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William Sprague
Aug. 3, 1970

THE EFFICACY OF THE CORONARY PATIENT'S HOSPITAL RECORD IN RESEARCH

by

MILDRED GROW SPRAGUE

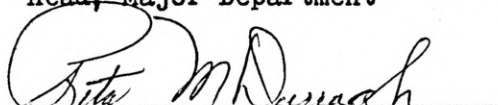
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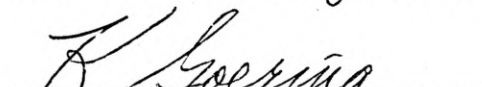
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ABSTRACT

This study was a survey designed to determine if the coronary patient's hospital record was a reliable source of information by which one could determine if there were certain reoccurring stimuli related to the occurrence of premature ventricular contractions.

The sample population consisted of fifteen hospital records of patients who had suffered an acute myocardial infarction and had been hospitalized in the acute coronary care unit of one Montana hospital. These records spanned the time from the inception of the coronary unit in 1968 to March of 1970 when the study was conducted.

The method used to evaluate the records was a comparison between the electrocardiographic rhythm strips, mounted on the hospital record and showing premature ventricular contraction to remarks made on the nurses notes concerning what was happening to the patient or what he was doing at the time the arrhythmia was seen.

The survey revealed a total of sixty episodes of premature ventricular contractions and complications. Twelve of the sixty episodes had some description of patient or nurse activity at the time the arrhythmia was seen. These activities were: after use of commode (twice); napping after dinner (twice); while on bed pan (once); visiting with wife (twice); ambulation (once); receiving bedtime care (once); watching television (three times).

As the coronary patient's records are now written they are not useful for determining the presence of certain reoccurring stimuli in relation to the occurrence of premature ventricular contractions.

Recommendations from the study included the formulation of standardized charting methods.

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Chapter 1

INTRODUCTION

With the advent of coronary heart disease as the nation's leading cause of death, much concern has been aroused over the cause and treatment of this disease process. With the formation of coronary care units, where cardiac patients can be studied en masse, literature on the subject of patients with coronary heart disease has become voluminous.

In 1956 Dr. Hans Selye published the results of his research into stress and disease. In this publication, entitled The Stress of Life¹, Dr. Selye describes the body's reaction to stress and the diseases produced by this reaction. Other studies have investigated isolated stress factors in their relation to the coronary patient. These studies have shown that certain factors in the coronary patient's environment have produced changes in bodily function which are not advantageous to the patient.²

The physical condition of the coronary patient is critical during the first 48-72 hours and changes may occur on a minute to minute basis.³ During this period the patient is in a severe emotional crisis,

¹Hans Selye, M.D., The Stress of Life (McGraw-Hill Book Company, New York, 1956).

²See Chapter 2, Review of Literature.

³Lawrence E. Meltzer, M.D., et al, Intensive Coronary Care, A Manual for Nurses (New York: The Charles Press, 1965), p. 30.

for he is faced with the fact that sudden death is imminent. Activity, either emotional or physical, will increase the metabolic needs of the body and may prove fatal to a patient already in shock.⁴ Since emotional states may be altered by environmental stimuli, the coronary nurse must constantly evaluate the environment for those stimuli that will prove harmful to the patient⁵ - "A person who is hypersensitive in any given sensory area will tend to react to environmental stimuli regardless of his need to rest."⁶

Orlando, in discussing hospitalized patients in general, states:

While it is evident that routines of care, medical orders and activities based on health principles, are designed for the purpose of helping the patient, deliberation is needed to determine whether the activity actually achieves its intended purpose and whether the patient is helped by it.⁷

Orlando's statement is even more applicable to coronary patients whose physical condition necessitates complete physical and emotional rest.

It is the contention of this investigator that many of the activities surrounding the coronary patient are unknown quantities as

⁴Madelyn Nordmark, R.N. and Anne W. Rohweder, R.N., Scientific Foundations of Nursing (Philadelphia: J. B. Lippincott Company, 1967), p. 135.

⁵Ibid., p. 262.

⁶Ibid., p. 134.

⁷Ida Jean Orlando, The Dynamic Nurse-patient Relationship (New York: G. P. Putnam's Sons, 1961), p. 60.

far as their relation to the patient is concerned. These activities certainly need to be studied as they affect the patient in order to aid the coronary nurse in her appraisal of the patient's environment for harmful stimuli.

Nursing experience in the coronary care unit led the author to inquire into the relationship between certain stimuli and the occurrence of premature ventricular contractions. A premature ventricular contraction is a heart beat whose stimulus arises in the lower portion of the heart. A more detailed description of this condition is contained in the Review of Literature. Stimuli, as used by this investigator, includes both physical and emotional factors in the patient's environment and activities of the patient himself.

A review of literature has shown that the electrocardiographic rhythm strip has shown various changes in the heart rhythm when the patient has been exposed to certain stimuli. Among these changes is the occurrence of premature ventricular contractions.

Statement of Purpose

The purpose of this study is to further the investigation into the relationship existing between the occurrence of premature ventricular contractions and stimuli. Information from this study would be useful not only to the coronary nurse as she assesses the coronary patient's environment for harmful stimuli, but to future investigators.

Statement of the Problem

Circumstances necessitated the use of the patient's hospital record as the tool by which the investigation would be carried out. The problem of this study was to determine if this record was a reliable source of information by which one could determine if there were certain reoccurring stimuli related to the occurrence of premature ventricular contractions.

Assumptions and Limitations

Assumptions. There were two assumptions on which this study was based:

1. There is a relationship between stress and bodily disease.
2. Premature ventricular contractions do occur during periods of physical and emotional stress.

Limitations. There were two limitations found in the study:

1. Because of the differences in recording procedures from one coronary unit to another, this study is not necessarily applicable to other coronary units.
2. The study was also limited by studying a random sample rather than the entire target population.

