Exploration of Delays in Reporting of Cardiac Symptoms by Hospitalized Patients

By

Janice Marie Findlay

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF NURSING AT THE UNIVERSITY OF MANITOBA

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EXPLORATION OF DELAYS IN REPORTING OF CARDIAC SYMPTOMS BY HOSPITALIZED PATIENTS

BY

JANICE MARIE FINDLAY

A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of Manitoba in partial fulfillment of the requirements for the degree of

MASTER OF NURSING

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CHAPTER FIVE

DISCUSSION

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APPENDIX

Exploration of Delays in Reporting of Cardiac Symptoms by Hospitalized Patients

An explorative study was conducted to examine factors affecting delays in the reporting of cardiac symptoms. These delays impeded prompt diagnosis and maximal response to treatment.

The study was designed within the conceptual framework of Symbolic Interactionism. An Interpretive Phenomenological methodology was employed to facilitate full description and explication of the patient's perceptions. Ethnographic methods of inquiry guided the data collection process. An interview guide served as the template for discussion. Flexibility in order and approach was allowed in order to facilitate exploration of themes emerging from the content of the interview.

Interviews were conducted with eight patients who met the following criteria: admission to the Progressive Care Unit, diagnosis of a Myocardial Infarction, ability to communicate effectively during an interview process and physiologically stable status.

Two major themes emerged from the data. One theme delineated the decision making process utilized by patients prior to deciding to seek medical attention for their symptoms. Rationalization, denial, distraction, procrastination and vacillation were identified as cognitive processes inextricably tied to the abeyance of fear and anxiety and serving to increase delay times. Other factors related to increased delay time were lack of knowledge concerning the diversity of cardiac symptoms, the seeking of medical advice and the desire to avoid possible embarrassment related to the unwarranted seeking of medical attention.

A second theme depicted a lack of individualized, patient focused inquiry concerning cardiac symptoms. The results supported the importance of obtaining an accurate

description of the patient's symptoms and utilizing this description as an individualized monitoring tool.

The need for further exploration of these factors with the intent of developing strategies designed to minimize time delays was recommended. These strategies would increase the window of time during which maximal treatment response is achieved.

DEDICATION

This thesis is dedicated to my family.

Hugh, my husband: Thank-you for your love, time and unselfish support. You broadened my perspective on life by awakening and nourishing my spiritual being. This has helped me find inner peace and a firm sense of direction within a chaotic society.

Kristin and Cameron, my children; Your understanding acceptance of a part-time mother is greatly appreciated. Your bring joy to my every day.

Jennie Cardinal, my mother: Your endless support throughout the years in the innumerable ways that only a mother can understand has strengthened my character and resolve.

Borden Cardinal, my late father: He taught me to accept others for what they are and to approach the world with kindness and giving in your heart. He gave me the faith and courage to utilize a gentle approach with the world and to value integrity above all else.

ACKNOWLEDGMENT

I would like to acknowledge the support and guidance of the chair of my committee, Dr. Erna Schilder. I have the utmost respect for this great lady. My sincere thanks for the manner in which she expedited my work and tolerated the delays and difficulties I encountered. The completion of this work is truly due to her efforts.

I would also like to acknowledge the support of Dr. Barbara Naimark for her support and unquestioning accommodation of short time frames.

My thanks are also extended to Dr. Ted Cuddy for his participation and input into the study.

CHAPTER 1: OVERVIEW

Introduction

This study evolved from a problem identified by nurses working in an Intensive Care Unit. The nurses were concerned that some post myocardial infarction patients delayed reporting cardiac symptoms. The symptoms of these patients were not particularly dramatic or physically distressing, nor were they characterized as truly painful. The symptoms were similar to those exhibited during the hyperacute phase of the patient's myocardial infarction. In some cases they were indicative of ischemia related or extension of the initial infarct.

The subtlety of the the patient's symptoms made it difficult for the attending nurse to identify them during routine monitoring and assessments. The symptoms did not necessarily evoke significant changes in the vital signs. Acute changes were sometimes noted on the routine cardiac protocol EKGs. This prompted questioning of the patient and subsequent verbal disclosure of cardiac symptoms.

In response to this dilemma, the nurses cited a number of questions that they felt should be explored;

1. Are health care personnel effectively communicating to patients the importance of reporting symptoms?

2. Are nurses or other health care personnel addressing the individuality and diversity of cardiac symptoms? Are the characteristics of the cardiac symptoms as they are described and perceived by the patient, effectively communicated to

all who care for the patient, thereby serving to increase the accuracy of subsequent assessments? Are health care personnel conducting assessments based on assumptions that some common cardiac symptom descriptors can be generalized to all patients.

3. Do cognitive/emotional responses to threats to personal and physical integrity play a role in minimizing acknowledgment of cardiac symptoms?

4. What is the actual incidence of unreported cardiac symptoms? Is it of sufficient magnitude to warrant further investigation?

These questions represent a fraction of the realm of speculation regarding the problem. However, rather than approach the problem with a predetermined hypothesis based on this type of speculation, even if it is grounded in experience, a qualitative methodology will be utilized in order to capture the entirety of the experience from the patient's perspective. In this manner, reality will be portrayed and addressed as it is constructed by the patient.

There are several very important reasons why it is imperative to identify and treat cardiac symptoms as soon as they occur. Firstly, if the symptoms are indicative of ischemia, an imbalance exists between myocardial oxygen consumption and delivery. This imbalance places the patient at risk for several life threatening events and/or varying degrees of hemodynamic instability. Acute ischemic events impose an increased risk of malignant arrhythmias, ischemia mediated pulmonary edema and/or subsequent progression to loss of viable myocardium.

Understanding why patients delay reporting cardiac symptoms will facilitate the development of a plan to address this issue and therefore decrease the time during which treatment is not initiated. This will maximize treatment response and hopefully improve patient outcomes.

Statement of the Problem

Not all patients report cardiac symptoms as soon as they occur. Some individuals delay reporting symptoms or do not report them at all. Subsequent delays in diagnosis and treatment occur. The patient is placed at risk because maximal treatment response and risk reduction is achieved when treatment is initiated as close as possible to the time of onset of symptoms. This is especially imperative in cases warranting the administration of a thrombolytic agent, where viability of myocardial tissue is directly related to the time at which reperfusion occurs.

Purpose and Significance of the Study

The purpose of this study is to explore why patients delay or do not report all cardiac symptoms. The data from this study will facilitate the identification of interventions designed to address the problem.

The concepts of cardiac ischemia, injury and myocardial infarction and how they relate to symptoms will be clarified in the following section. It is important to fully explicate these terms as they will be referred to repeatedly during the course of the study.

Conceptual Framework

This study was formulated within the conceptual framework of symbolic interactionism; a theory which seeks to explain human behavior in terms of meanings. This theory was originally generated by the work of prominent sociologists such as Cooley, Mead and Thomas (Blumer, 1969). The theory is based on three premises;

1. Human beings act toward things on the basis of how they are perceived to have meaning (Blumer, 1969)
2. The meaning of such things is interpreted within a social context (Blumer, 1969)
3. Meanings are processed through an interpretive process unique to the individual (Blumer, 1969)

This theory was based on the premise that individuals live, learn, interact and respond within the framework of a particular social and cultural milieu. This milieu sets the framework for interpretation of life experiences. Interpretation is determined by individual perception, which is configured within a cultural context and bound by the dictates of a specific genetic predisposition. This framework challenges the naturalistic, scientific approach to behavioral analysis, which isolates behavior from the circumstances in which it occurs and the meaning of these circumstances to the individual.

The focus of this study is to explore the meaning of cardiac symptoms to the patient. The purpose of this approach is to gain a greater understanding why the reporting of cardiac symptoms is delayed or does not occur at all and to provide a framework from which preventative strategies can be developed.

Basic Assumptions

The following assumptions serve as the basis of the study:

1. Patients experience cardiac symptoms

2. Patients can recall unreported cardiac symptoms and describe their beliefs as to why they did not report them in a timely manner

3. It is possible for this researcher to "capture" and interpret patients' perceptions of these experiences and why they occurred

4. Understanding why patients do not report all symptoms in a timely manner will facilitate the development of a plan to increase the incidence of this reporting

CHAPTER TWO: LITERATURE REVIEW

Perception, Interpretation and Decision-making Regarding Symptoms of Possible Cardiac Origin

Research exploring delays in reporting cardiac symptoms has traditionally focused on the individual within the community. This research began in the late 1960's and focused on exploring why individuals experiencing symptoms of an acute myocardial infarction (MI) delayed acknowledging the significance of the symptoms and did not report to the Emergency Room (ER) in a timely manner. At that time, acute myocardial infarction was cited as the leading cause of death among adults aging 40 to 65 years of age, with sixty-five percent of these deaths occurring out of hospital during the hyperacute phase of an MI. These deaths were attributed mainly to cardiac arrhythmias and were perceived to be largely preventable if appropriate treatment had been implemented early within this hyperacute phase (Moss, Wynar & Goldstein, 1969). Seeking to minimize this delay time, researchers studied the crucial time period between the onset of cardiac symptoms and presentation at an Emergency Department. The intent of these studies was to gain greater insight concerning factors contributing to delays in presenting at an ER by the individual experiencing an acute MI. The ultimate goal was to use these insights to develop preventative strategies and minimize delay time.

While these studies provide a framework by which to examine the delay time exhibited by inpatients, it is acknowledged that environmental and situational factors within a hospital setting will vary from that of the community. In addition, the social context in which the experience occurs will be different from that of the family unit. Therefore extrapolation of findings in regards to these areas, may not be warranted.

