PATIENTS' KNOWLEDGE REGARDING CARDIAC MEDICATION REGIME AT TIME OF HOSPITAL DISCHARGE WITH AND WITHOUT INDIVIDUALIZED EDUCATIONAL PROGRAM

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CHAPTER I

INTRODUCTION

The leading "cause of mortality today continues to be cardiovascular disease despite the knowledge of risk factors (Fardy, 1988, p. 4). Risk factors of increased cardiovascular disease include several preventable factors. The risk factors that can be modified are diet, exercise, stress levels, smoking, and knowledge of treatment programs/health status (Fardy, 1988). Cardiac rehabilitation programs incorporate exercise, diet, education, medications, life-style changes, and support systems for people in need of this service. Medications are a major portion of any program and the need for the patient to understand the medications is vital. Cardiac medications are administered for various reasons and may have lethal side-effects if not administered according to physician prescription.

The Problem

Certain cardiac medications contain potentially life threatening side effects if taken improperly. Safe administration of potentially dangerous medications is crucial for the cardiac patient at home. The most reasonable method to ensure safety with cardiac drugs is through an educational program. This program would be completed prior to discharge from the hospital. Patients' knowledge of cardiac medication regime at the time of hospital

discharge from Stillwater Medical Center is unknown at this time.

The Purpose

The purpose of this study is to determine the patients knowledge of their cardiac medication regime with and without individualized educational program provided to patients regarding cardiac medication prior to hospital discharge.

Hypothesis

There will be no significant difference between the patients' knowledge of their cardiac medication regime upon hospital discharge between those patients that received an individualied educational program and those that did not.

Definition of Terms

The following definition of terms were used throughout this study.

Adrenergic Receptor Blocking Agents - Selectively inhibits sympathetic response of certain tissue (cardiac) and results in decreased blood pressure. Catapress, Tenornum, Inderal, Lopressor, and Lanoxin will be grouped together in this study (Thomas, 1984).

Beta Adrenergic Blocking Agents - A substance that interferes with the transmission of stimuli through pathways that normally allow sympathetic nervous inhibiting stimuli to be effective (Thomas, 1985).

Calcium Channel Blocking Agents - Inhibits the calcium exchange within the cardiac cell and slows the conduction through the heart. The result is a slower heart rate. Calan and Cardizem will be the medications used within this group of drugs (Thomas, 1985).

Cardiac Medications - Those medications that a patient is taking and produces a direct or indirect effect upon the Inotropic or Chrontrophic activity of the cardiac tissue. Medications that effect the circulation blood volume or effect the vascular system will also be included.

For the purpose of this study, the medications will be limited to the following categories: Beta Blocking Agents, Diuretics, Calcium Channel Blocking Agents, and Nitrates.

Cardiac Monitoring - A computerized machine that transmits the electrical activity of the cardiac muscle (heart) into an observable wave form that can be evaluated by specially trained personnel (Fardy, 1988).

Cardiac Rehabilitation Program Phase 1 - An inpatient program that includes patient and family education and exercise programs that are designed to prevent complications from bedrest (Fardy, 1988).

Cardiac Nurse Educator - A specialized nurse with experience in cardiac and emergency nursing. This nurse will educate the patient/family accordingly to prescribed therapy and medications (Fardy, 1988).

Care Giver - One who outlines the activities on a daily basis. The care giver ensures completion of the following items daily: bath, general housekeeping, administration of medications, preparation of

meals, and intervenes with problems throughout the day.

Chrontrophic - Medications which act upon the cardiac tissue to change the rate of the heart beat (Thomas, 1985).

Diuretic - A drug that promotes renal excretion of electrolytes and water, thereby increasing urine volume. Lasix and Bumex will be grouped together under this category of medications (Thomas, 1985).

High Risk Patient - A patient that is at high risk for having a myocardial infarction during exercise programs (Fardy, 1988).

Individualized Educational Program - The manner in which selected information regarding cardiac medication was presented to an individual patient and/or family.

Inotropic - Medications which act upon the cardiac tissue to change the force of the cardiac muscle contraction (Thomas, 1985).

Nitrate - A drug that relaxes vascular smooth muscles, especially for the purpose of improving peripheral or coronary blood flow (Thomas, 1985).

Palpitation - An unusual awareness of one's heart pattern within the chest cavity. An irregular, rapid throbbing or fluttering of the heart (Thomas, 1985).

Sympathetic Nervous System - A part of the autonomic nervous system (thoracolumbar) in which nerves leave the central nervous system to synapse with other nerve fibers close to the spinal cord. Frequently referred to as the flight or fight aspect of the nervous system (Thomas, 1985).

Vasodilator - A medication which acts upon the smooth muscle tissue (blood vessels) in such a manner that dilates the lumen of the vessel. Apresoline, Capoten, and Nitroglycerin will be grouped under this classification of medications (Thomas, 1985).

CHAPTER II

REVIEW OF LITERATURE

Introduction

The problem in which this study was concerned regarded the knowledge of patient discharge understanding of cardiac medications. The review of literature was used to develop a baseline of knowledge regarding the role of cardiac rehabilitation programs and nurse educators.

The review of literature concentrated on four areas. First, a history of cardiac rehabilitation programs and the impact upon today's practice. This will explore both the emotional and the physical indications for a cardiac rehabilitation program.

Second, the role of specific cardiac medications will be reviewed. Since the patients' knowledge of their cardiac medications was the focus of this study, it was necessary to establish a clear understanding of the importance of patient's knowledge regarding medications.

Third, the role of the nurse as an educator will be explored. This is one of several roles that a registered nurse (RN) at Stillwater Medical Center is utilized for.

Finally, the fourth section of this review of literature was a review of related research topics. Several research projects were

conducted that were both directly and indirectly related to this topic.

To summarize, the review of literature was separated into four sections: (1) A review of cardiac rehabilitation programs; (2) Explanation of specific cardiac medications; (3) The role of the nurse as an educator; (4) Exploration of directly and indirectly related research.

A Review of Cardiac Rehabilitation Programs

Each year more than one million American survive a myocardial infarction (MI) and approximately 230,000 persons undergo some type of cardiac surgery (Gulanick, 1991). These are the two major implications for a rehabilitation program. The purpose of a cardiac rehabilitation program is to assist a cardiac patient as much as possible in returning to pre-injury state of functioning. There are two monitored phases of a cardiac rehabilitation program. Phase I begins when the physician has released the patient from classification of unstable. During this phase the goal is to prevent any completion of bedrest. Education to the family begins while the patient slowly begins ambulation and other low level exercises.

Phase II of the program begins after Phase I, and when the patient is stable enough to be monitored (cardiac) while exercising. This activity is ordered by a physician just the same as Phase I. There are several goals of this phase, and they are as follows:

enhance cardiovascular functioning, detect lethal arhythmias and other EKG changes, educate patients regarding affect and assist patient with the return to their working environment (Fardy, 1988).

The cardiac rehabilitation program will hopefully reduce the number of occurrences of MI's in the high-risk cardiac population and also decrease the number of repeat myocardial infarctions. This will in return decrease the death rate of recurrent MI patients (Blocker, 1983).

There are contraindications for specific patients to enter a cardiac rehabilitation program. Although they are present, the risk of participation within a medically supervised cardiac rehabilitation program is low (Oldridge, 1991).

When "cardiac disease occurs, there is not only a physiological disturbance but also a disturbance of the psychological and sociological components of a person's life" (Coston, 1960, p. 178). Both Phase I and II include this aspect when dealing with the patient and family.

Maslow (cited in Burns, 1965, p. 73) postulates that "each of us has an essential inner nature that includes needs he called 'instinctiod'". This is believed to be a remnant of our basic instinct which sets our potential for growth and behavior changing abilities. This is the basis for our motivations from which we change ourselves into a naturally more healthy person.

The educational aspect of cardiac rehabilitation programs tap in on behavior modification through educational programs and the support of family and other participants (Kappagoda, 1984 and Ford,

1976). "The significant relationships identified between individual beliefs and values provide a beginning understanding of variables that influence wellness motivation in cardiac rehabilitation" (Derenowski, 1991, p. 6).

Cardiac Medications

Cardiac medications are used as an integral treatment measure to stabilize and maintain the cardiac patient after initial cardiac assault. The following groups of medications will be discussed: adrenergic-blocking agents, calcium channel blocking agents, nitrates and vasodilator, and diuretics.

Two types of receptors present within the body are alpha-adrenergic and beta-adrenergic receptors. First, the alpha-adrenergic receptors will be discussed in relationship to the medication that place their effect upon these receptors, the results produced within the body, and unwanted side effects.

Adrenergic blocking medications reduce sympathetic responses either at the receptor site or at the adrenergic nerve level. Alpha-adrenergic blocking medications work at the receptor site and prevents sympathetic hormones from stimulating the cell. This results in a reduction of vasoconstriction. Due to this response within the body, those on this medication may experience hypotension, dizziness when changing positions, increased heart rate, palpation, cardiac arrhythmia, and chest pain (Spencer, 1983).

