is in pain because some nurses believe messaging could relieve the patient's pain.

" We nurses do psychological support, reassurance, we encourage a patient to verbalize their pain and feeling, we touch a patient, we being with a patient, talk to the patient, it is very relieving"

Collaborative management in multi- professional teams

Collaborative work between nurses and physicians is a very important aspect that nurses mention especially in the coronary care unit because they have serious cases that require good team management all the time. Nurses are used to exchanging their knowledge and information with their doctors, in order to be updated with their information and to render good care.

" For me I know cardiologists nowadays are available we can ask the doctor what type of MI and if we can thrombolyse him if there is ST elevation"

Some nurses ask social workers for help if they have any problem with patients in the CCU, especially if a patient refuses to take the medication or refuses important care. Another type of cooperation is to cooperate with the patient's family and provide them with the necessary information so they will be aware about the plan of their patient.

"Some patients are not cooperative, some patients will not take the medication, and we cannot force them in this situation we will ask the social workers to help"

" Doctors will explain to the family and we secure the consent from the family and then administer thrombolytic if a patient is ok"

Nurses provide good and cooperative management and it mainly depends on the physicians' plans. Another form of cooperation is the cooperation with the family of the patient and to help them to participate in the patient's care.

" Sometime we cannot change patients' position alone and do suction and we cannot ask other staff because other staffs has patients also, we ask also the attendant to help us"

Nurses explain that if the patient needs advanced care in another center, a referral paper will be sent and cooperative care will be provided.

" For CABG "Coronary Angio Bi-pass Graphy "we send to another hospital"

Discussion

Discussion of the method

In August 2012 the author did ten interviews; all of the interviews were recorded and no problems occurred during the recording of data. The interviewer used notes to document nurses' perceptions regarding pain assessment and pain management. The author did the interviews in different days and in different shifts, for example the author met the nurses during the morning shift, evening shift and during the night shift. Doing the interviews in different shifts helps the author to meet nurses with different experiences. The interviews took place in the coronary care unit "CCU", and the place of the interviews had been chosen by the participants.

In this study there was no drop out among the participants since the author conducted the interviews immediately after recruiting of the voluntary staff. After the selection of participants; the author did the interviews separately with each nurse alone with consideration to privacy. The author did the analysis of data manually and the analysis was done several times to get the proper themes that reflect the nurses' perceptions. The study's transferability can be assured by using the same criteria of the participants (Polit & Beck, 2008). However, this study is limited to ten nurses and it does not represent all the nurses in coronary care units in

Saudi Arabia. It was conducted in one hospital because of the time limit and this limits the generalizability of the result. However, in qualitative studies there is no precise rule for numbers of participants (Patton, 2002). The number of participants in this study seemed to fulfill the aim of the study.

Content analysis is a method which was used in this study. Content analysis is a method to analyze the content of narrative data (Polit and Beck, 1999). This method helped the author to identify the main themes through breaking down the narrative sentences to meaning units, then condensed meaning units and had the main codes and themes according to Graneheim & Lundman (2004). The author spent a long time reading and understanding how to do content analysis and the process was checked several times with the supervisor. To ensure the credibility of the result a second person (the supervisor of this study) has been involved to check the data analysis and discuss different themes (Patton, 2002).

Discussion of the result

This study highlights the important aspects of pain assessment and pain management for patients with myocardial infarction in a coronary care unit (CCU). Three themes have been identified which reflect nurses' perceptions in the chosen CCU when dealing with myocardial infarction cases.

Dealing with patients who have myocardial infarction pain is challenging

In this study the author observed that the result agrees with other studies in the literature. Pain assessment and pain management have different aspects with varied approaches. The presence of obstacles and challenges are manifested as important aspects in this study. In the literature by Morton and Fontaine (2009); there are many challenges in a critical care nursing, for instance dealing with critically ill

patients, different diagnoses, and cultural diversity among people, multilingual staff and sophisticated technology. Some nurses explained myocardial infarction diagnosis as a difficult situation and there could be different components that could complicate the situation and make the pain management difficult. Skrobik (2008) states that pain assessment is challenging in critical care units and it is one of the most common problems and stressors in any critical care area including CCU.

According to Hadjistavropoulos and Craig (2004) and Morton and Fontaine (2009) there are varied circumstances, which interfere with pain assessment, for example acuity of the patients' condition, altered level of consciousness, inability of a patient to communicate pain and the patient's immobility. This agrees with the nurses in this study who express different factors that interfere with pain assessment that are making the process most difficult. These factors include language problems in that the patients and nurses had different languages, which affect general care as nurses explain in this study. In another study which has been done by Montes-Sandoval (1999) and Shannon and Bucknall (2003) it is indicated that some barriers affect pain assessment that include inability to communicate with patients, presence of a complicated technology, less nurses' knowledge and having limited time in doing patients care. Having language barriers and communication difficulties and less experienced staff are obstacles that interfere with good management; this highlighted by the nurses in this study.