Cardiac Ischemia

The pathophysiology of cardiac ischemia, injury and infarction will be briefly addressed in order to promote clarity of understanding regarding these events as they relate to the time symptoms are reported, initiation of treatment and overall prognosis.

Cardiac ischemia occurs when there is a discrepancy between the blood supply to the myocardium and myocardial oxygen demands. The myocardium becomes hypoxic and anaerobic metabolism ensues, causing the release of lactic acid and other pain producing substances (histamines and kinins). Pain receptors in the myocardium are stimulated. These receptors synapse with sensory nerves from other areas of the body at the thoracic level of the spinal cord, causing pain in areas of the body other than the injured tissue. This phenomenon is termed "referred pain" (Burden & Rodgers, 1986). This pain may manifest in numerous parts of the body and in varying degrees of severity and descriptive characteristics. Unprolonged cardiac ischemia generally causes no damage to the myocardium, although it has been postulated that repeated episodes of ischemia may cause microscopic myocardial necrosis and decrease left ventricular function (Van der Wall, Cats & Bruschke, 1992). Progressive anaerobic metabolism, will cause myocardial injury, although the exact time during which this occurs cannot be specified. Production of adenosine triphosphate decreases, allowing sodium to accumulate in the cells and potassium to leak out of them, thereby impairing the heart's sequence of depolarization and repolarization. This is reflected in ST segment elevation on the electrocardiogram (ECG).

Cardiac ischemia may increase the irritability of the myocardium, thereby precipitating life threatening arrhythmias. This is one reason why it is imperative to treat ischemia as soon as possible. Ischemia may also impair myocardial contractility, thereby

precipitating acute pulmonary edema; the severity of which would determine the degree of hemodynamic instability. Ischemia may progress to myocardial cell damage or infarction, which entails loss of viable myocardium. The amount of myocardium infarcted will determine the degree of impairment to the left ventricular ejection fraction and accordingly, varying degrees of hemodynamic instability may be precipitated.

Myocardial Infarction

A Myocardial Infarction is generally associated with the formation of a platelet-fibrin-rich thrombus in an atherosclerotic coronary artery (De Wood, 1986; Mehta, 1992). Atherosclerosis is comprised of layers of organized thrombi, supporting the contention that each layer was formed subsequent to a thrombotic process. Progressive narrowing of the coronary arteries by this process eventually disrupts the balance between myocardial oxygen supply and demand, thereby inducing myocardial ischemia. An acute MI is most commonly attributed to a disruption of the endothelial lining of an atherosclerotic area from a hemorrhage or fissure. Platelets adhere to the exposed sub endothelial collagen, releasing vasoactive substances causing vasoconstriction of the downstream coronary tree and initiating the coagulation process that produces fibrin. The resultant thrombus may occlude the involved artery to the extent that a serious perfusion deficit occurs, causing myocardial injury and subsequent necrosis (Mehta, Nicolini, Donnelly & Nichols, 1992). The necrotic process begins in the inner aspect of the myocardium and progresses through the endocardium and epicardium usually over four to six hours (Reimer & Jennings, 1979). Dissolution of the thrombus by a thrombolytic agent, within this "window" of potential viability, is associated with maximal salvage of the myocardium. Since time is the essential factor in maximizing response to treatment, prompt identification of symptoms of infarction is essential (Tiefenbrum, 1992, Topol, Wilson, & Arbor, 1990).

Non Q-Wave Myocardial Infarction

A full thickness MI, wherein all the layers of the heart have infarcted, is characterized by a "Q" wave on the EKG. The advent of Thrombolytic agents has increased the number of non Q wave MIs (more than 40% in some hospitals), due to the reperfusion of areas of the myocardium in time to maintain viable tissue. This process minimizes left ventricular dysfunction and is associated with a lower early mortality rate. However, these individuals face a higher risk of reinfarction (Gibson, 1988). An analysis was conducted of the studies published between 1970 and 1983, which compared the clinical characteristics of Q wave and non-Q wave MI patients. Non-Q wave MI patients were shown to have a lower short-term mortality (10% versus 20%) but higher long-term mortality (32% versus 26%). The increased long-term mortality was related to the higher incidence of re-infarction; with a significant fatality rate (Gibson, 1988).

In view of their high risk for re-infarction, it is especially important to conduct an accurate ongoing assessment of patients with a Non-Q Wave MI for symptoms of spontaneous or provokable (work induced) ischemia in order to proceed with angiography and possible revascularization. It is therefore essential to receive accurate, timely reports of cardiac symptoms from these individuals.

The Time Delay Process

Delays in seeking treatment were related to the decision-making process during which the patient decides the symptoms are significant and warrant medical assessment. This process was broken down into three distinct, cognitive components;

1. Perception of the symptoms
2. Acknowledgment of the possible significance of the symptoms
3. Realization that medical treatment should be sought (Moss, Wynar & Goldstein, 1969)

A study of sixty-four patients with a diagnosis of a definite or probable acute MI and admitted to a coronary care unit was conducted to explore the time intervals and time delays during the pre-hospital period of their illness (Moss, Wynar & Goldstein, 1969). Fractionation of the delay time revealed that the majority of the delay time was attributed to the time it took for the individual to decide their symptoms were possibly cardiac in nature and should be assessed in an Emergency Department.

Potential variables that may have prolonged the decision making process were explored in this and subsequent studies. A summary analysis of these variables follows.

Two variables which were explored in various studies, were age and sex. The results of one study supported the contention that decision time increased with age and was longer in women than in men (Moss, Wynar & Goldstein, 1969). The results of a different study were incongruent with these findings. More specifically, Hackett & Cassem, in 1969, conducted a retrospective analysis of the delay times of 100 randomly selected patients who had been admitted to a coronary care unit with a

diagnosis of suspected or proved acute MI. The results of this study did not support a significant correlation between delay time and age or sex. Similarly, Simon & Feinleib, in 1972, conducted a retrospective analysis of 160 MI patients, the results of which also disputed the existence of a significant relationship between age or sex and delay time.

During the course of their study, Simon and Feinleib also explored the relationship of several other variables and delay time. The results of their study did not support a significant relationship between delay time and occupation, socioeconomic status or the presence of preexisting heart disease.

Other studies were conducted to explore the possible relationship of additional variables to delay time. No significant relationship was found between education and delay time, (Moss, Wynar & Goldstein, 1969). The results of this study did support a relationship between the time of day during which the symptoms appeared and the delay time. Individuals experiencing symptoms during the day had a longer delay time than from the period six P.M. to midnight. This difference in delay time was attributed to the existence of numerous distracters during the day, such as the demands of the work environment. These distracters served to decrease the perception of the symptoms, thereby increasing the probability of attributing them to a benign origin. The results of this study did not support the existence of a significant correlation between the decision time and who the individual was with when the symptoms were experienced. The results of Hackett & Cassem's study, in 1969, contested this somewhat, by supporting a correlation between the presence of a stranger with the individual experiencing symptoms and the subsequent delay time. They found that the delay time was significantly decreased when a stranger was present in comparison to the presence of the individual's spouse. No definitive rationale for this correlation was given.

It was also determined that individuals with stereotypical, dramatic cardiac symptoms, i.e. crushing chest pain, also sought treatment more readily than those with more subtle symptoms. This finding was substantiated by the work of Hackett & Cassem, in 1969. Hackett & Cassem, found that the severity of the distress associated with the cardiac symptoms correlated to delay time. Profound distress and anxiety, such as that caused by severe dyspnea, prompted the individual to seek medical attention more readily than more subtle indicators. This was attributed to the profound panic and fear of death associated with these symptoms.

It is of interest to note that the studies did not support the contention that individuals with preexisting heart disease present more readily for treatment, than someone with no known cardiac history (Hackett & Cassem, 1969). This was attributed to the false sense of security these patients experience due to the past success of self treatment modalities such as sublingual nitros and cessation of activity. These individuals tended to wait longer in hope that the symptoms would respond to treatment (Green, Moss & Goldstein, 1974).

It was also found that many individuals experienced discernible, prodromal symptoms which were disregarded or considered inconsequential (Simon, Feinleib & Thompson, 1972). These symptoms were described in detail by Killip et al, in 1968, as some what subtle in nature and easily attributable to relatively benign factors. For example, an individual might experience general fatigue or slight shortness of breath with exertion. These symptoms could easily be attributed to other causes such as insufficient sleep or various cardiac medications, such as beta blockers. These subtle warning signs were often attributed to these factors or by virtue of their nonobtrusive nature, were considered inconsequential, and simply ignored (Simon, Feinleib & Thompson, 1972).

The Role of Denial in Relation to Delay Times

The role of denial in relation to delays in reporting of cardiac symptoms remains controversial. The concept of denial was addressed as early as 1885 and was first described as a defense mechanism by Anna Freud. She described defense mechanisms as almost instinctive responses to danger, serving to decrease a threatening reality and allowing the individual to function within a less stressful psychic framework. Denial was found to be the most common defense mechanism utilized by patients with a MI (Hackett & Cassem, 1973). The mechanism was found to be most effective in reducing anxiety and was associated with a better in hospital prognosis, but poorer survival rate over the course of one year (Hackett & Cassem, 1973). The short term benefits were related to a reduction in the physiological manifestations of stress, which are associated with increased myocardial oxygen requirements. Long term detrimental effects of prolonged denial utilization were related to impaired development of the problem solving capabilities which are necessary to deal with the chronic aspects of heart disease (Levine, Warrenburg, Kerns et al., 1987).