The beta-adrenergic receptors primarily are directed toward the force of a muscle contraction. The beta-adrenergic blocking

medications work in specific muscle tissue. The cardiac beta-adrenergic blocking agents work upon the cardiac muscle by selectively inhibiting the sympathetic response which produces a lower blood pressure by the decrease in cardiac contractility. The most serious side effects of these types of medications are congestive heart failure in one who has severe cardiac compromise and possible cardiac arrest. Other untoward side-effects include the following: increased airway resistance, atrial-ventricular heart blocks, nausea, vomiting, and constipation. With abrupt withdrawal, acute hypertensive episodes may result (Spencer, 1983).

Medications that effects the rate of electrolyte exchange also have effects upon the cardiac muscle as well as other muscle tissues. Calcium Channel Blocking medications those that have a short duration because they "inhibit the influx of calcium ions through slow channels into contractile and conductive myocardial cells and vascular smooth muscle cells" (Govoni and Hayes, 1985, p. 1269). This action also blocks the internal store of calcium which creates an end result of slowing the electrical conduction of the cardiac tissue. The slowing of cardiac electrical conduction with the cells results in a slower heart rate. Some peripheral vasodilation may also result. As a result of the effects upon the body by calcium channel, blocking medications, the following may be seen as side-effects: severe hypotension, cardiogenic shock, atrial-ventricular block, congestive heart failure, and cardiomegaly (Govoni and Hayes, 1985).

Another classification of cardiac medications are the diuretics. This group of medications work by decreasing the circulating blood volume. This decrease in volume is accomplished by increasing the production of urine by effects placed upon the kidney. The kidney will respond to medications that effect the glomerular filtration rate, tubular reabsorption, and the tubular secretion. Different diuretics will effect one of these areas within the kidney and reduce circulating blood volume. Dehydration, hypovolemia, nausea, vomiting, electrolyte depletion, hypokelemia, and metabolic acidosis may result if too much flood and/or electrolytes are excreted (Spencer, 1983).

Vasodilators are a group of medications that relax the smooth muscle of the blood vessel throughout the body by influencing the nervous and endocrine system. This system can be altered by medications that effect any portion of the nervous or endocrine system which extends from the Asdrenal Medulla through the spinal cord to the smooth muscle in the vessel itself. Although this is uncommon, excessive vasodilation may result in neurogenic shock. More common side-effects are headache, hypotension, dizziness, weakness, and fainting.

The Nurse as an Educator

One of the major roles a nurse may play is that of the nurse educator. Patients view the visits by nurses as very important and remember the content of their visits in detail (Bolodar, 1979).

In order for an effective educational session to begin, the nurse must first consider the patients' perspective. This is accomplished by utilizing a self-care assessment instrument which can then be used to individualize the educational session (Johannsen, 1992). When done in this manner, the cardiac patient receives the information he/she needs, and unnecessary information is eliminated.

Nurses must be skilled in the area of cardiac nursing and must contain flexibility for adapting diplomatically to various situations that she/he may be placed. The nurse needs to be respected by co-workers in order for the patient and family to see validity in the information provided. The educator will earn the respect of the patient and family when they feel he/she is reliable (Burns, 1991).

Previous research studies have shown the impact that staff personalities have upon the compliance of cardiac rehabilitation programs. Oldridge (1984) researched the compliance and dropout in cardiac exercise rehabilitation programs. He found that the impersonal and unreceptive staff members played a significant role in dropout rates.

Related Research

The Scottish are known to have one of the highest rates of deaths from coronary heart disease in the world (Newton, 1991). Newton examined the costs of coronary (artery) disease (CAD) in human and economic terms. The conclusions drawn from Newton's

research indicated prevention and rehabilitation of the cardiac population to be of paramount importance. Newton (1991) researched the effects of exercise in a cardiac rehabilitation program and discovered that the psychological functioning of participants were statistically improved from the control group. This study included 22 male and female patients post myocardial infarction during a ten-week exercise based program.

Cardiac rehabilitation programs also may be used for patients at high risk for developing further cardiac complications. Theroux (1979) explored the area of a prognostic value of exercise testing post myocardial infarction. He concluded that the results of an exercise cardiac testing are indeed a safe and reliable source of mortality prediction in the post MI person.

The study that is most related to this project was conducted by Sister Patricia Miller (1990) on the compliance of cardiac program regime. She found no differences between experimental and control groups for regimen compliance to activity, stress, and medication prescriptions. The experimental group was significantly more compliant to the diet prescription than the control group. Surprisingly, the control group was significantly more compliant than the experimental group with cessation from smoking. It was thought, at the time of this study that the medication compliance varied little due to patient beliefs This study suggests that these subjects correlated medications with survival; therefore, little information was required to attain the compliance of participants.

CHAPTER III

METHODOLOGY

The purpose of this study was to compare patients' understanding regarding significant aspect of their cardiac medication regime with and without an individualized educational program provided. In order to accomplish this task, it was necessary to obtain the knowledge of patients regarding their understanding of prescribed cardiac medications with and without an individualized program presented.

To accomplish the purpose of this study, the methodology was organized according to the following outline.

1. Identify the population and identify frequently used cardiac medications.
2. Develop the questionnaire for patients.
3. Develop the information sheet regarding specific medications that patients will receive.
4. Develop educational program.
5. Administer the questionnaire to the control group and then to the experimental group.
6. Compare the survey results.

Population and Cardiac Medication Identification

The population was defined as those patients who were discharged from the hospital and receiving a prescribed cardiac medication during that hospitalization. There were no age limits placed upon the population; however, the population excluded those who would return or be admitted to a nursing home. If the patient had a disability that rendered them incapable of learning information regarding cardiac medications, the care giver was given the questionnaire. Those patients utilizing home-care nursing staff were excluded from the survey. The population was defined also by the time frame of discharge dates between August 1, 1992 and October 21, 1992.

The medical staff and hospital administration was required to approve this project prior to initiation of the study. This was completed in July, 1992.

Medications were identified by a survey to determine the most commonly used cardiac medications at Stillwater Medical Center with potentially lethal side-effects. This was accomplished by reviewing ten charts per week on a sporadic basis and tallying medications being administered. These medications were then researched through the Physicians Desk Reference book indicating a potential for lethal side effects. The medications chosen to focus upon were as follows: Apresoline, Capoten, Nitrogylcerin, Bumex, Lasix, Calan, Cardizem, Tenornum, Catapres, Inderal, Lopressor, and Lanoxin.

Development of Questionnaire

The questionnaire was designed to facilitate the collection of information from those patients or patient care givers regarding knowledge of prescribed cardiac medications. The instrument was designed to provide information that would answer the following research questions is there a significant difference between the patients' knowledge of their cardiac medication regime at the time of hospital discharge with and without an individualized educational program. Sample questionnaires can be found in Appendix A. A questionnaire was designed for each group of cardiac medications (adrenergic blocking medications, calcium channel blocking medications, diuretics, and vasodilators) to focus upon the important knowledge needed to administer the medication safely.

The questionnaire was reviewed for content validity by Elaine Ackerson, RN, BSN, ICU/ER Nurse Manager and Dr. Ward Hardin, M.D., Chairman of Medicine Services. The researcher's committee reviewed the form for face validity. Based upon recommendations made by the reviewers, numerous adjustments were made to the instrument.

A cover letter and consent form accompanied the survey. An example of this letter is contained in Appendix B. This letter explained the purpose of the survey and gave directions for replying. A white blank envelope was provided so that the surveys could be returned to the researcher within the hospital without patient identification.

Information Sheet Development

Each medication that was identified as a frequently administered medication and contained the possibility of serious side-effects was thoroughly researched. The Physicians Desk Reference Book was the primary source as well as other pharmacology books and drug inserts for specific medication. This information was compiled and presented in such a manner that the general population could understand information given. The medications were listed along with generic names, the rationale for usage of medication, the action of the medication, and recommendations for safe administration of medication.

These medication sheets were then reviewed by the following Stillwater Medical Center staff: Pat Lawson, RNC, BSN, Vice President of Patient Care Services; Elaine Ackerson, RN, BSN, Nurse Manager of ICR/ER; and Dr. Ward Hardin, Chairman of Internal Medicine. The appropriate changes were made and approved by the administrative staff in August of 1992. These medication information sheets were also given to friends outside the medical community to ensure that the information was presented in lay terminology.

Individualized Educational Program

The educational program varied greatly in duration. The length of each session depended upon the wellness and stamina of the patient each day individually. The individual sessions greatly varied in duration depending upon the number of prescribed cardiac

medications. The number of days for program participation varied upon the length of hospitalization.

The educational program was provided to patients and care givers in the privacy of their room. Scheduling of following sessions occurred to accommodate other family members when possible. Every attempt was made to provide a non-threatening environment to allow a patient the freedom for learning.