Results in the present study showed that nurses perceived that lack of experience and language problems interfere negatively with good pain assessment. In the chosen CCU the majority of the staff is non-Arabic speaking whereas patients are Arabic speaking and this is a big problem for successful communication. Having problems with communication can cause ineffective pain assessment and

also can leadto improper pain management. This agrees with Ge´linas and Johnston (2007); they concluded in their study that some factors interfere with pain assessment for instance the use of sedation, mechanical ventilation and inability of patients to communicate verbally. Another problem occurs when there are complications of thrombolytic therapy as nurses mentioned during pain management. In the literature; these complications make the situations very difficult for staff to manage. In addition to the presence of treatment complications there are some cases with sudden deterioration. There are other predisposing factors that restrain adequate pain assessment; they include the presence of technology and the rapidly changing situations of patients (Shannon & Bucknall, 2003; Puntillo, Smith, Arai & Stotts, 2008).

Different approaches in pain assessment

Holistic assessment of pain characteristics includes the assessment of pain, location, severity, duration, and relieving factors as nurses experienced in this study. Chen and Zieve (2011) mentioned that chest pain is the most common symptom of heart attacks. However, some patients will present with other pain like arm pain, shoulder, neck, teeth, jaw and back pain. In this study some nurses explain that there are different signs of myocardial infarction for example increasing of Troponin I, abnormality of cardiac enzymes, and other symptoms, which a patient presents with like sweating and vomiting. In a study which has been done by Chen and Zieve (2011) they concluded the same result that the characteristics of heart attack pain will be as following; heavy chest, squeezing heavy pressure on chest, anxiety, cough, dizziness, irregular heartbeats, shortness of breath, sweating, nausea or vomiting.

Nurses in this study explain that patients in the CCU have anxiety and stress during their admission in the hospital and this needs proper

assessment. Studies have been done by (Montes-Sandoval, 1999; Shannon & Bucknall, 2003; McCarberg et al., 2008) which indicate that unrelieved pain can negatively impact a person's quality of life, causing activity life disturbances like psychological distress; anxiety, depression and lack of sleep. Nurses propose the use of some scales like Wong-Baker scale for conscious patients to assess pain. Hadjistavropoulos and Craig (2004) state the different approaches that have been used in hospitals to assess pain clinically, for example self-report, behavioral-observational methods and using different scales. In this study nurses explain the use of different scales including Ramsey scale for sedated patients, and other pain scales depend on the patient's case. However, nurses in the same department have different perceptions regarding using the scale assessments as some of them were aware about using different scales whereas some were not aware of those scales. This indicates the need for education and improving nurses' skills and information. Non-verbalizing patients were not having the needed assessment because some nurses were not aware about the FLACC scale, which is the scale used in the chosen CCU for unconscious patients.

In this study some nurses use a piece of paper to assess the patient's pain if a patient cannot talk so the nurses can assess the patients' different needs and this is strongly recommended. In literature patients who are not able to provide a verbal self-report of pain with other signs (e.g., head nodding, pointing to a scale), the use of a valid behavioral pain scale is strongly recommended by Hadjistavropoulos & Craig 2004; Ge´linas & Johnston, 2007; Puntillo, Smith, Arai & Stotts, 2008; Gelinas, Arbour, Michaud, Vaillant & Desjardin, 2011).

Holistic approaches in pain management

In this study management of pain includes using the MONA protocol which includes Morphine, Oxygen, Aspirin and Nitroglycerine besides using advanced technology if needed like doing interventional Coronary Angiography. In literature if a patient with a heart attack is stable with normal vital signs and the patient is conscious, the patient can go for a coronary angiography test; X-ray, which is used in this test helps to see how the blood flows through the main arteries (Adam & Osborne, 2005; National Institute for Health and Clinical Excellence, 2010). Nurses mention that doctors only can prescribe Pethidine or Morphine as narcotic drugs for pain. In a study, which has been done by Shannon & Bucknall (2003) they state that physicians are required to prescribe medications, including analgesics and sedatives. Whereas a study that has been done by (Hadjistavropoulos & Craig, 2004) shows that nurses' driven protocol of pain management was effective in many cases.