The results of various studies have supported the contention that denial serves to increase delay time (Levine, Warrenburg, Kerns et al, 1987; Thompson, 1989; Smith, 1988; Forshee, 1986; & Hackett & Cassem, 1969). Olin & Cassem, in 1964, proposed that all individuals experiencing cardiac symptoms utilize denial as a defense mechanism, albeit to varying degrees. These results are challenged by those of several other studies, the results of which do not support the contention that denial serves increase the delay time (Wielgosz A. et al, 1988; Goldstein S., & Greene W., 1972).

The results of a study conducted by Green, Moss & Goldstein, in 1974, supported the contention that while denial may play a part in increasing delay time, a diversity of psychological reactions to the symptoms, including rationalization, displacement, magical thinking and at times, conscious avoidance of reality may more accurately represent contributing variables. They also identified fear of helplessness as a significant factor delaying reporting of symptoms. Recommendations arising from this study included counseling by the physician of all high risk cardiac patients and their spouses, explaining the likely eventuality of another infarct and stressing the importance of obtaining prompt medical attention for possible cardiac symptoms.

The narrow perspective within which the concept of denial has traditionally been defined has also caused some concern (Wielgosz, 1991). The question was raised whether the concept has been oversimplified and therefore lacks a precise definition. Concerns were expressed regarding the context in which the concept is utilized. More specifically, it is often unclear as to what the patient is actually denying (e.g. the disease process, future implications). This is not clearly delineated. A need to establish an operational definition of the concept was identified and this goal has yet to be accomplished (Hackett & Cassem, 1972). Lack of a clear operational definition continues to weaken the ability to extrapolate and compare research findings.

Variation in Sensitivity to Bodily Sensations and Emotions

Variation in sensitivity to bodily sensations and emotions has also been cited as a factor delaying entry to the health care system (Kenyon, Ketterer, Gheorghiade & Goldstein, 1991). In a study involving 103 MI patients, individuals with a high somatic and emotional awareness presented at hospital sooner after onset of symptoms than those with low emotional and somatic awareness (low emotional awareness median delay, 12.8 hours; high emotional awareness median delay, 3.8 hours; low somatic awareness median delay, 7 hours; high somatic awareness median delay, 4 hours). It was proposed that identification of high risk individuals with these tendencies and implementation of related educational strategies might decrease delays in reporting of symptoms and facilitate earlier initiation of treatment (Kenyon, Ketterer et al, 1991). Wielgosz and Nolan, in 1991, challenged the lack of dimension of this study, citing the importance of maintaining a broader perspective, one which acknowledges the importance of determining how situational and environmental factors affect delay time. Most research concerning delay times has minimized the significance of these factors, focusing mainly on the cognitive/emotional processes related to the interpretation, acknowledgment and reaction to cardiac symptoms. Weilgosz and Nolan expressed concern that this approach neglected to examine the influence of some very concrete contextual factors. They cited a need to explore in greater detail the situational and social/psychological factors (e.g. availability of transportation to the Emergency Department for the elderly), which may delay reporting of symptoms. If this need is extrapolated to the acute care setting, it would also be important to examine the context in which decisions are made by the patient and not just the cognitive components. Recommendations arising from this study included the development of a multicomponent assessment strategy to be utilized within a multidisciplinary approach in order to modify the patient's awareness of cardiac symptoms.

Symptoms of Myocardial Ischemia/Infarction

In addition to denial and variation in somatic perception, the sometimes ambiguous nature of cardiac symptoms was cited as contributing to delays in the identification, acknowledgment and reporting of symptoms. Cardiac symptoms manifest in a wide array of characteristics. While the more dramatic symptoms, such as crushing central chest pain, are easily identifiable, there is a plethora of subtle indicators which may mimic other physical ailments.

The most typical indicator of a myocardial infarction is chest pain and this is the symptom most generally perceived by the general public, as indicative of a heart attack. However, a significant percentage of patients experience more subtle indicators of cardiac ischemia. The results of one study identified that 54% of acute MI patients presented with a dull, pressure-like discomfort, whereas 19% of patients with an infarction had a sharp or pleuritic discomfort (Tierny et al, 1986). The results of another study cited that 23% of patients complained of burning or indigestion (Lee et al, 1969). Cardiac ischemic pain may also manifest in a diversity of locations within the body such as the jaw, back, teeth, neck or shoulders. Associated manifestations may include dyspnea, weakness, diaphoresis, vomiting or diarrhea. In a study conducted by Uretsky & collleagues, in 1983, symptomatic Myocardial Infarction without chest pain was identified in approximately one quarter of 102 patients admitted to the hospital, and 14 had acute or suddenly progressive dyspnea as the presenting symptom.

Atypical, subtle indicators of cardiac ischemia are most prevalent in individuals over the age of 65 and may serve to increase delays in identification and initiation of treatment. There is an increased incidence of vague ache or discomfort in the throat, shoulder or abdomen as opposed to the more typical dramatic presentation of central chest pain

(Thompson, Wood & Wallhagen, 1992). There is also evidence to suggest that the elderly tend to report less pain, which further complicates accurate diagnosis (Hazzard, Andres, Bireman et al, 1990). The pathophysiology of these atypical indicators in the elderly is multifactorial and may include the following;

1. Diabetes mellitus and associated peripheral neuropathy may diminish the perception of pain (Parmley, 1989)
2. Elderly persons with hypertension may experience an altered pain threshold related to increased opiate receptor affinity or increased opiate binding, (Miller, Sheps, Bragdon, et al, 1990)
3 Widespread autonomic nervous system dysfunction may alter pain perception (Bayer, 1988; Acharya, 1991)
4. The significance of pain as a presenting symptom may be confounded by the presence of other symptoms such as syncope, confusion or dyspnea (Bayer, 1988)

Bayer also identified that dyspnea, as opposed to chest pain, may be the major symptom of an acute myocardial infarction in patients 85 years or older.

In view of the diversity of cardiac symptoms, the efficacy of utilizing a nomenclature when assessing patients, based on stereotypic cardiac symptoms such as crushing chest pain appears questionable. The literature does not address this potential problem.

Summary of the Literature Review

Research has traditionally focused on delay times related to acknowledegement of symptoms of an MI and the decision to seek medical attention at an Emergency Department. This research provides valuable insights concerning the decision making process by which an individual decides symptoms are significant and require medical interventions.

Various factors have been studied in terms of whether they contribute to the delay time and if so, to what extent. Further study is warranted in this area, for while several correlations have been established, most results were counterpoised by other conflicting research findings.

The role of denial in the decision making process remains controversial and the concept needs to be more clearly defined. Further research regarding this concept is warranted.

The interaction of multiple variables from the cognitive/emotional domain in conjunction with situational factors needs further exploration. This type of research has been recommended and remains to be pursued.

CHAPTER THREE: METHODOLOGY

Qualitative Methodology

Qualitative research methodology has been utilized in this study. Qualitative research refers to the full description, documentation and explication of a phenomenon (Leininger, 1985). Several themes dominate qualitative methodology. Firstly, qualitative designs are naturalistic, in the sense that manipulation of variables is not the intent. Secondly, inductive analysis permeates the design, with the intent of exploration, discovery and inductive logic. Thirdly, fieldwork is a hallmark of qualitative research, with emphasis on contact with individuals within the natural setting. Finally, qualitative methods promote a holistic, dynamic, developmental perspective that acknowledges the fluidity of experience and life (Patton, 1987). Additionally, the importance of social, cultural, environmental, economic and spiritual influences is acknowledged in conjunction with the individual's interpretation of life phenomena. This emphasis is congruent with the purpose of the study and the basic premises of symbolic interactionism, which serves as the conceptual framework for the study. Interpretive phenomenology is the specific type method methodology as the philosophical basis and analytical framework for the study. Ethnographic methods of inquiry guide the data collection process. These strategies were fully explicated and rationalized.

Interpretive (Hermeneutic) Phenomenology

Phenomenology is a qualitative research method that was first introduced in 1900 by Edmund Husserl. Husserl was a European philosopher who defied the positivist-empiricist approach, which relegated legitimate research to the realm of factual, context-free truths (Leininger, 1985). He sought to introduce humanism into research by means of a process designed to explicate the meaning of experience within the accompanying contextual structure. All the rigors of scientific research were attributed to this process.

Phenomenology addresses the concept of reality as being determined by subjective factors (Panty, 1962). Interpretive or hermeneutic phenomenology is grounded in the work of Heidegger and is a holistic approach heralding the accurate portrayal of individuals within the context of their life experiences. The researcher seeks to capture an intricate cross section of life replete with comprehension of its meaning to the individual (Benner, 1985). Heideggerian phenomenology portrays the individual as self-interpreting. The nature of self-interpretation, or the meaning of life experiences is at least partially determined by language, culture and history.

The goal of this particular research approach is to understand the meaning of the experience of health and illness. The basic tenets of this approach are therefore congruent with the purpose of this study.

Analytic intuition initially guides the researcher along paths of inquiry serving as the catalyst for the formation of verifiable thematic perceptions. The goal of interpretive phenomenology is to depict the meaning of life experiences. These meanings are discussed with the patients in order to verify their accuracy.

The patient's response to a situation is largely predetermined by an inherent host of intrinsic factors termed the "background" (1985, Benner). It is not possible to explicate all factors, since some will be retained within a subliminal cognitive domain. Therefore the patient, the situation and the "background" were explored in terms of an inexplicable interaction, acknowledging a definite fluidity and interdependence.

Ethnography

An ethnographic approach to data collection were utilized. Ethnographic inquiry was originally utilized in anthropological studies conducted by Franz Boas (1920), Margaret Mead (1929) and B. Malinkowski (1922). Native cultures were studied within their own environment with the intent of obtaining rich, comprehensive data obtained by listening to what people say and observing how they act.