The first program day consisted of an introduction of the researcher and study. A baseline assessment was obtained during this initial stage. A baseline assessment regarding knowledge included addressing the patients' and/or care givers' individual level of understanding. The assessment period was also a time to evaluate for accuracy of medication knowledge and a time to plan for educational adjustments, if indicated, prior to discharge.

All patient medication administration records (MAR's) were reviewed daily to identify any newly prescribed cardiac medications. If a cardiac medication was new to a patient, the educational program for the new medication was initiated at that time. This allowed the patient to verbalize the presence of any knowledge regarding the medication. Dosage changes were also noted for the patients information.

Information sheets were developed to accompany a specific cardiac medication. When a patient was prescribed one of the cardiac medications followed in this study, they were given the information sheet regarding that medication. There was no limit

placed upon the number of cardiac medications administered to a patient.

The appropriate information sheet was distributed to the patients and briefly reviewed. This time was utilized to begin instruction of recommendations if a skill (i.e. determining heart rate per minute) was included as a recommendation.

The information sheet was left with the patient to review and look at prior to taking the medication. Patients were encouraged to review the information sheet daily, in addition to the educational session. Patients were encouraged to participate in their care of medication administration actively. An example of participation was demonstrated by the patient who determined their heart rate prior to swallowing the medication.

The second session began with questions or concerns from the patient regarding the prescribed cardiac medications. The questions were answered utilizing the information present on the medication information sheet. Questions that the researcher was unable to answer were conveyed to the physician. A message regarding the specific question was placed on the patient chart for the physician to view. The nurse caring for the patient was also notified of the questions or concerns to ensure physician notification.

The information sheet was reviewed in detail with the patient and/or care giver. The actual pill was present in the room while the session occurred. This allowed the patient to identify the color, size, and shape of discussed medication from other medications that may also be administered.

Patients were visited on a daily basis at various hours of the day. Visits occurred daily between 9:00 a. m. and 9:00 p. m. until discharged. Each day the information sheet and skills were reviewed in detail as necessary. A portion of every session included an opportunity for questions and concerns to be addressed from the patient. Follow-up on any previous questions or concerns were also addressed.

The information was explained in detail until the patient learned the information. Information was considered learned when the patient or care giver verbally stated the recommendations without the information sheet present. Once the information was learned, the recommendations were reviewed daily.

The patient who knew portions of the information, received in detail the recommendations that were unfamiliar. The recommendations that were learned were reviewed daily. The skills were reviewed daily as deemed necessary by the researcher.

Each patient was provided the opportunity for input into the educational process. The patient's input regarding his/her learning styles were emphasized throughout the program. Some patients preferred visual learning such as visualizing the medication and the utilization of posters to illustrate the cardiac system. Some patients preferred the information sheet and desired nothing more.

Sampling of Control Group

A multi-step process was utilized to gather the information necessary to test the null hypothesis. The questionnaire was given

to inpatients that were prescribed cardiac medications at Stillwater Medical Center at the time of their discharge from the hospital. Consent was first obtained through utilization of a consent form (See Appendix C).

The control group (N=81) consisted of those patients within the population discharged between August 1, 1992 and September 1, 1992. The control group was given the questionnaire without deviation from present discharge information. Those patients that failed to complete the questionnaire were followed with a telephone survey to acquire results.

Patients on cardiac medications discharged after this time period received an individualized educational session regarding specific cardiac medications prescribed during hospitalization. They were given the information sheet during these educational sessions. There was no time restrictions placed upon the individual educational sessions due to various levels of learning.

The individualized educational program was instituted on September 1, 1992 and continued through October 21, 1992. The experimental group (N=92) are those patients on cardiac medications discharged between September 20, 1992 and October 21, 1992. This group of participants were given the questionnaire at the time of hospital discharge. Patients were followed with a telephone survey if they were discharged prior to completion of the survey. The experimental group was exposed to the individualized educational sessions regarding prescribed cardiac medications prior to hospital discharge.

Comparison of Results to Control Group

A parametric statistical procedure was utilized to compare results of the control group to the experimental group. Analysis of variance was the statistics of choice to determine the significance of the educational program. Analysis of variance is a procedure for testing the effect of a treatment on different groups on "comparing the variability between groups to the variability within groups" (Polit, 1983, p. 609).

After examining and analyzing the data with descriptive statistics, frequency counts, and means, an analysis of variance using fitting constants was constructed. The level of significant differences between the groups at the 0.05 level was chosen. Siegle (1956) indicated that hypothesis under test is usually that the two groups differ with respect to some characteristic and, therefore, with respect to the relative frequency with which group members fall into several categories.

The data from the control and experimental group was analyzed to determine if differences in correct and incorrect responses were significant. The analysis of variance using fitting constants was used to determine if the differences observed were significant at the 0.05 level. The analysis of variance test was explained by Finlay (1984) as a statistical technique which may be utilized to test the relationship between the mean of an interval variable and the levels of categorical variables that is of nominal measurement. The analysis of variance allows the comparison of two or more means

to see if there are significant differences between or among them (Bartz, 1988). The analysis will yield a numerical value large enough to be interpreted as statistically significant (Agresti, 1986). In this case, it was decided that the p value must be 0.05 or less to indicate statistical significance.

Fitting constants were utilized in the analysis of variance to compensate for the unequal population size in each of the categories. This is a method for "understanding the effects of two or more independent variables on a dependent measure" (Polit, 1983, p. 533). This step was to adjust for the independent variables of population size. Fitting constants are a form of regression analysis (Agresti, 1986). Which is a procedure for predicting values of a dependent variable based on the values of one or more independent variables (Polit, 1983, p. 62).

Once the results of both surveys had been compiled and analyzed by the analysis of variance using fitting constants, the noted educational needs were identified. The purpose of this step was to validate the concerns of the nursing staff regarding the effectiveness of current discharge planning regarding cardiac medications. It would also allow the researcher to draw conclusions regarding the effectiveness of individualized educational sessions on cardiac medications that patients were prescribed.

CHAPTER IV

RESULTS OF THE STUDY

The results of this study were to determine the patients' knowledge of their cardiac medication regime with and without specific educational information provided.

The findings of this study will be reported by correct response among the four medication categories in the following format:

1. The comparison of patient's correct responses regarding adrenergic blocking medications with and without an educational program.

2. The comparison of patient's correct responses regarding calcium channel blocking medications with and without an educational program.

3. The comparison of patient's correct responses regarding diuretic medications with and without an educational program.

4. The comparison of patient's correct responses regarding vasodilator medications with and without an educational program.

Analysis of Data

To determine the effects of an educational process upon the correct responses of those patients being administered an adrenergic blocking medication, an analysis of variance using fitting constants was constructed. This method was chosen to compensate for the varying number of participants in the population. There was a

possibility of six correct answers among the questionnaire on adrenergic blocking medications (See Appendix B for the questionnaire).

Table I illustrates the mean average of correct responses between male and female participants. The male (N=14) respondents had an average of 3.8571 correct responses compared to the female (N=36) average correct was 4.0833 of the six possible responses. The table also displays the average correct response from the control group (N=20) to be 2.8500. The experimental group (N=30) was observed to respond on an average to 4.8000 of the six responses correctly.

The relationship of gender to group is illustrated in Table I as well as in Figure 1. The experimental group increased in average number of correct responses from the control group in both the male and female responses. The averaged correct male response increased from 2.400 in the control group to 4.6666 of the six responses in the experimental group. The female responses increased from 3.000 correct responses in the control group to 4.8571 of the six responses in the experimental group.

Table II illustrates the analysis of variance of the correct responses related to gender and group. With a df=1, the analysis of variance must have a $p < 0.05$ to be significant at the chosen 0.05 level of significance. A significant difference ($p < 0.05$) was found between the male and female average correct responses. This averaged both the control and experimental correct responses together for the male group and female group. The correct results

TABLE I

MEAN RESPONSES FROM PATIENTS RECEIVING ADRENERGIC BLOCKING MEDICATIONS

Category	N	Mean Correct Responses
Gender		
Male	14	3.8571
Female	36	4.0833
Intervention Status		
Control Group	20	2.8500
Experimental Group	30	4.8000
Relationship of Gender and Intervention		
Male/Control	5	2.4000
Male/Experimental	9	4.6666
Female/Control	15	3.0000
Female/Experimental	21	4.8571

TABLE II

ANALYSIS OF VARIANCE OF PATIENT RESPONSES TO ADRENERGIC BLOCKING MEDICATIONS

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sex	1	1.4689	1.4689	4.91	0.0317
Intervention	1	39.9763	39.9763	133.53	0.0317
Sex + Intervention	1	0.3942	0.3942	1.32	0.2571
Error	46	13.7714	0.2994		
Corrected Total	49	60.9800			