Nurses in this study emphasize the importance of using non pharmacological approaches like doing massaging; ask patients to do deep breathing and using diversion activities to divert a patient's attention from pain. Having non-pharmacological interventions may help in alleviating patients' suffering of pain and it increases quality of nursing care (Lindberg & Engström, 2011).

Nurses verbalize their roles in pain management that include non pharmacological interventions as well as psychological support, reassurance, encouraging patients to verbalize their pain and feeling, touching a patient, being with a patient, talking to the patient, it is very relieving. Hyden and Fields (2010) state that nurses are in a unique position to implement the correct practice in CCU. Moreover, bedside nurses have first-hand knowledge about compliance to follow up patient care. However,

some nurses in this study may ignore patients' pain and they thought that patients are malingering the pain, and so having good education about pain assessment and management is a very important aspect in the chosen CCU.

The author finds providing comfort and support is very important during nursing care, especially when patients are in pain and need management or support and this agrees with many nurses in this study who verbalized providing comfort for patients during pain. Using this theory of comfort helps to release patients' suffering and distress; it can also support the patients to experience a feeling of comfort (Kolcaba, Tilton & Drouin, 2006).

Nurses in this study state the importance of early recognition of myocardial infarction, which helps early recovery. St Marie (2002) states that early recognition of pain and proper intervention enhances good patient outcomes, moreover; early recognition of pain-shortened hospital stay and decreased costs. In this research there are different approaches of pain management including pharmacological and non-pharmacological treatment and this agrees with other studies. Puntillo, Smith, Arai & Stotts (2008) concluded that the management of pain includes pharmacologic treatment, non-pharmacologic treatment, or a combination of both and nurses are expected to develop the skill of balancing those treatment options.

Nurses in critical care areas should be competent, knowledgeable and well trained to deal with critically ill patients (Shannon & Bucknall, 2003). In the current study; nurses explain the need of proper skills and experience during assessment because patients' care depends on nursing mainly. Adam and Osborne (2005) write that patients who are admitted to coronary care areas need to have special care, which is provided by well-trained personnel including critical care nurses.

Critical care nurses and physicians maintain themselves to have a strong commitment to pain relief (Skrobik, 2008). In this study the result showed that nurses perceived that they should manage pain quickly to save patients' lives and especially if a patient develops any complication for instance hypotension or bleeding. Furthermore, nurses in this study cooperate with social workers and family of patients in case they need further help and patient support.

Providing cooperative pain management by nurses and doctors to improve patients' outcomes in the CCU is very important as nurses believed. The presence of the doctor during pain management is a very important aspect especially when giving the thrombolytic therapy and this is to avoid complications and poor outcomes that may occur during late treatment. Shannon and Bucknall (2003) & Adam and Osborne (2005) state that poor recognition of MI and lack of skills to recognize patients with acute illness lead to poor outcomes for patients and increases the mortality rate.

Study Limitations

This study includes ten critical care nurses, moreover the study has been conducted in one hospital, although with these limitations; the author got saturated data that was rich to explain nurses' perceptions when they care for patients with MI (Polit & Beck, 2008). In qualitative studies it does not matter about the number of participants as long as the researcher gets the saturated data that answers the study aim (Patton, 2002).

Nursing Implications

This study has good implications in the nursing field. Pain assessment and pain management are relevant areas in improving nursing quality of care. Organizations' performance is measured by the patients' satisfaction about nursing care. Therefore, working to improve the aspect of patients' assessment and management would participate in

good patient outcomes. Nursing education and further research is important in contemporary nursing since the patients' care is the main concern in any health organization.

Conclusion

In conclusion, this study aims to explore nurses' perceptions regarding pain assessment and pain management for patients with myocardial infarction in a coronary care unit in one selected hospital. In the study, the CCU nurses practice pain management by using the hospital protocols which may help to relieve patients' suffering of pain. On the other hand, some nurses lack the knowledge regarding the use of some pain assessment scales and some nurses may neglect patient's pain due to lacking the proper knowledge. Furthermore, non-verbalizing patients, either unconscious patients or patients who cannot talk, are more prone to receiving inadequate pain management. Nurses' knowledge and information are very important because nurses are in a critical position to assess and manage patients' pain in coronary care units. Nurses in this study face difficulties of communication with patients due to having language barriers and the author recommends the department administration to solve this current problem. Having language barriers delays proper pain assessment and affects pain management. One solution is to provide the department with interpreters and Arabic-speaking staff who may participate in effective pain assessment and pain management. Finally, providing nurses with good education including some courses would enhance nurses' knowledge and improve quality of nursing care. Further research is recommended in this area, and including patients in further studies would give a better result.

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