Patient Interviews

Ethnographic interviews were conducted. Flexibility in order and approach were allowed in order to facilitate exploration of themes emerging from the context of the interview.

Field notes were taken throughout the interview. The primary data of the interview are in quotations; what people relate about their thoughts, feelings, perceptions and experiences. Every intent was made to capture the actual words of the person being interviewed in order to accurately understand their perspectives and experiences. Although tape recording would be the ideal method to capture responses, it was deemed to be too intimidating, intrusive and potentially inhibiting a tactic to be utilized. Observations and contextual notations will also be recorded during the interview; Other

documentation will include nonverbal cues, where the interview occurred, who was present, how the interviewee reacted to the interview and any information that would help establish a context for interpreting and making sense out of the interview. Interview notes were reviewed and reflected upon immediately after the interview. Ambiguities were identified and then clarified with the patient.

The ethnographic interview was chosen because it is a non-threatening method of inquiry; incorporating certain elements of a friendly conversation. This is of significance, since the interview were conducted on cardiac patients, to whom anxiety and the associated sympathetic nervous stimulation/increased myocardial oxygen consumption, could be detrimental.

Three essential elements of the ethnographic interview are: the purpose, ethnographic explanations and ethnographic questions (Spradley, 1979). At the onset of the interview, its purpose was reviewed. This was discussed when the consent was obtained and it was reiterated in order to set the focus for the discussion.

Five types of explanations were used; project, recording, native language, interview and question. An initial explanation concerning the project was given. This was given in very general terms. An explanation was also given about how the interview will be recorded, in this case by means of field notes. The patient was asked to utilize language they normally utilize and not to try to translate their descriptions into unfamiliar medical terms. They were asked to describe their cardiac symptoms as if they were speaking to a spouse or peer. This is important since the intent of the ethnographic interview is to capture the essence of experience within the subject/patient's own terms. As the interview progressed there was a need to remind the patient as to its purpose.

Question explanations were also given to clarify the purpose of a certain change in direction by the researcher.

There are numerous types of ethnographic questions which are actually communication techniques designed to explicate and clarify the subject's communication. Three main questions are: descriptive, structural and contrast. Descriptive questions were utilized to gain a greater understanding of the patient's language. An example of this type of question that was asked is, "Can you describe in your own words what you felt during your heart attack?" Structural questions were utilized if the patient has described a number of items and it would be important to understand if they are perceived in particular domains or conceptual groupings. Contrast questions were utilized to clarify differences between things that the patient has described.

The Interview Guide

This guide served as a template for the discussion. The patient were encouraged to proceed in a natural fashion, utilizing familiar language.

1. Can you describe how your felt when you were having your heart attack?

2. Have you had similiar symptoms or feelings at any other time during this hospitalization?

3. (If yes to number 2) Did you tell someone about the feelings as soon as they occurred?

4. (if no to number 3) Can you tell me why you waited to tell someone about the feelings?

5. (If yes to number 3) What made you tell someone about your feelings soon after they occurred?

These questions served as the basis for the inquiry and are purposefully simplistic. The nature of the patient's responses determined the actual course of the interview, with the researcher serving to support, encourage and clarify the reality so described. Ethnographic methods were utilized to facilitate full explication of the nature of the cardiac symptoms and what factors contributed to the delay times.

Investigator as Instrument

The researcher wias considered the instrument of data collection in this study. Several concerns have been raised regarding this type of instrumentation. Firstly, it has been postulated that the nurse's perceptions formed during clinical experience cannot be sublimated during the research process and may be a source of bias during data analysis.

While the possibility of personal bias is acknowledged, the goal of absolute objectivity is relegated to the realm of ethereal optimism. This goal is counterpoised with the very realistic possibility that the nurse's clinical insights may serve to enhance, rather than confound accurate analysis. Therefore, rather than negating the validity of this instrument, steps designed to maximize objectivity were instituted. More specifically, the process of "bracketing" was engaged prior to data collection. This process involves the conscious abeyance of predetermined conceptual limits, allowing the patient to

describe reality as it is truly perceived, and enabling the researcher to creatively comprehend this reality from the patient's perspective.

Study Setting

The study took place on the Progressive Care Unit of an acute care facility. The patients on this unit usually require Telemetry and are admitted for some type of suspected or confirmed cardiac event. The majority of the patients on the unit are diagnosed with Arrhythmias, a MI, congestive heart failure or are admitted to rule out a MI.

Sample:Patients Participating in the Study

The sample of patients interviewed was selected by the researcher in a purposive fashion. Criteria for selection included;

1. Admission to the hospital
2. Diagnosis of Myocardial Infarction
3. Ability to communicate effectively during an interview process
4. Physiologically stable status
5. Experienced cardiac symptoms other than those associated with the admission MI

The sample size was eight patients. Interviews were conducted until eight patients who had cardiac symptoms after the hyperacute event were interviewed.

Data Collection

Data was collected by means of interviews with patients and from their charts. Obtaining data by different methods is termed multiple triangulation, a process that will serve to enhance the scope and dimension of the data. The data from the two sources was examined for consistencies and or areas of controversy. The intent of this "across method" triangulation is to achieve convergent validity and to provide a means by which to offset the deficiencies of one method with the strengths of another. In this particular study, potential bias factors such as inaccurate recall, stereotypic answers and formation of socially desirable answers associated with retrospective self-report methods were at least partially offset by reviewing the chart for documentation of the patient's behavior and/or comments.

Data Analysis

Initial analysis of the data, while still vivid in context and content, was conducted during the immediate post interview period. If patterns or themes emerge, they were recorded for future reference.

In accordance with the Hermeneutic approach to data analysis, the following process was pursued. Firstly, data from the interviews and observations was systematically analyzed as a whole. Then, parts of the text were analyzed, compared and contrasted. Areas of agreement and/or controversy were delineated and explored, in relation to parts of the text and from a holistic perspective. Themes, questions and issues became evident from this process.

Three specific strategies were utilized to facilitate full explication and analysis of the data; paradigm cases, exemplars and thematic analysis. Paradigm cases refer to cases with remarkable clarity of meaning or illustration of thought. They were utilized somewhat as a standard of comparison and provide direction in further investigation. Exemplars, refers to cases of vivid depiction of the patient within the experience. Both paradigm and exemplar cases provide emphatic presentation of the context, the intentions of the patient, and the meaning of the experience (Benner, 1985). Thematic analysis refers to the identification and analysis of commonalties of experience or perceptions. Field notes were taken throughout the interview. The primary data of the interview is in quotations.

Truth Value; Credibility

The truth value or credibility of this study was verified by the subject. The researcher sought to portray a cross section of life, in this case, the experience of cardiac symptoms. This portrayal was validated by the subject as being an accurate account of self-determined reality (Gubas & Lincoln, 1981). The credibility was also confirmed by an expert in this particular methodology.

Applicability: Fittingness

The "fittingness" of the findings were verified (Sandelowski, 1986). The term "fittingness" is closely related to external validity, which is established in quantitative research. However, while external validity refers to the systematic control of representative sampling, testing and testing situations, fittingness refers to the degree to which the results of the study reflect the subject's perception of reality.

The fittingness of this study was established by determining; (1) the degree to which the results of the study can "fit" into other similar contexts, (2) consensual acceptance of the results as representative of experience (3) the rational emergence of the descriptions from the data (Sandelowski, 1986).

Auditability

Auditability as opposed to reliability was established in this study. Reliability, or the ability to reproduce tests or the testing procedure, is not reasonable to pursue in this study because variables were not manipulated and tests were not be conducted. To the contrary, the study involves a retrospective analysis of human behavior and perceptions within a range of contexts. This logical progression of this analysis was audited by another researcher in order to verify the "decision trail" used by the investigator (Lincoln & Guba, 1981).

Ethical Considerations

This study was conducted in collaboration with the patient. The patients were perceived as valuable contributors to the study. Their needs, feelings and state of being were acknowledged at all times. If a role conflict arose, wherein it was important to the patient's health to function as a nurse, as opposed to that of researcher, that was done without question. In other words the patient's condition was considered paramount to the procurement of data for the study.

A verbal and written explanation of the study was given to all prospective participants. The explanation included;

1. The purpose of the study
2. Technique for data collection
3. Role of the prospective research subject
4. Projected benefits of the study for the subject and other individuals
5. Mechanisms to ensure confidentiality
6. Time requested of the subject
7. Right of the subject to withdraw from the study at any time

A copy of the consent form was given to the subject and it included the researcher's name and telephone number. The subject was assured that any questions regarding the study were welcome and were addressed accordingly. Confidentiality was maintained by assigning each participant a code, which was known only to the investigator. All field notes and transcribed data were kept in a locked file.

Method and Design

This is a phenomenological qualitative research study. Ethnographic methods of inquiry guided the data collection process. Interviews were conducted until data was collected from eight post myocardial infarction patients who experienced cardiac symptoms after the hyperacute event. These patients were located on a Progressive Care Unit.

The sample of patients to be interviewed were selected by the researcher in a purposive fashion. Criteria for selection included;

1. Admission to the Progressive Care Unit
2. Diagnosis of myocardial infarction
3. Able to communicate effectively during an interview process
4. Physiological/psychological stable status

Patient meeting these criteria were approached by the researcher. The credentials and affiliations of the researcher were discussed. A brief description of the study was given and the contents of the consent form were reviewed with the patient.

An interview guide was utilized as a framework for the patient interviews. Flexibility in order and approach was allowed with the intent of enabling the exploration of themes emerging from the context of the interview.