N = 50

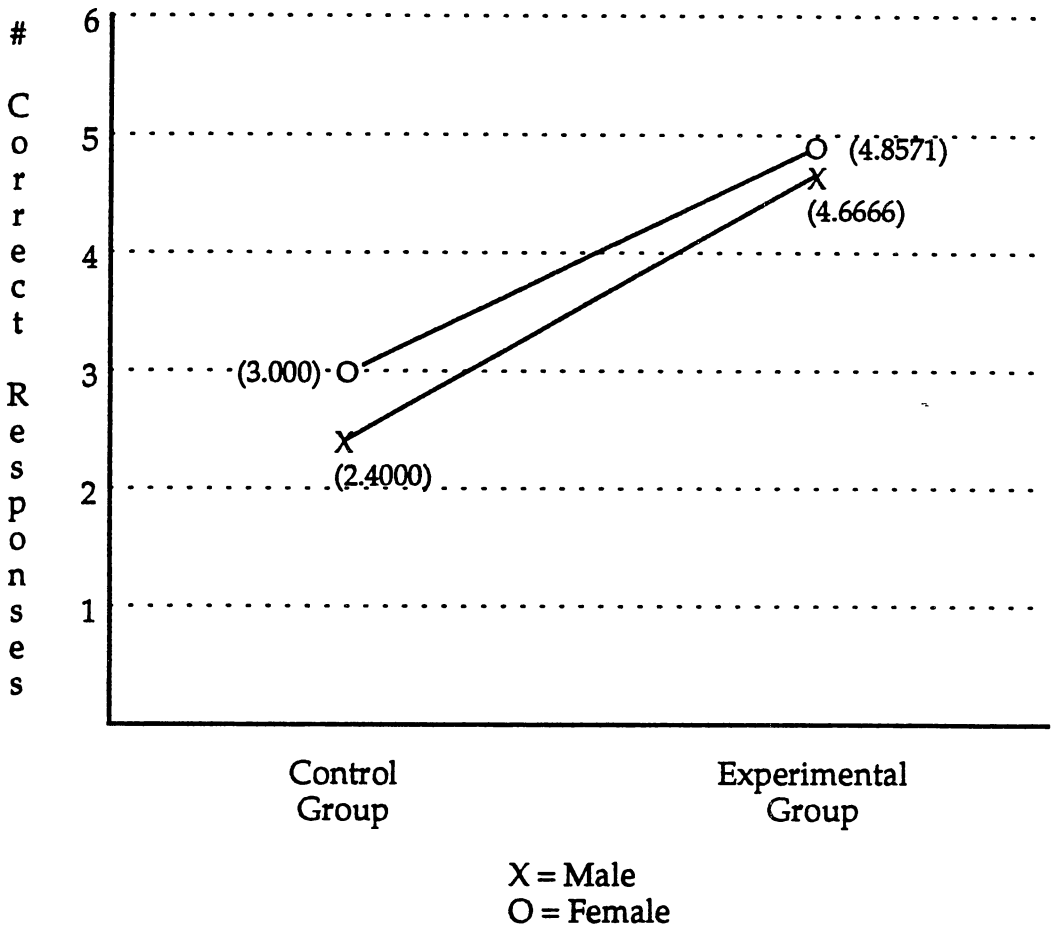

Figure 1. Number of Mean Correct Responses from Patients Receiving an Adrenergic Blocking Medication

from the experimental group were significantly higher statistically ($p < 0.05$), then the control group. There was no significant difference ($p >= 0.05$) found between the male and female responses in the control group and the male and female responses in the experimental group.

To determine the effects of the educational process upon the correct responses of those patients being administered a calcium channel blocking medication, an analysis of variance using fitting constants was constructed. There was a possibility of five correct responses on the survey form.

Table III demonstrates the mean average of correct responses between male and female participants. The male (N=11) respondents had an average of 4.1818 correct responses compared to the female (N=20) 3.7500 responses of the five possible responses. The control group (N=16) exhibited a 3.3125 correct response rate compared to the 4.5333 correct response rate of the experimental group (N=15).

The relationship between the male and female correct responses in the control group to the male and female correct responses in the experimental group was also examined. Table III illustrates this relationship. The male and female experimental groups increased an average number of correct responses. The male responses increased from an average of 4.0000 (N=6) correct responses in the control group to 4.4000 (N=5) correct responses in the experimental group. The female data displays an increase from 2.9000 (N=10) correct responses to a 4.6000 (N=10) correct responses in the experimental

TABLE III

MEAN RESPONSES FROM PATIENTS RECEIVING
CALCIUM CHANNEL BLOCKING MEDICATIONS

Category	N	Mean Correct Responses
Gender		
Male	11	4.1818
Female	20	3.7500
Intervention Status		
Control Group	16	3.3125
Experimental Group	15	4.5333
Relationship of Gender and Intervention		
Male/Control	6	4.0000
Male/Experimental	5	4.4000
Female/Control	10	2.9000
Female/Experimental	10	4.6000

group. The increase in average mean correct response of males and females in the control and experimental groups are exhibited in Figure 2.

Table IV displays the analysis of variance for the correct responses among patients receiving calcium channel blocking medication. There were no significant differences ($p > 0.05$) between the male and female correct responses. A significant difference ($p < 0.05$) was present between the control and experimental groups. The difference in correct responses between the males and females in the control group and the males and females in the experimental groups were found to be significant ($p < 0.05$).

Table V illustrates the average of correct responses between male and female respondents receiving a nitrate medication. The male respondents (N=26) had an average of 3.8462 correct answers compared to the female (N=15) average correct response of 3.6000 correct answers. The table also displays the mean correct response from the control group (N=15) of 2.7333 while the experimental group (N=26) was observed to respond to 4.3462 of the five responses correctly.

The relationship of gender to group is illustrated in Table V as well as in Figure 3. The experimental group increased in average number of correct responses. The average correct male response increased from 3.0909 in the control group to 4.400 of the six responses in the experimental group. The female responses increased from 1.7500 correct responses in the control group to 4.2727 of the five responses in the experimental group.

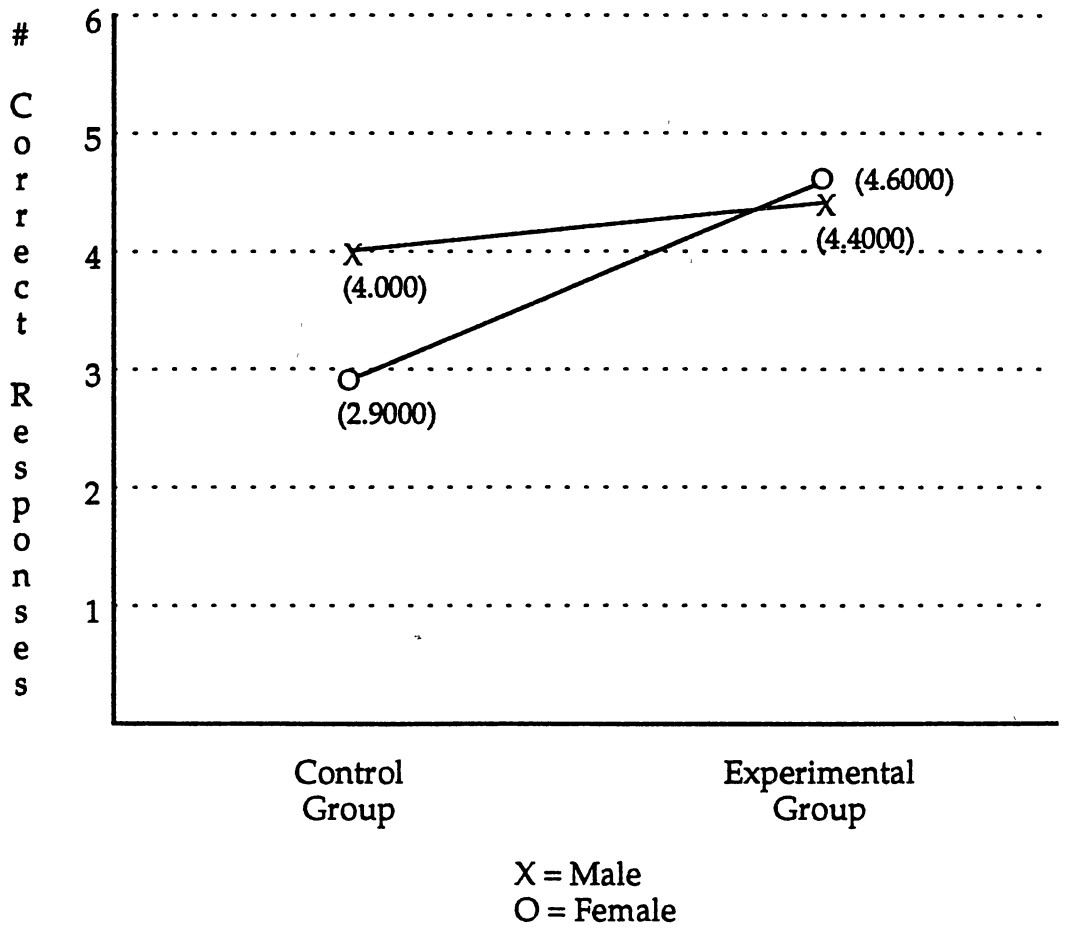

Figure 2. Number of Mean Correct Responses from Patients Receiving A Calcium Channel Blocking Agent