Data Collection

Field notes were taken throughout the interview. The primary data of the interview is in quotations; what people relate about their thoughts, feelings, perceptions and experiences. Every intent was be made to capture the actual words of the person being interviewed in order to accurately understand their perspectives and experiences. Observations and contextual notations were recorded during the interview; Other documentation included nonverbal cues, where the interview occurred, who was present, how the interviewee reacted to the interview and any information that help establish a context for interpreting and making sense out of the interview. Interview notes were reviewed and reflected upon immediately after the interview. Ambiguities were identified and the clarified with the patient.

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CHAPTER 4: RESULTS

Process Summary

Interviews were conducted with eight patients meeting the criteria specified for inclusion in the study. The interviewer ensured that the four basic questions specified in the methodology were addressed in all the interviews. The interviews were compared with regards to these and other emergent data sets. The direction and subsequent content of the interviews were determined by potential opportunities for obtaining new data, enrichment/triangulation of existing data sets and/or confirmation of emergent themes.

Detailed field notes were recorded during the interviews. The content of the field notes included a description of the setting, records of other individuals present in the room at the time of the interview, notations of the nonverbal behavior of the patient and any other contextual variables. Data which was superficial, irrelevant to the topic or repetitive in nature was deleted on an ongoing basis. The data was thereby continuously refined into meaningful units for more detailed analysis.

New incoming data was analyzed in terms of conceptual congruency with emergent themes. The boundaries of the themes were refined and delineated within this process until the redundancy of ongoing data analysis became apparent.

A clinical nurse specialist was engaged as a peer debriefer. She reviewed the data on a regular basis. The peer debriefer posed probing questions regarding possible interviewer bias, ensured that categories were well delineated and that the themes were logically determined and grounded in the data.

Detailed analytic notes were maintained in order to review the trail of analysis with the clinical expert. The thought processes of the researcher and rationale for methodological decisions were also documented. Self awareness time was factored into the data analysis. Any possible preconceptions or personal convictions were documented not only to alert the auditor for possible interpretive preferences, but as a consistent concrete, visual reminder to utilize techniques facilitating rigorous objectivity. This facilitated the ability of the auditor to analyze the lines of inquiry and the logistics of decisions made with regards to delineation of the themes.

Emergent Themes

Two major themes emerged from the data. They were grounded in the data and verified by the patients. The clinical nurse specialist confirmed the validity of the audit trail and supported the inductive reasoning by which the themes were determined.

Introduction to the Themes

Theme #1: The Cognitive Decision Making Trail

The first theme is based on a cognitive decision making process utilized by the patients in order to determine the need for medical attention after the onset of their symptoms. This process was utilized by all the patients, regardless of where the symptoms occurred (n the community or in the hospital). The patients identified a number of factors influencing the time delay between the onset of symptoms and the seeking of medical attention. Some of these factors were not well triangulated by the data and require further confirmation.

Theme # 2: Inaccurate Description of Cardiac Symptoms by Healthcare Professionals

The second theme is based on the lack of individualized, patient focused inquiry concerning cardiac symptoms. At the time of admission to the hospital, all the patients were channeled into the same prescriptive system of assessment, monitoring and documentation practices. This system was developed to address the needs of the "typical" cardiac patient. The term "typical" refers to the patient experiencing stereotypic, severe chest pain. The system did not facilitate full explication, documentation and communication of symptoms within terminology that was clearly understood by the patient. The diversity and sometimes subtle nature of cardiac symptoms was not fully acknowledged within the confines of the system. For example, the patient's comprehensive description of their symptoms, were sometimes transcribed into less precise diagnostic language, generic categories or incomplete renditions. Nurses routinely assessed patients for the presence of chest pain or shortness of breath, regardless whether these were the presenting symptoms. The patient did not clearly understand which symptoms were to be considered significant. Data from the patient interviews will illustrate variances in the description of the patient's cardiac symptoms by health care professionals. Related implications for patient outcomes will be delineated in relation to this practice.

Data Supporting the Delineation of the Themes

Relevant information from each patient's history and experience will be described in the following section. In this manner, the specific data base from which the themes emerged will be delineated.

Patient #1

Introduction

Patient #1 was a 56 year old man with no known history of heart disease. He was diagnosed with an acute inferior myocardial infarction.

The Patient's Description of the Symptoms

The patient awoke with a headache and persistent chest ache. He later broke out into a sweat.

Interpretation of the Symptoms and Time Delay

The patient attributed the headache, ache in chest and sweats to the "flu". He identified feeling fatigued for about a week prior to this episode and interpreted this to be related to insufficient rest. Interpretation of the symptoms as related to the flu accounted for the nine hour delay in presentation at the ER. The patient's son was worried about the chest ache and convinced him to go to the ER.

Reoccurrence of the Symptoms

This patient experienced two episodes of the same type of chest "ache" after admission to the hospital. These occurred while he was on a medical unit. He did not report the symptoms because they were not severe and he was hoping that they might go away if he waited "just a little longer". The patient acknowledged an inner fear that the symptoms were indicative of further cardiac damage. However, the thought of having

to deal with a confirmation of this fear was so anxiety provoking that denial of their possible significance was a less threatening alternative.

The Healthcare Professionals' Description of the Cardiac Symptoms

The ER physician documented the patient's symptoms as "midsternal chest pain radiating to the arms bilaterally". The Internal Medicine physician described the presenting symptom as "chest pain". The Cardiologist described the patient as experiencing "chest pain, feeling unwell and becoming diaphoretic". Review of the nurses' documentation revealed a consistent documentation during each shift confirming "no complaints of chest pain or shortness of breath".

The patient related that the nurses and physicians repeatedly asked if he had any chest pain or shortness of breath. He never experienced anything that he would normally classify as "painful", rather more attune to an ache. Therefore, he questioned the significance of his symptoms and was reluctant to report them for fear of being uncomfortable or embarrassed with the response from the nursing or medical staff.

Patient # 2

Introduction

This patient is a 72 year old man with a history of Angina. He had an Angioplasy in June, 1995 for Right Coronary Artery Disease. He was admitted with a diagnosis of a subendocardial MI.

The Patient's Description of the Symptoms

The patient experienced a feeling of fullness, indigestion, persistent belching and a central, nagging chest pain.

The Patient's Interpretation of the Symptoms and Time Delay

The patient did not believe his symptoms were related to the heart because they mimicked those previously experienced with indigestion. Additionally, the cardiac symptoms he experienced prior to his angioplasty were significantly different. This further validated this interpretation.

Six hours elapsed between the onset of the symptoms and presentation at the ER. Part of the delay was incurred when, after four hours, the patient decided to phone an advice nurse. One hour was spent waiting for the nurse's response. She advised the patient to go to the ER if the "pain" did not disappear after two nitros. The patient took the two nitros with no noted effect.

After an additional hour he proceeded reluctantly to the ER, unsure of his decision because he was not experiencing what he normally perceived as significant "pain".

Reoccurrence of the Symptoms

This patient did not experience any reoccurrence of the symptoms while he was in the hospital.

The Healthcare Professionals' Description of the Symptoms

The ER physician documented the patient's symptoms as " nagging chest pain". The Internal Medicine physician documented the presenting symptoms as "symptoms of Angina" and this same descriptor was utilized by the Cardiologist. The nurses' progress notes reflected a consistent shift notation reflecting "no complaints of chest pain or shortness of breath".

Patient #3

Introduction

Patient #3 is a 48 year old man with no known cardiac history. He was an active cycler whose only risk factor was borderline hypertension. He was diagnosed with a non-Q Wave MI.

The Patient's Description of the Symptoms

This patient experienced a headache in addition to mild chest pressure. The symptoms were severe enough to wake him from sleep.

The Patient's Interpretation of the Symptoms and Time Delay

The presence of the headache prompted his conclusion that the symptoms were not likely cardiac in origin. The patient attempted to minimize the symptoms by going to work. He cited the demands of the workplace as diminishing the perception of the symptoms. The patient cited an increase perception of the intensity of the symptoms

when he returned home from work. He also took an aspirin in an attempt to relieve the headache. As the symptoms persisted, the patient's wife, who is a nursing student, insisted that they go to the ER for assessment. By the time the patient reached ER he was pain free and no longer had a headache. A time delay of eleven hours was incurred between the onset of the symptoms and the seeking of medical attention.

Reoccurrence of the Symptoms

This patient did not have a reoccurrence of the symptoms while he was in the hospital.

Health Care Professionals' Description of the Cardiac Symptoms

The ER physician documented the patient as experiencing "dull chest pressure". Internal Medicine's documentation described the patient as experiencing "chest pressure". The Cardiologist documented the symptoms as "retrosternal midchest pressure". The nurses' documentation reflected a shift note referring to " no complaints of chest pain or shortness of breath."

Patient # 4

Introduction

This patient is a 82 year old man with no known history of Coronary Artery Disease. He has a history of Insulin Dependent Diabetes Mellitus x 30 years, Renal Insufficiency and Hypertension. For the past year he has experienced dyspnea on exertion.

The Patient's Description of the Symptoms

This patient experienced shortness of breath.

The Patient's Interpretation of the Symptoms and Time Delay

The patient called 911 two hours after the onset of shortness of breath, because the symptom became very distressing. At this time the shortness of breath was associated with feeling of panic and imminent death.

Reoccurrence of the Symptoms

The patient experienced two episodes of shortness of breath after admission to the hospital, while he was on a medical unit. He did not report them because he thought they were not severe enough to warrant reporting.