TABLE IV

ANALYSIS OF VARIANCE FOR RESPONSES OF PATIENTS RECEIVING A CALCIUM CHANNEL BLOCKING MEDICATION

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sex	1	1.4294	1.4294	3.68	0.0659
Intervention	1	7.7824	7.7824	20.01	0.0001
Sex + Intervention	1	2.9824	2.9824	7.67	0.0100
Error	27	10.5000	0.3888		
Corrected Total	30	26.7097			

N=31

TABLE V

MEAN RESPONSES FROM PATIENTS RECEIVING A NITRATE MEDICATION

Category	N	Mean Correct Responses
Gender		
Male	26	3.8462
Female	15	3.6000
Intervention Status		
Control Group	15	2.7333
Experiment Group	26	4.3462
Relationship of Gender and Intervention		
Male/Control	11	3.0909
Male/Experimental	15	4.4000
Female/Control	4	1.7500
Female/Experimental	11	4.2727

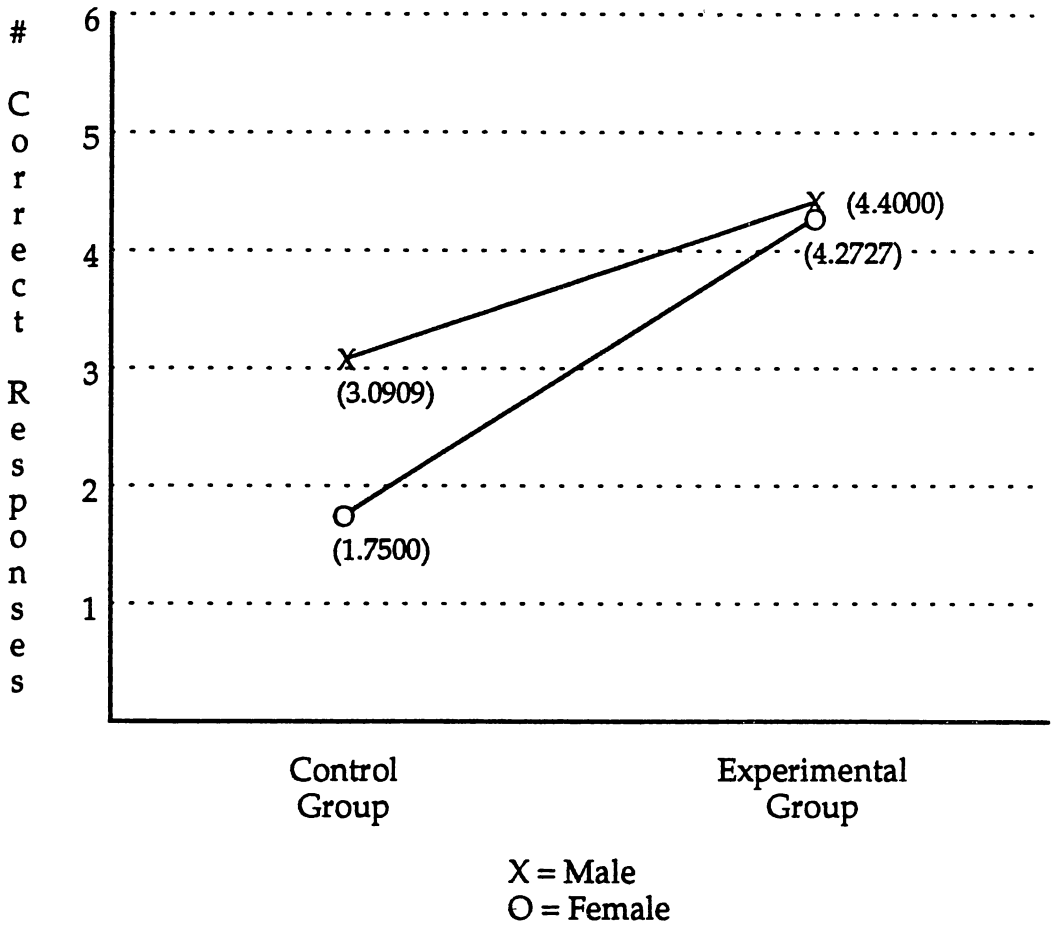

Figure 3. Number of Mean Correct Responses From Patients Receiving A Nitrate Medication

Table VI illustrates the analysis of variance of the correct responses related to gender and group. A significant difference ($p < 0.05$) was found between the male and female average correct responses. The male group responded to a higher average of correct responses than the female group. This average included correct responses from the control and experimental groups, then divided by gender. The correct responses from the experimental group were found to be significantly higher statistically ($p < 0.05$), than the control group. There was no significant difference ($p > 0.05$) found between the male and female responses in the control group and the male and female responses in the experimental group.

Table VII demonstrates the average of correct responses between male and female patients receiving a diuretic medication. The male (N=24) respondents had an average of 3.2083 correct responses compared to the female (N=27) 3.2963 responses of the five possible responses. The control group (N=30) exhibited a 2.766 correct response rate compared to the 3.9524 correct response rate of the experimental group (N-21).

The relationship between the male and female correct responses in the control group was also examined. Table VII illustrates this relationship. The male and female experimental groups increased in average number of correct responses. The male data increased from a 2.5714 (N=14) correct responses in the control group to 4.100 (N=10) correct responses in the experimental group. The female data displays an increase from 2.9375 (N=16) correct responses to a 3.8182 (N=11) correct responses in the experimental group. The

TABLE VI

ANALYSIS OF VARIANCE FOR RESPONSES OF PATIENTS RECEIVING A NITRATE MEDICATION

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sex	1	4.3242	4.3242	4.27	0.0458
Intervention	1	29.4549	29.4549	29.11	0.0001
Sex + Intervention	1	2.9548	2.9548	2.92	0.0959
Error	37	37.4409	1.0119		
Corrected Total	40	67.5610			

N=41

TABLE VII

MEAN RESPONSES FROM PATIENTS RECEIVING DIURETIC MEDICATIONS

Category	N	Mean Correct Responses
Gender		
Male	24	3.2083
Female	27	3.2963
Intervention Status		
Control Group	30	2.7666
Experiment Group	21	3.9524
Relationship of Gender and Intervention		
Male/Control	14	2.5714
Male/Experimental	10	4.1000
Female/Control	16	2.9375
Female/Experimental	11	3.8181

increase in mean correct responses between the female groups in the control and experimental groups the male control and experimental groups are exhibited in Figure 4.

Table VIII displays the analysis of variance for the correct responses among patients receiving diuretic medications. There was no significant difference ($p > 0.05$) between the male and female correct responses. A significant difference ($p < 0.05$) was present between the control and experimental groups. The differences in correct responses between the male and females in the control group and the males and females in the experimental groups were not found to be significant ($p > 0.05$).

Summary

The findings for the study of patients' knowledge regarding medication regimen with and without specific educational information provided indicated that the educational process played a major role in questionnaire response change. Each of the four categories - adrenergic blocking, calcium channel blocking, diuretic, and nitrate medications were examined for the role of the educational program.

The educational program played a significant role in the increase of correct responses from those patients receiving cardiac medications followed in the study. This result was observed in all categories with a significant level of $p=0.0001$.

The female population receiving adrenergic blocking agents responded at a significantly higher number of correct responses, than the male population. The male population receiving nitrate

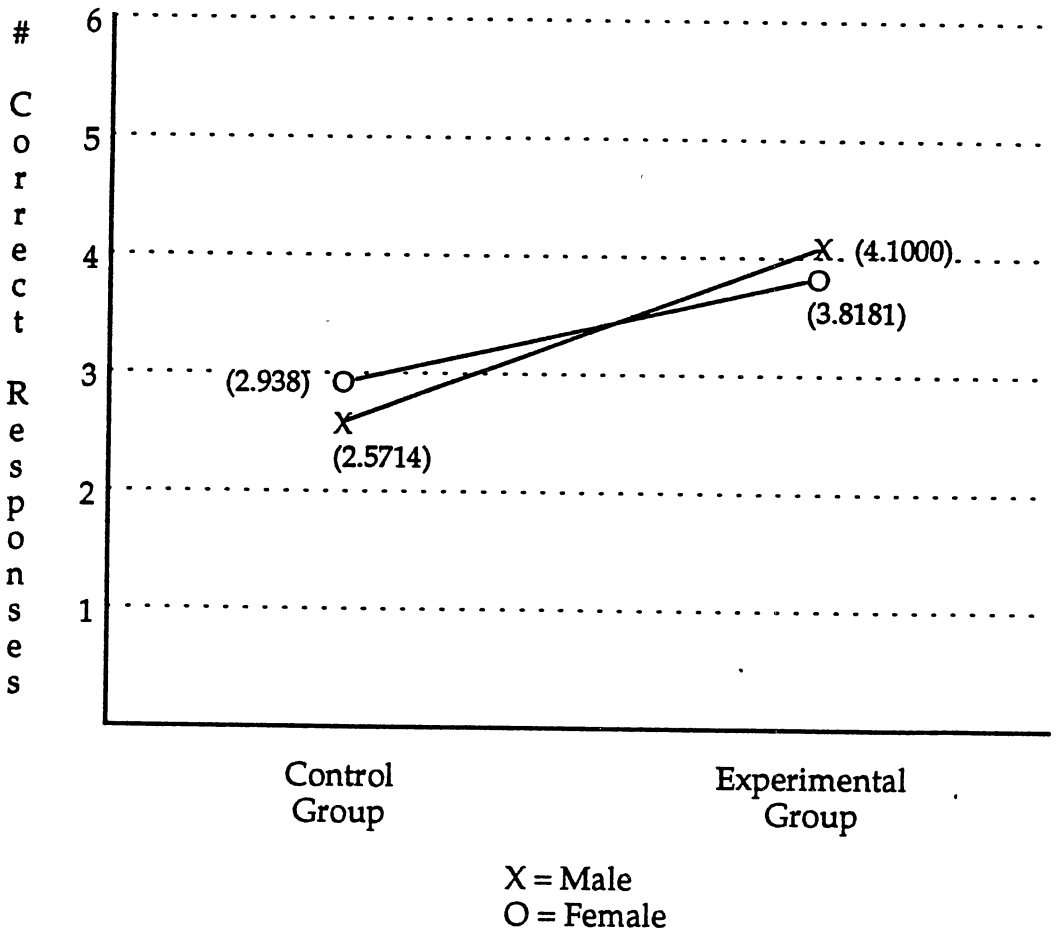

Figure 4. Number of Mean Correct Responses from Patients Receiving A Diuretic Medication

TABLE VIII

ANALYSIS OF VARIANCE FOR RESPONSES FOR PATIENTS RECEIVING A DIURETIC MEDICATION

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Sex	1	0.0219	0.0219	0.03	0.8682
Intervention	1	17.8689	17.8689	22.16	0.0001
Sex + Intervention	1	1.2922	1.2922	1.65	0.2058
Error	47	36.9024	0.7852		
Corrected Total	50	35.6863			

N=51

medications responded to a significantly higher number of correct responses than the female population. These were the only two populations with any significant differences among the genders.

The educational programs effect upon correct responses among gender groups was significantly observed only in the calcium channel blocking population. This difference was observed from the female population increase of 1.7 average correct responses compared to the 0.4 correct response increase of the male population.

The study concluded that the educational program impacted several aspects of the study. Several groups displayed a significant change at the 0.05 level of significance. The study indicates that the educational intervention was the variable that increased the number of correct results.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS,

The purpose of this study was to determine the patients' knowledge of their cardiac medication regime with and without specific educational information provided. This chapter presents the summary, conclusions, and recommendations of this study.

Summary

In order to determine the impact of the educational program provided, it was necessary to determine the differences that existed in the patients that did and did not receive an individualized medication educational component. This was done by investigating the responses of patients receiving cardiac medications with and without an individualized medication educational component.

A literature search was conducted that included the role of cardiac rehabilitation programs and the nurse educators. The review focused upon the four following areas: (1) history of cardiac rehabilitation programs, (2) role of cardiac medications, (3) role of the nurse educator, and (4) review of related research.

The population of this study was defined as those Stillwater Medical Center patients receiving one or more of the following cardiac medications: Apresoline, Capoten, Nitroglycerin,

Bumex, Lasix, Calan, Cardizem, Tenornun, Catapres, Inderal, Lopressor, and Lanoxin. The patients and care givers were assumed to have the cognitive learning ability to assimulate new information and the dexiterity for performance of technical skills. Patients that were being discharged to another hospital facility or nursing home were excluded from this study.

A control group was necessary in order to have a baseline for comparison of results. The control group was administered the questionnaire pertaining to their medication without variance from routine hospital education and discharge procedures. The experimental group was exposed to an additional individualized education program regarding their prescribed specific cardiac medication. This information was additional to the routine education and discharge program of the hospital patients.

A summary of the findings indicated that the educational program resulted in a significant increase of survey correct responses from patients upon discharge than the routine process.

Conclusions

There are several implications resulting from this study.

1. Patients can be discharged with increased knowledge of their medications.

2. By using an educational program that explains the medications on an individualized basis, possible lethal side effects may be avoided.

3. By increasing the knowledge of the patient regarding medications, it may increase patient satisfaction regarding care received.

4. By increasing the knowledge of the patient regarding medications, it may increase patient compliance with medication regime.

5. This system can be utilized as a continuous quality assurance tool as well as a measurement of patients' knowledge.

6. The individualized educational program can affect not only the hospital personnel but personnel in any health care setting.

The results of this study demonstrate that the patient knowledge with individualized educational programs are superior to the routine procedures. The patients had the ability to utilize one person as a resource, and ask questions in a casual atmosphere.

Recommendations

This study demonstrated that the individualized educational component results in an increased awareness of the cardiac medication. The following are recommendations made regarding the study:

1. That Stillwater Medical Center continue provisions of medication information sheet to those patients receiving a specific cardiac medication.

2. That some type of individualized educational program for cardiac patients should be utilized.

3. That similar studies be completed in other hospitals of the same size in various geographical locations.

4. That similar studies be completed in various health care organizations that provide care for cardiac patients.

5. That additional biases be identified and studied.

6. That continued investigations and study be made of all patient educational programs so that on going improvements can be incorporated into the educational system.

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APPENDIXES

APPENDIX A

COVER LETTER

STILLWATER
MEDICAL CENTER

Stillwater Medical Center Patron,

At Stillwater Medical Center, we are constantly trying to improve our care to you. As the Director of Patient Care Services at Stillwater Medical Center, I am asking for your input regarding the discharge teaching process specifically addressing knowledge of medications.

Please assist the staff by completing the questionnaire to the best of your ability. If you are discharged from the hospital prior to receiving the questionaire, a telephone survey will be done. This information will aid the staff at Stillwater Medical Center in identifying the effectiveness of our medication discharge program.

Sincerely,

Pat Lawson

Pat Lawson RN
Stillwater Medical Center
Director of Patient Care Services

I understand that participation is voluntary, that there is no penalty for refusal to participate, and the I am free to withdraw my consent and participation in this project at any time without penalty after notifying the project director.

I may contact Cathy Mueggenborg at telephone number (405) 743-9704 should I wish further information about the research. I may also contact Terry Maciula, University Research Services, 001 Life Sciences East, Oklahoma State University, Stillwater, Ok 74078; Telephone: (405) 744-5700.

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy has been given to me.

Date_____ Time_____

Signed_____
(Signature of Subject)

I have personally explained all elements of this form to the patients or care givers before requesting the patient or care givers to sign it.

Signed Cathy Mueggenborg
(Signature of Researcher)

APPENDIX B

QUESTIONNAIRE

Please complete this survey form regarding your heart medications started during this hospitalization.

1. What is your sex
( ) Male ( ) Female

2. Please check your age range

( ) Under 40 years of age
( ) 40 - 50 years of age
( ) 51 - 60 years of age
( ) 61 - 70 years of age
( ) 71 + years of age

3. This medicine works on the cell level to speed up my heart rate.

( ) AGREE ( ) DISAGREE

4. I need to take my pulse before each dose and if it is below 100, I skip the dose.

( ) AGREE ( ) DISAGREE

5. I need to take this medicine exactly as prescribed.

( ) AGREE ( ) DISAGREE

6. I is safe for me to continue my current exercise program.

( ) AGREE ( ) DISAGREE

7. This medicine needs to be taken at regular timed intervals. ie every 8 hours or every 12 hours.

( ) AGREE ( ) DISAGREE

Please complete this survey form regarding your heart medications started during this hospitalization.

1. What is your sex
( ) Male ( ) Female

2. Please check your age range

( ) Under 40 years of age
( ) 40 - 50 years of age
( ) 51 - 60 years of age
( ) 61 - 70 years of age
( ) 71 + years of age

3. I can change positions as I always have without alteration in speed. (sitting to standing position)

( ) AGREE ( ) DISAGREE

4. If I change my current exercise routine, I need to first discuss it with my physician.

( ) AGREE ( ) DISAGREE

5. I need to take my pulse rate prior to each dose of medicine

( ) AGREE ( ) DISAGREE

6. If I'm on a trip and loose this medication, it is safe to wait until I speak with my own physician and not take any medicine up to 5 days.

( ) AGREE ( ) DISAGREE

7. It does not matter what time of day or relationship to meals when I take this medicine.

( ) AGREE ( ) DISAGREE

8. This medicine is effective in lowering my blood pressure by decreasing the hearts' contraction.

( ) AGREE ( ) DISAGREE

Please complete this survey form regarding your heart medications started during this hospitalization.