Health Care Professionals' Description of the Cardiac Symptoms

The ER physician documented that the patient experienced "flash pulmonary edema". The Internal Medicine physician and Cardiologist documented the patient experiencing "acute onset of dyspnea". The nurses' progress notes reflected documentation during each shift with reference to "no complaints of chest pain or shortness of breath."

Patient # 5

Introduction

Patient #5 is a 63 year old woman with a history of angina. She was admitted with a diagnosis of acute inferior MI.

The Patient's Description of the Symptoms

This patient was attending a Fibramyalgia meeting in the hospital at the time the symptoms were initially experienced. As part of the proceedings, they went for a six minute walk. During this time she experienced shortness of breath and central chest pain.

The Patient's Interpretation of the Symptoms and the Time Delay

The patient interpreted the symptoms as indicative of Angina. The facilitator of the meeting insisted that she proceed to ER immediately for assessment. The patient did so reluctantly.

Reoccurrence of the Symptoms

The patient experienced similar chest pain two times while on a medical unit. She did not report the symptoms because she did not want to bother the nurses and felt if she lay still they would go away. She had also experienced numerous episodes of chest pain in the past, related to the angina, and assumed these would also dissipate with time and rest.

Healthcare Professionals' Description of the Symptoms

The ER physician documented the patient as presenting with "chest pain". The Internal Medicine physician's documentation described the patient as experiencing an " acute onset of angina". The Cardiologist documented that the patient presented with "anginal discomfort". The nursing staff documented on the progress notes that the patient had "no complaints of chest pain or shortness of breath".

Patient # 6

Introduction

This patient is a 45 year old man. He was diagnosed with an acute inferior MI. He had experienced periods of burning chest pain with radiation to the left with exertion for about one week prior to his MI. He was diagnosed with angina and given a prescription for sublingual nitroglycerin. He consumed several a day in response to the exertional chest pain.

The Patient's Description of the Symptoms

The patient experienced a burning central chest pain which radiated to the left. This was experienced at rest.

The Patients Interpretation of the Symptoms and Associated Time Delay

The patient interpreted the pain as angina. He obtained limited relief from the sublingual nitroglycerin. A delay of six hours was incurred because he was unsure if he should take more nitros, wait longer to see if they would help or proceed to an ER.

Healthcare Professionals' Description of the Symptoms

All the physicians (ER, Internal Medicine, Cardiology) documented that the patient presented with "chest pain". The nurse's' documentation reflected that the patient had "no complaints of chest pain or shortness of breath".

Patient # 7

Introduction

This patient is a 56 year old man with a diagnosis of an acute anterior MI. He has a history of an angioplasty for right coronary artery disease. He had an angiogram ten months prior to the onset of his symptoms and was told that it was essentially normal.

After the angioplasty the patient adhered to a strict, low cholesterol diet, implemented a daily exercise routine and lost the recommended amount of weight. He felt in control of the situation and planned on minimizing the chance of imminent disease progression.

The Patient's Description of the Symptoms

The patient experienced a sudden onset of left sided chest pain. He also felt very gaseous and belched repeatedly.

The Patient's Interpretation of the Symptoms and Associated Time Delay

In view of his healthy lifestyle and relatively recent normal angiogram, the patient felt quite confident that the symptoms were due to indigestion. However, he thought it

prudent to take a sublingual nitroglycerin in order to see if it would effect any change in the symptoms. After the nitro, he became very faint and his wife called 911.

Reoccurrence of the Symptoms

The patient received TPA and was admitted to the Intensive Care Unit due to persistent arrhythmias. The patient experienced a persistent chest "ache" while in the Intensive Care Unit. He was not sure if this was significant, because it was of such limited severity that he felt that if he was active or at work, it would not be perceived. He reported this ache to the nurse. No treatment was initiated, so he did not mention its persistence. This ache continued for approximately eight hours. The patient was concerned that he would be perceived as over-reactive if these symptoms were repeatedly reported to the staff. The patient identified a sense of surreality, whereby, his normal feeling of stability and confidence was suddenly replaced by fear, lack of dignity and vulnerability.

The Healthcare Professionals' Description of the Symptoms

The ER physician documented that the patient presented with "mild midsternal chest pain with radiation to the left shoulder". The gastric symptoms were not identified. The Internal Medicine physician documented that the patient experienced "left sided chest pain". The Cardiologist documented that the patient experienced "mild midsternal chest pain". The nurses on one shift documented the presence of “chest pain” while the patient was in the Intensive Care Unit. The rest of the documentation describes the patient as "pain free" with "no shortness of breath".

Patient # 8

Introduction

Patient #8 is a 71 year old man. He was diagnosed with an inferior MI. He has no known history of coronary artery disease.

The Patient's Description of the Symptoms

The patient experienced mid-chest pressure that extended into his left shoulder. He described the feeling as similar to a "sore muscle". Associated with the pressure was a significant amount of abdominal distention and belching.

The Patient's Interpretation of the Symptoms and Associated Time Delay

Based on these combination of symptoms, the patient attributed them to the flu. After 20 hours, the severity of the symptoms increased and he proceeded to an ER.

Reoccurrence of the Symptoms

This patient did not experience any reoccurrence of the symptoms.

The Health Professionals' Description of the Symptoms

The ER physician documented that the patient presented with "chest pain, neck pain, diaphoresis, shortness of breath and that he was "burpy". The Internal Medicine physician described the patient as presenting with "chest pain and pressure across the chest". The Cardiologist documented that the patient presented with "chest pain". The

nurses documented that the patient was "pain free with no shortness of breath" and that he denied an "discomfort".

Theme # 1: The Cognitive Decision Making Trail

A decision making trail was derived from the preceding data set. The steps in this trail were confirmed by the patients as an accurate portrayal of their experience. It should be noted that the logistics of making a decision based on experience and data, was complicated by the emotions experienced by the patients. The patients cited that their clarity of thought with regards to the most appropriate, safest course of action was clouded by feelings of anxiety and fear, especially if the symptoms persisted for a long time. The anxiety or worry about the symptoms, if they were not severe, served initially as a deterrent to the seeking of medical attention. At that point in time, the thought of having to go to the hospital and the possibility of something serious being diagnosed, prompted denial of the most frightening explanation and adherence to a more benign, less anxiety provoking conclusion. As the symptoms persisted, and in many cases, became more severe, the distress of the symptoms escalated the underlying anxiety and the patient sought physical relief and resolution to the feeling of uncertainty concerning the etiology of the symptoms.

1. *Somatic awareness of physical sensations that are not considered normal.*

The patients firstly identified that something was physically distressing, albeit to differing degrees of severity.

2. *Interpretation of the meaning of the symptoms.*

The patients utilized their current knowledge base, past experience and analytical ability to interpret the symptoms. The patients confirmed a desire to relate the symptoms to the most benign explanation. For example, if a headache, gastric upset or chest pressure was felt, the patients firstly attributed the symptoms to the flu as opposed to a heart attack. This process is evident in the behavior of four of the patients

(#1,2,3 & 8). Patients with preexisting heart disease cited that the intense fear of further heart problems prompted denial of that explanation in order to decrease their anxiety.

If the patient experienced severe symptoms there was a realization that something serious was most definitely occurring and symptom relief was readily sought within the health care system. This is what occurred in the case of patient #4, who experienced severe shortness of breath.

3. "Waiting to go away" Period

Regardless of the interpretation of the symptoms, every patient attributed some time delay to a hopefulness that the symptoms would abate if they waited just a little longer. There was a persistent feeling that symptoms might subside in the next few minutes, a procrastination that varied in length from two to six hours.

4. Vacillation Period

This is a time period when the initial interpretation does not seem to be correct and the patient vacillates between accepting the possibility of an explanation with more serious implications or adhering to the initial one. It is at this point in time that family members or significant others were influential in convincing the patient to seek medical attention if the symptoms occurred in the community or report the symptoms to the nurse if they occurred while the patient was hospitalized.

5. Decision to Seek Medical Attention.

Once the decision was made to seek medical attention, there was very limited time delay (maximum of one hour) associated with reaching the ER.

Factors Increasing the Time Delay Between the Onset of Symptoms and the Seeking of Medical Attention

A number of factors were identified as influencing the time delay for seeking medical attention after the onset of the symptoms. Several factors were identified by one patient and some were common to all the patients. It is the intent of this study to provide a full description of these factors. The responsibility for deciding whether generalization to another situation is appropriate, is charged to the individual.

1. *Rationalization: The tendency to attribute the symptoms to the least threatening explanation*

As was mentioned in the description of the decision making trail, patients experienced anxiety and fear of obtaining confirmation that the symptoms were indicative of a serious health problem. If a group of symptoms were experienced, the patients tended to adhere to a plausible explanation for the least threatening symptom. Patients # 1 had a headache, ache in the chest and sweating. While he knew that the chest ache might be cardiac pain, he preferred to accept the more benign explanation, that he had the "flu".

2. *Patients' perception that symptoms of a heart attack are usually severe in nature and involve severe chest pain. Lack of knowledge concerning the diversity of cardiac symptoms.*

The patients were not aware of the possible diversity and sometimes subtly of cardiac symptoms. Therefore, the patients who experienced symptoms involving the chest area, were unsure it they were significant because they were not comparable to the more dramatic presentation that is portrayed within the media. Each person also had a different perception of the term "pain". Four of the eight patients described some

degree of chest pain. However, they did not strongly associate the pain with that of a heart attack because the initial presentation was (a) complicated by the presence of other symptoms (b) not very distressing or severe enough to be considered indicative of a heart attack.