1. What is your sex
   ( ) Male ( ) Female

2. Please check your age range

   ( ) Under 40 years of age
   ( ) 40 - 50 years of age
   ( ) 51 - 60 years of age
   ( ) 61 - 70 years of age
   ( ) 71 + years of age

3. I take this medicine to keep the necessary fluids in my body.

   ( ) AGREE ( ) DISAGREE

4. This medicine works through my kidney.

   ( ) AGREE ( ) DISAGREE

5. There are no sodium (salt) restrictions on my diet with this medication.

   ( ) AGREE ( ) DISAGREE

6. I do not need to monitor my excreted fluids in relationship to fluids drank.

   ( ) AGREE ( ) DISAGREE

7. It is best to take this medicine in the morning hours.

   ( ) AGREE ( ) DISAGREE

Please complete this survey form regarding your heart medications started during this hospitalization.

1. What is your sex
   ( ) Male ( ) Female

2. Please check your age range

   ( ) Under 40 years of age
   ( ) 40 - 50 years of age
   ( ) 51 - 60 years of age
   ( ) 61 - 70 years of age
   ( ) 71 + years of age

3. It I have some swelling, it is not normal because this medicine will decrease swelling.

   ( ) AGREE ( ) DISAGREE

4. My salt (sodium) intake will not disturb the effect of this medicine.

   ( ) AGREE ( ) DISAGREE

5. This medication if for my blood pressure.

   ( ) AGREE ( ) DISAGREE

6. This medicine is effective because it relaxes (dilates) blood vessels.

   ( ) AGREE ( ) DISAGREE

7. Because of this medicine, I need to change positions slower than before.

   ( ) AGREE ( ) DISAGREE

APPENDIX C

MEDICATION INFORMATION SHEET

STILLWATER
MEDICAL CENTER

Tenornum (Atenolol)

Used in the management of hypertension (High Blood Pressure). May also be used in treatment of stable angina pectoris.

Action -
Tenornum selectively blocks the beta-adrenergic receptor in the heart muscle. This reduces the diastolic blood pressure.

Recommendations -
1. Take your pulse prior to taking medication. If pulse rate below 60 beats per minute, notify physician before taking medication.

2. Take medications as prescribed by physician.

3. May be dizzy with sudden position changes. Move into upright positions slowly.

4. Notify physician prior to initiation of exercise program.

5. Prior to any surgical procedure, notify your physician that you are taking this medication.

STILLWATER
MEDICAL CENTER

Apresoline (Hydralazine Hydrochloride)

Used most commonly in treatment of moderate hypertension (high blood pressure). Also used in treatment of congestive heart failure.

Action -
This medication decreases the blood pressure by direct relaxation of the vascular smooth muscles.

Recommendations -
1. Notify physician if renal failure is present.

2. Consult physician regarding dietary management i.e. salt intake.

3. Monitor your weight and check for swelling in the legs and hands. Notify physician of sudden weight gain, slow increase in weight, or onset of swelling.

4. Make position changes slowly, especially from lying to standing position.

5. Avoid standing still for long periods of time, taking hot baths/showers, and strenuous exercise.

6. Avoid excessive alcohol intake.

7. Do not stop taking medications suddenly.

8. Keep appointments with physician for follow-up of this medication.

STILLWATER
MEDICAL CENTER

Bumex

Used for edema associated with congestive heart failure and high blood pressure.

Action -
Stimulates the kidney to excrete excess fluid and sodium from the body.

Recommendations -
1. Take medication in early morning to prevent sleep disturbances. If ordered twice daily, take second dose in early afternoon.

2. Monitor urine output in relationship to fluid intake.

3. Notify physician if the following symptoms appear: weakness, dizziness, fatigue,faintness, confusion, muscle cramps, headache, or new hearing difficulty occurs.

4. Keep appointments with physician for medication follow-up.

5. Adhere to Sodium (salt) restrictions.

STILLWATER
MEDICAL CENTER

Calan (Verapamil Hydrochloride, Isoptin)

Used in the treatment of supraventricular tachyarrhythmias and temporary control of heart rate with atrial dsyrhythmias. Also used to relive exercise induced angina.

Action -

This medication inhibits the calcium exchange within the cardiac cell and this slows electrical impulse conduction through the heart. This is the mechanism that slows the heart rate down. Another effect of this medicine is the relaxation of the coronary artery wall which increases blood supply and may assist to reduce angina discomfort.

Recommendations -

1. Take your pulse prior to each dose of medication, if the pulse rate is less than 50 beats per minute or the heart beat is irregular, notify your physician prior to taking your medication.

2. Adhere to your established guidelines for exercise program.

3. Decrease caffeine containing beverages

4. Change positions slowly.

5. Take medications exactly as prescribed by physician. Do Not Alter The Medication Dose Or Change The Frequency Of The Medication.

6. If anginal pain is not reduced while taking this medication, notify your physician.

7. Keep appointments with physician for periodic evaluation of efficacy of medicine and cardiac status.

STILLWATER
MEDICAL CENTER

Capoten (Captopril)

Used in treatment of mild to moderate high blood pressure and congestive heart failure.

Action -
Inhibits the ACE enzyme (Angiotensin-converting enzyme) which causes the blood vessels to relax and thus decreases the blood pressure.

Recommendations -
1. Adhere to sodium restrictions.

2. Notify physician if unexplained fever, unusual fatigue, sore mouth or throat, easy bruising or bleeding occurs.

3. Mild skin irritations may occur during initial phase of medication, notify physician.

4. Mild cough may be experienced.

STILLWATER
MEDICAL CENTER

Cardizem (Diltiazem)

Used in management of coronary artery spasm and angina.

Action -
Coronary artery dilation (relaxation) occurs to relieve angina. Other blood vessels are also increased which decreases the resistance the heart must pump against.

Recommendations -
1. Take medications at time of meals if possible.

2. Notify physician of any problems.

3. Take your pulse prior to each dose of medicine, if the pulse rate is less than 50 beats per minute or is irregular, notify your physician prior to taking your medication.

4. Take medications exactly as prescribed by physician. Do Not Alter The Medication Dose or Change the Frequency of the Medication.

5. Adhere to your established guidelines for exercise program.

STILLWATER
MEDICAL CENTER

Catapres (Clonidine Hydrochloride)

Used in treatment of hypertension by itself or in conjunction with another medication.

Action -
Stimulates the Central Nervous System in a manner that results in a reduction of blood pressure and heart rate.

Recommendations -
1. Make position changes slowly from lying to upright positions especially.

2. Keep physician follow-up appointments for medication follow-up.

3. Operate large equipment carefully and with caution. This medication may make you drowsy.

4. Medication must be stopped slowly. Abrupt withdrawal, particularly after long-term therapy, may result in complications and dramatic increases in blood pressure.

5. Take medication exactly as prescribed by physician. Do not add doses or skip doses of medication.

6. Do not take over the counter medications without prior approval from physician.

STILLWATER
MEDICAL CENTER

Inderal (Propranolol Hydrochloride)

Used in management of cardiac arrhythmias, myocardial infarction, angina, and high blood pressure.

Action -
Inderal works on the heart to decrease the heart rate, myocardial irritability, and the force of contraction.

Recommendations -
1. Take medication prior to meals if possible.

2. Take pulse rate prior to each dose of medication and if irregularity noted or heart outside parameters given by physician, notify physician.

3. Prior to initiation of exercise program, notify physician.

4. Do not abruptly discontinue medication. Take as prescribed by physician.

5. Prior to any surgical procedures, notify your physician that you are taking this medication.

STILLWATER
MEDICAL CENTER

Lanoxin (Digoxin)

Used for maintenance therapy in congestive heart failure, atrial fibrillation and atrial flutter.

Action -
Lanoxin works primarily on the heart muscle by increasing the force of contraction and slowing electrical conduction in the heart.

Recommendations -
1. Check pulse rate prior to administration and if heart rate below 60 beats per minute, notify physician prior to taking dose of medication.

2. If you sense skipped beats or other changes in rhythm, notify physician.

3. Weight yourself daily and if a weight gain of 2 pounds or more noted in a day, notify physician.

4. Reduce salt intake by omitting salty foods.

5. Take medication exactly as prescribed-do not take extra doses or skip doses.

6. Keep this medication out of reach from children.

7. Notify physician prior to administration of any other over the counter medications.

8. Visit with physician prior to initiation of exercise program.

STILLWATER
MEDICAL CENTER

Lasix (Furosemide)

Used in treatment of edema (swelling) associated with congestive heart failure, liver disease, renal disease, & hypertension (high blood pressure).

Action -
Rapid acting medication within the kidney to excrete excess fluids in the body.

Recommendations -
1. To prevent sleep disturbance, take medication in the morning if ordered once per day. Take medication in morning and early afternoon if ordered twice per day.

2. Observe urine output to ensure that the excess fluid is being excreted.

3. If you experience anything out of the ordinary, notify your physician.

4. Adhere to sodium (salt) restriction.

STILLWATER
MEDICAL CENTER

Lopressor (Betaloc, Metoprolol Tartrate)

Used in management of mild to severe hypertension.