3. *Desire to Avoid a Feeling of Embarrassment for Reporting Insignificant Symptoms*

The patients anticipated feeling embarrassed or uncomfortable if they were not correct in their assessment of the symptoms. While in hospital, all the patients were not sure what they should report to the nurse or physician. The instructions given the patient focused on ensuring that the patient report any chest pain. Once again, the patient was not sure if what he was experiencing was truly "painful" or if it was of enough severity to warrant attention. All the patients were assessed for the presence of chest pain or shortness of breath and instructed to report these symptoms should they occur. Two of the patients were told to report “any discomfort". There appears to be an inconsistency in practice concerning the communication of the presenting symptoms, and utilization of descriptors to which the patient can relate.

4. *Seeking Medical Advice from a Health Professional*

One patient called an advice nurse to determine if his symptoms were significant and he should proceed to the hospital. He waited one hour to speak to the nurse and she advised him to take two nitros and go to the ER if they did not relieve the pain. It is not certain if this process increased the time delay or if the advice prompted him to seek medical attention. Since some insurance plans require the patient to speak to the primary physician prior to proceeding to the ER, this is a factor that requires further exploration.

5. Seeking Means to Distract Attention from the Symptoms

One patient purposefully went to work in order to minimize the perception of the symptoms. The demands of the workplace did serve to distract the patient. Once he returned home, the patient's perception of the intensity of the symptoms increased.

The patients also identified feelings of over awareness of bodily sensations. This was attributed to lack of the normal routine distractions integral to home and work. The patients also attributed this over awareness to the fact that they had sustained an injury and were concerned about the reoccurrence of symptoms indicative of further injury. Subsequently, the patients were not confident in their ability to accurately perceive and interpret bodily sensations.

Factors Decreasing Time Delay

1. Encouragement of significant others for the patient to seek medical attention.

The patients identified that during the period of indecision as to whether they should seek medical attention, confirmation that this was the right decision by another individual prompted acceptance of this course of action. This role of significant others was confirmed by patients experiencing symptoms in the community and in the hospital and supports patient/family education of individuals with cardiac disease.

Tables A provides a graphic, summarized comparison of each patient's experience with cardiac symptoms prior to arriving at the hospital. Table B provides the same comparative data for the patient within the hospital.

Table A The Patient's Experience prior to arriving at the hospital

Patient	Initial Symptoms	Influencing Factors	Interpretations	Time Delay
1	• Felt it wasn't a "pain". • Persistent chest ache • Sweats	• Symptoms attributed to non-cardiac origin • * Patient's son insistence to go to the ER	• Flu	9 hours
2	• Indigestion • Excessive belching & feeling of fullness • Central nagging chest pain	• Mimic Indigestion • Symptoms different than those experienced with angio plasma • * Decision to phone advice nurse • Perception that minimal chest pain was not related to heart attach		6 hours
3	• Chest pressure • Head ache	• Headache not perceived as a cardiac symptom • At work: Distraction from symptoms • * Wife insisted he go to the ER	• Flu	11 hours
4	• Severe shortness of breath	• * Severity of symptoms	• Unsure	2 hours
5	• Central chest pain • Shortness of breath	* At a meeting in the hospital and the Facilitator insisted he go to ER	• Angina	30 min.
6	• Burning pain in chest	• Recent diagnosis with angina • Waited for Nitro to take affect * Severity of chest pain	• Angina	6 hours
7	• Left side chest pain • Very gaseous • Repeated belching	• Patient became faint and wife called 911	• Questioned if cardiac	1 hour
8	• Sore muscle extending to the left shoulder • Abdominal distension • Belching • Mid chest pressure	• Symptoms became severe over time • Gastric symptoms not interpreted as cardiac	• Indigestion	20 hours

*** Denotes positive impact; reduces time delay**

Table B: The Patient's Experience While Hospitalized

Patient	Reoccurrence of Symptoms	Influencing Factors	Interpretations	Reporting Delay
1	• 2 episodes of initial symptoms	• Limited in severity (not painful) • Fear that symptoms indicated further damage (denial)	• Not significant	Did not report to the nurse
2	• None			
3	• None			
4	• 2 episodes of initial symptoms	• Less sever shortness of breath	• Not significant due to low severity	Did not report to the nurse
5	• 2 episodes of initial symptoms	• Did not want to bother the nurses • Coped with angina pain prior to hospitalization	• Angina	Did not report to the nurse
6	• 1 episode of chest pain	• Nurse instructed patient report any chest pain	• Possible further heart damage	Reported to nurse at onset
7	• Persistent residual pain	• Told one nurse; was not treated so he though it was too minor	• Not significant	Told one nurse but not treated
8	• None			

Theme #2: Inaccurate Description of Cardiac Symptoms by Health Care Professionals

Table C provides a comparative descriptive summary of the patient's cardiac symptoms. The first column in the table contains the patient's description of the cardiac symptoms. The next columns contains descriptions of the patient's cardiac symptoms as they are documented by the ER physician, Internal Medicine physician and consulting Cardiologist. The last column contains the nurse's documentation in the progress notes with regards to the patient's cardiac symptoms.

The ER physician listened to the patient's description of their symptoms and documented aspects of this description on the ER form. The other physicians documented in a similar manner, focusing on their need to establish a diagnosis and treatment plan. The nursing staff, who have the ongoing responsibility for monitoring and reporting symptoms, focused mainly on whether the patient experienced chest pain or shortness of breath. The nursing documentation in the progress notes verified this routine practice and substantiated the lack of individualized cardiac patient assessments. The patients also identified a need for more consistent communication regarding the significance of their symptoms. They cited confusion concerning what type and/or severity of symptoms would be important to report to the nursing staff.

The patients without "true" pain expressed concern regarding the practice of quantifying the symptoms on a pain scale. This is a practice common to the ER, ICU and on the

ward. The patients suggested utilizing an symptoms intensity or severity scale as opposed to utilizing the term "pain" as the descriptor.

Table C: Comparative Descriptive Summary of the Patient's Cardiac Symptoms

Patient	Patient's described Initial Symptoms	Health Care Position	Chart Documentation
1	• Felt it wasn't a "pain". • Persistent chest ache • Sweats	• ER Physician • Internal Medicine • Cardiologist • Nurse	• Midsternal chest pain radiating to arms bilateral • Chest Pain • Felt unwell and diaphoretic • No complaint of *CP or *SOB
2	• Indigestion • Excessive belching & feeling of fullness • Central nagging chest pain	• ER Physician • Internal Medicine • Cardiologist • Nurse	• Nagging chest pain • Symptoms of Angina • Symptoms of Angina • No complaint of *CP or *SOB
3	• Chest pressure • Head ache	• ER Physician • Internal Medicine • Cardiologist • Nurse	• Dull chest pressure • Chest pressure • Retrosternal midchest ache • No complaint of *CP or *SOB
4	• Severe shortness of breath	• ER Physician • Internal Medicine • Cardiologist • Nurse	• Flash pulm EOEMA • Acute onset dyspnea • Acute onset dyspnea • No complaint of *CP or *SOB
5	• Central chest pain • Shortness of breath	• ER Physician • Internal Medicine • Cardiologist • Nurse	• Chest pain • Acute onset angina • Anginal discomfort • No complaint of *CP or *SOB
6	• Burning pain in chest	• ER Physician • Internal Medicine • Cardiologist • Nurse	• Chest pain • Chest pain • Chest pain • No complaint of *CP or *SOB
7	• Left side chest pain • Very gaseous • Repeated belching	• ER Physician • Internal Medicine • Cardiologist • Nurse	• Mild midsternal *CP with radiation to left shoulder • Left sided chest pain • Mild midsternal *CP • No complaint of *CP or *SOB
8	• Sore muscle extending to the left shoulder • Abdominal dissension • Belching • Mid chest pressure	• ER Physician • Internal Medicine • Cardiologist • Nurse	• Chest pain, neck pain, diaphoresis, shortness of breath & "burpy" • Chest pain, pressure across his chest and into left shoulder. Belching, bloating and abdominal distention with gas • Chest pain • Denies any discomfort

***CP: "Chest Pains", *SOB: "Shortness of Breath"**

CHAPTER 5: DISCUSSION

During the course of the study, data concerning factors influencing the reporting of symptoms in the hospital was obtained. New insights concerning time delays with regards to the seeking of medical treatment by the individual in the community were also gleaned. In addition, some of the results of research studies regarding these time delays were confirmed by this study.

A number of questions were cited in the introduction of this study. They were posed by nurses working in an Intensive Care Unit. Ironically, they captured the essence of the research results and will therefore serve an initial framework for the following discussion.

Questions

1. *Are health care personnel effectively communicating to patients the importance of reporting symptoms.*

The results of the study demonstrate that there is inconsistent, inadequate and sometimes confusing communication to patients concerning the importance of reporting symptoms. Patients are consistently reminded to report chest pain to the nursing staff and they are routinely assessed for the occurrence of chest pain and/or shortness of breath at least once a shift. The documentation and patient interviews confirmed this practice. However, the documentation regarding assessment of symptoms was cursory, with routine practices supporting rote recording in the form of "no complaints of chest pain or shortness of breath". Discussion with the nursing staff revealed a belief that this was a minimal standard for documentation which verified that the patient was assessed for the occurrence of these hallmark cardiac symptoms.

The patient interviews confirmed that the patients experienced uncertainty with regards to the nature of significant cardiac symptoms and could not consistently relate to the utilization of the descriptor, "pain", especially if their presenting symptoms were not inclusive of this characteristic.