Action -
Lopressor selectively blocks the beta-adrenergic receptor which results in lowering the blood pressure.

Recommendations -
1. Due to problems with absorption of this medication, it needs to be taken with food with every dose, or upon an empty stomach with every dose.

2. Take your heart rate prior to each dose, if the rate is below 50 beats per minute or irregular, notify physician prior to taking your medication.

3. Take medication as prescribed by physician.

4. Do not stop taking medication. The medication must slowly be decreased in dosage prior to its' discontinuation.

5. Notify physician of plans for exercise program prior to beginning program.

6. Prior to any surgical procedure, notify your physician that you are taking this medication.

STILLWATER
MEDICAL CENTER

Nitroglycerin (Tridil, Nitrostat, Nitro-Dur, NTG, Transderm-Nitro, Isosorbide Dinitritate)

Used in the prevention and treatment of angina pain.

Action -
Most prominent effect of medication is upon the blood vessels and decreases the resistance within the vessels that the heart pumps against.

Recommendations -
1. Sit or lie down at first indication of anginal pain. Place tablet under tongue while laying down.

2. Relax 15-20 minutes after taking medication.

3. If anginal pain is not relieved after 1 nitroglycerin, take a second tablet 5 minutes after the original tablet. If pain remains unrelieved in 5 more minutes take a 3rd tablet under the tongue. If anginal pain remains after 3rd tablet, have someone take you directly to the emergency room.

4. If possible, retain a record of anginal attacks along with precipitating factors, duration, and frequency of pain.

5. Inform family members of location of NTG bottle.

6. Note expiration date of side of label, medication can expire. Discard bottles opened 6 months ago or longer.

7. Notify physician if angina attacks appear to be increasing in frequency and duration.

8. Carry medical identification card informing health care workers that you are taking this medication.

9. Adhere to sodium (salt) restrictions.

APPENDIX D

OUTLINE FOR EDUCATIONAL PROGRAM

I. Day I

A. Introduction

a. Introduction of study
b. Introduction of researcher

B. Acquire consent for participation

C. Provide medication information sheet

a. Briefly review the medication names
b. Briefly review the uses for the medication
c. Briefly review the action of the medication
d. Briefly review the recommendations
1. Beging teaching skill if indicated

D. Assess current level of understanding regarding medications

II. Day II

A. Invite questions and/or concerns to be verbalized
B. Cover the information sheet in detail. Acknowledge information understood by patient or care giver
C. Teach skills necessary for compliance with recommendations
a. Teach technique for calculation of heart rate per minute. This technique is required for those patients receiving the followign medications: Cardizem, Inderal, Lanoxin, Lopressor, and Tenormun.
b. Provide information for measuring of fluids drank in relation to fluids excreted. This technique is required for those patients receiving the following medications: Bumex and Lasix.
c. Demonstrate with a return demonstration regarding position changes. Changing position from lying to standing position. This technique is required for those patients receiving the following medications: Calan, Catapres, Nigroglycerin, and Tenornum.
d. Display poster for chest pain interventions land administration of nitroglycerin. Patient will verbally state sequence of interventions appropriately.

III. Day III to Discharge

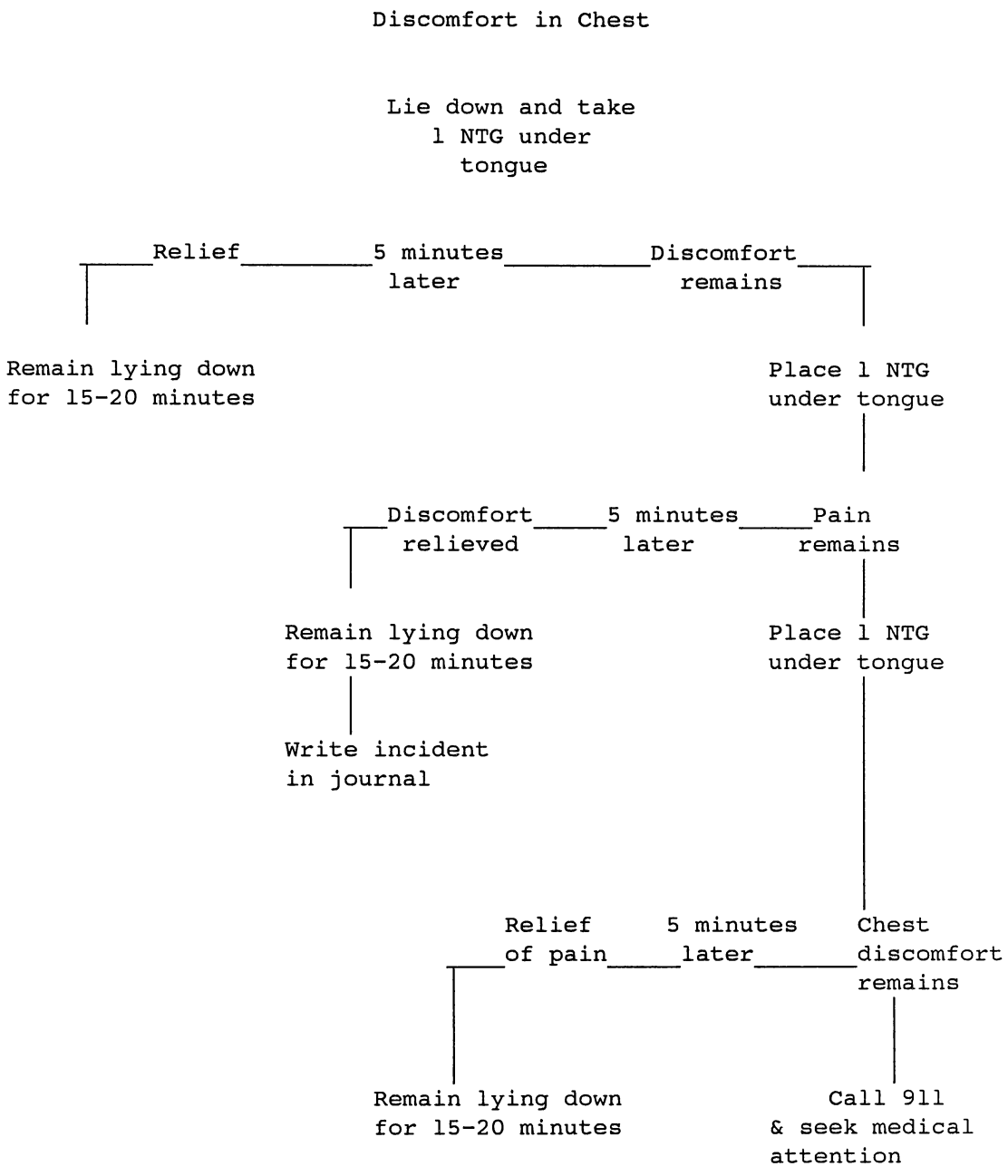
A. Invite questions and/or concerns to be verbalized
B. Review information that patient/care giver understand
C. Review skills for accuracy of techniques
D. Continue to provide detailed instructions, regarding the information that the patient and/or care giver may be questionning.

IV. Discharge

A. Invite questions and/or concerns to be verbalized
B. Request patient or care giver to complete survey
C. Provide appreciation toward the patient and/or care giver for the participation in the study.

!!! C H E S T P A I N !!!

What Do I Do?



VITA

Cathy Mueggenborg

Candidate for the Degree of

Master of Science

Thesis: PATIENTS KNOWLEDGE REGARDING CARDIAC MEDICATION REGIME AT TIME OF HOSPITAL DISCHARGE WITH AND WITHOUT INDIVIDUALIZED EDUCATIONAL PROGRAM

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Personal Data: Born in Kingfisher, Oklahoma, May 25, 1965, the daughter of Paul and Dolores Mueggenborg.

Education: Graduated from C.E. Donart High School, Stillwater, Oklahoma in May, 1983; received Bachelor of Science degree in Nursing from Oklahoma University Health Sciences Center, Oklahoma City, Oklahoma in May, 1987, completed requirements for the Master of Science degree from Oklahoma State University in December, 1992.

Professional Experience: Hospice Nurse, August, 1987-January, 1990; Hillcrest Medical Center Emergency Room RN, Tulsa, Oklahoma, May, 1989-July, 1990; Presbyterian Hospital, Oklahoma City, Oklahoma, Critical Care Float Pool, August, 1990-May, 1991; Stillwater Medical Center, May, 1987-Present; ICU Clinical Coordinator, January, 1990-Present.

Professional Licenses and Registrations: Registered Nurse, by Oklahoma Board of Nurse Registration and Licensure, 1987; Certified Advanced Cardiac Life Support (ACLS) Instructor by American Heart Association, 1990; Certified Emergency Nurse (CEN), by Board of Certification for Emergency Nursing, 1990.

Professional Organization: American Nursing Association; Oklahoma Nursing Association; Emergency Nursing Association; Critical Care Nursing Association; American Heart Association; Red Cross; Oklahoma Organ Sharing Network.