2. *Are nurses or other health care personnel addressing the individuality and diversity of cardiac symptoms? Are the characteristics of the cardiac symptoms as they are described and perceived by the patient, effectively communicated to all who care for the patient, thereby serving to increase the accuracy of subsequent assessments? Are health care personnel conducting assessments based on assumptions that some common cardiac symptom descriptors can be generalized to all patients?*

Data from the interviews indicated that the health care workers did not address the individuality and diversity of cardiac symptoms. They functioned within a system of routines and practices which was not supportive of that approach. The patients' description of their symptoms were assessed by the ER physician and at least partially captured within the initial documentation. The other physicians focused, understandably, on diagnosis and treatment of the disease process. The nursing staff, who were the most consistent counterpart of the patient and responsible for the monitoring and reporting or symptoms, focused on the assessment and documentation of chest pain or shortness of breath. Several nurses instructed the patients to report any chest discomfort. In summary, the patient's story was lost in the system.

3. *Do cognitive/emotional responses to threats to personal and physical integrity play a role in minimizing acknowledgment of cardiac symptoms?*

The results of the study indicated that the fear and anxiety, associated with the possible confirmation of serious cardiac disease, were sublimated by adherence to the most benign possible explanation of the symptoms. This was evident in patients in the community and the hospital.

4. *What is the actual incidence of unreported cardiac symptoms? Is it of sufficient magnitude to warrant further investigation?*

Four of the eight patients interviewed had reoccurrence of symptoms while in the hospital. Two of these patients reported these to the nursing staff. These two patients experienced chest pain and described the symptoms as such. The nursing staff had provided clear instructions emphasizing the importance of reporting any chest pain. The patients understood and abided by these instructions. The other two patients experienced similar symptoms, but less intense than those experienced on admission. These patients expressed uncertainty regarding the significance of these symptoms. They cited insufficient instruction with regards to this subject.

The Cognitive Decision Making Trail

The results of this study supported the identification of a decision making process utilized by patients deciding to seek medical attention after the onset of symptoms. A similar process was identified in the literature by Moss, Wynar & Goldstein in 1969. They proposed that patients firstly perceived their symptoms, acknowledged their possible significance and then realized that medical treatment should be sought. Their work was cursory in detail and required confirmation of the results and further exploration of the problem. The results of the current thesis study expands on the work of Moss, Wynar & Goldstein. The results confirm the basic steps in the process proposed in their study. However, the results also support a more detailed explication of the decision making process and the addition of several cognitive components. More specifically, the results of this study support the delineation of a process emphasizing the importance of rationalization, denial, distraction, procrastination and vacillation as cognitive processes, inextricably tied to the abeyance of fear and anxiety and serving to increase delay times. Other factors related to increased delay time are lack of knowledge concerning the diversity of cardiac symptoms, the seeking of medical advice and

desire to avoid possible embarrassment related to the unwarranted seeking of medical attention.

One factor that decreased delay time was the persuasive efforts of a significant other. During the "vacillation" period in the decision making process, the patient was most open to suggestion and persuasion. It was at this time that other individuals were most effective in convincing the patient to seek treatment. This supports a contention that the family or significant other should be included in cardiac education.

Similar to a previous study (Moss, Wynar & Goldstein, 1969), the results also supported the existence of a relationship between the time of day during which the symptoms appeared and the time delay. The patient who experienced symptoms early in the morning went to work and the distracters of the day served to decrease the perception of the symptoms. Similarly, the patients who experienced symptoms during the night had a heightened perception of their bodily sensations and tended to have a shorter delay time. Patients in the hospital cited an intense awareness of their bodily sensations, to the extent that they were concerned if they were overly sensitive.

Patients with severe symptoms exhibited a minimal delay time as the associated distress and anxiety demanded relief. This finding was supported by the work of Hackett & Cassem, in 1969.

The results of this study also supported the contention that individuals with preexisting cardiac disease did not seek medical attention sooner than those with no prior history of cardiac disease. This finding supported the results of previous research (Hackett & Cassem, 1969; Green, Moss & Goldstein, 1974).

Inaccurate Description of Cardiac Symptoms by Healthcare Professionals

The results of the study illustrated the importance of health care personnel, especially nurses, obtaining an accurate description of the patient's symptoms, and to utilizing this description as an individualized, monitoring tool. It was also evident that patients should be given instructions to inform the nurse of any bodily sensations that deviates from the norm, rather than rotely focusing on the occurrence of chest pain or shortness of breath. In addition, the patients cited a need to trust and perceive the nurse as a non-judgmental and supportive counterpart. They needed to feel that the nursing staff would acknowledge the validity of their perceptions regarding possible cardiac symptoms and would respond accordingly.

Significance

The results of this study supported the need to develop strategies which will:

1. *Support individualized patient inquiry and education practices within the healthcare system*

2. *Address factors increasing the delay time of individuals in the community and hospital.*

The development of these strategies will facilitate earlier presentation at an ER, and subsequent diagnosis and treatment of cardiac disease. In cases involving an acute MI, this will maximize myocardial viability, especially in patients requiring the administration of a thrombolytic agent. Studies have traditionally focused on minimizing the time between the diagnosis of an acute MI and administration of a thrombolytic agent. Limited effort has been expended on minimizing delay times prior to presentation. The results of this study supports the importance of developing interventions designed to minimize time delays between the onset of symptoms and initiation of treatment. This would increase the window of time during which maximal response to treatment is achieved.

Implications for Further Research

The results of the study support the need for further research exploring the variables contributing to time delays. The need for review of public education regarding the nature of cardiac symptoms is also warranted. Education for patients and families with cardiac disease should also be examined in order to reinforce the importance of promptly seeking medical attention for cardiac symptoms which are not readily responsive to first line self-care measures Finally, cardiac assessment and communication practices within hospitals need to be studied in order to develop systems that address the diversity of cardiac symptoms.

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APPENDIX

Appendix I: Concent Form

Appendix II: Description of the Project

Appendix III: Interview Guide

Consent Form

"Exploration of Delays in Reporting of Cardiac Symptoms By Hospitalized Patients"

I am invited to participate in the above-titled research project. The purpose of the project is to explore why patients delay reporting cardiac symptoms. The intent of the study is to gain greater understanding of why this occurs in order to design interventions to address this problem thereby decreasing the risks associated with delayed diagnosis and initiation of treatment. The study will also explore the language utilized by health care personnel to describe cardiac symptoms. This may serve to validate the need to educate patients and health care personnel concerning the diverse nature of cardiac symptoms and the importance of utilizing patient specific descriptors.

I am invited to participate in this study because I meet specific criteria for inclusion. These criteria consist of having a diagnosis of a Myocardial Infarction, a stable physiological status, the ability to communicate effectively and the experience of cardiac symptoms during an episode after my initial presentation and diagnosis. Approximately eight patients will be included in this study. The nurses on the unit have approached me on behalf of Janice Findlay because I meet the criteria for inclusion in the study. They have asked permission to give my name to Janice Findlay.

I understand that I am under no obligation to participate in this study and am free to withdraw at any point in time. Janice Findlay is not involved in my care and does not have any influence. I was not exposed to any persuasive efforts to participate in this study.

I will be interviewed by Janice Findlay, a graduate student in the Master of Nursing program at the University of Manitoba. The study has been approved by the Ethics committee at the University of Manitoba and Kaiser Sunnyside Medical Center. The interview will take no more than one hour. If at any point in time, I feel unwell, or unwilling to continue with the interview, I can relate this to Janice, who will cease the interview process. Janice Findlay will also review my chart to obtain further information concerning my history, diagnosis, treatment and cardiac symptoms.

Janice will take notes during the interview process. I will be assigned a code name in order to maintain confidentiality and all notes will be stored in a locked file. Only Janice Findlay will have access to this file. The information given will be retained for seven years, after which it will be destroyed. The data will be shared with members of Janice Findlay's thesis committee.

The study may benefit other patients by facilitating the development of strategies to decrease the delay times of reporting cardiac symptoms. Any questions concerning the study will be welcomed by Janice Findlay. She can be reached at (503) 691-9036. Should you so desire, the chairperson of her thesis committee, Dr. Erna Schilder, can be reached at (204) 474-9664. You will be reimbursed for long distance charges. A summary of the findings will be supplied upon request. The results of the study may be published.

My signature below indicates only that I agree to participate in the study.

I have read and understand the preceding information and consent to participate in the study in the manner so described.

Signature.....Date.....

Interviewer
Signature.....Date.....

I would like a copy of the summary of the findings .... yes .....no.....

Description of the Project

Purpose and Objectives

The purpose of this study explored why some post myocardial Infarction patients do not report cardiac symptoms as soon as they occur. In some cases an appreciable delay occurs, during where the patient trys to decide if the symptoms are significant and warrant reporting.

If the symptoms the patient is experiencing are indicative of a imbalance between myocardial oxygen demands and supply, the patient is placed at risk for ischemia mediated arrhythmias, pulmonary edema and progression to actual loss of viable myocardium. Understanding why delays occur will facilitate the development of preventative strategies designed to minimize delays in reporting of cardiac symptoms.

Minimizing delay time is especially imperative in cases where extension of the patient's infarction is occurring and the patient is a suitable candidate for administration of a thrombolytic agent. In such cases the time of reperfusion is associated with maximal myocardial salvage and therefore it is essential to minimize any delays in diagnosis and initiation of treatment.

The Interview Guide

This guide served as a template for the discussion. The patient was encouraged to proceed in a natural fashion, utilizing familiar language.

1. Can you describe how your felt when you were having your heart attack?

2. Have you ever had a recurrence of these feelings, perhaps not of the same intensity, during this hospitalization?

3. (If yes to number 2) Did you tell someone about the feelings as soon as they occurred?

4. (if no to number 3) Can you tell me why you waited to tell someone about the feelings?

5. (If yes to number 3) What made you tell someone about your feelings soon after they occurred?