Methodology

This survey of hospital records was conducted during Winter quarter of 1970 at a hospital in one of the larger Montana communities. The records that were utilized in the study concerned all those patients

who had a confirmed diagnosis of acute myocardial infarction and who had also manifested premature ventricular contractions of at least five or more per minute. This classification included the complication of premature ventricular contractions which is ventricular tachycardia. Ventricular tachycardia is a series of rapid premature ventricular contractions. The decision to use premature ventricular contractions as the stress indicator came from literature that supports the occurrence of this arrhythmia in stressful situations. These patients had all been confined in the acute coronary care unit of the hospital, at one time or another from the inception of the coronary care unit in 1968 to March of 1970 when the data was collected.

The target population was selected by the use of the Regional Medical Program records. These records are filled out on all patients admitted to the coronary unit. A host of information concerning the patient is found on these records (See Appendix A), including the final diagnosis and the arrhythmia manifested by the patient during his stay in the acute coronary care unit. These records were examined by the author for: 1) a means of identification for the patient's hospital record, 2) the patient's diagnosis, and 3) the type of arrhythmia displayed by the patient.

The records were identified by use of the hospital number which is assigned to each patient upon admittance to the hospital. Only those records were selected that showed the patient had a confirmed diagnosis

of acute myocardial infarction and displayed an arrhythmia of five premature ventricular contractions or more per minute.

Of these records, every third record was selected to obtain a random sample that would be representative of other hospitalized coronary patients.

Once the sample was chosen, the patient's charts were obtained from the medical record librarian. The charts were then examined by perusing the nurses notes for comments regarding what the patient was doing or what was happening to him when rhythm strips showing premature ventricular contractions had been taken and mounted on the chart.

Definition of Terms

Intensive coronary care unit. A specialized area of a hospital designed, equipped, and staffed for treatment of patients with acute myocardial infarction, suspected or confirmed.

Regional Medical Program. A program instituted by Congress, designed to improve the quantity and quality of the prevention, diagnosis and treatment of heart disease, cancer, stroke and related diseases.⁸

Rhythm strip. A permanent record of the patient's heart beat obtained from a standard electro-cardiograph machine or the heart monitor attached to the patient's chest.

⁸U.S. Department of Health Education and Welfare, Criteria and Guideline for Nurse Training Courses in Coronary Care Units, p. 7.

Organization of the Remainder of the Study

The remaining chapters of this study will include a review of literature, methodology of the study, analysis and interpretation of the study, and summary and conclusions.

Chapter 2

REVIEW OF LITERATURE

The literature presented in this portion of the study will cover three areas: 1) a brief history will be presented to give the reader background information on the disease process called acute myocardial infarction; 2) the second section will be devoted to those studies that have used the electrocardiographic changes as the stress indicator; 3) the final section will present literature that deals with the patient's hospital record.

History

In the early 1900's Dr. James Herrick first described the disease process called myocardial infarction. This condition is a local necrosis of tissue due to a profound and sustained insufficiency of blood and oxygen to the myocardium, the muscle layer of the heart. This destructive state is also known as coronary thrombosis, coronary occlusion, or simply heart attack. All of these terms are used synonymously in clinical practice.⁹ The principle form of treatment for this disease consisted mainly of bedrest. This concept remained the main form of treatment for nearly fifty years, even though other methods of treatment were known. Nearly fourteen years ago Zoll and others¹⁰

⁹Meltzer, op. cit., p. 7.

¹⁰Ibid., p. 24.

showed that electric shock, given externally through the chest wall could successfully terminate a fatal arrhythmia. This discovery had little practical value until now, because of the short interval (about two minutes) between the onset of the arrhythmia and death, in which to assemble the needed equipment and personnel at the bedside. In 1961 Dr. J. R. Jude and associates¹¹ described closed chest cardiac resuscitation for cardiac arrest. This technique required only that a diagnosis of cardiac arrest be made and external cardiac massage instituted immediately. From this study the deduction followed that cardiac resuscitation would be successful on patients with acute myocardial infarction who had suffered a cardiac arrest. This fact was the main stimulus for the formation of coronary care units, where personnel carefully trained in resuscitation techniques, could significantly reduce the death rate from cardiac arrest.

The coronary unit is a specific area within the hospital, designed to allow constant surveillance of the patients by the nursing personnel. It is equipped with specialized instruments such as the defibrillators that are used to shock the fibrillating heart into normal rhythm, and heart monitors that warn of impending cardiac arrest and fibrillation. Since cardiac arrest and ventricular fibrillation rarely occur without warning, the purpose of the cardiac unit has changed from

¹¹J. R. Jude, M.D., et al., "Cardiac Arrest, Report of Application of External Cardiac Massage on 118 Patients," Journal of American Medical Association, 178:1062, 1961.

solely resuscitation to observation and prevention of arrhythmias, arrest, heart failure and shock.

In order that the reader may understand how arrhythmias develop some background information is necessary. The following is a simplified explanation of the normal electrical conduction system of the heart. There is within the upper right portion of the heart an area of specialized pacemaker cells. This area is called the sinoatrial node and initiates all heart beats. This impulse is transferred along specialized conducting fibers to the atrioventricular node (the area where the upper portion of the heart meets the lower portion), after a short delay the impulse enters the right and left bundle branches (Bundle of His, more conduction fibers) and spreads to the Purkinje fibers that distributes the impulse to the ventricular myocardium.

An arrhythmia results from any interference of the electrical conduction system of the heart.¹² They are usually classified according to the site of origin and the form that it takes. The site of origin includes atrial, from the upper portion of the heart, ventricular, from the lower area, sinus, arising in the sinoatrial node, or A-V arising in the atrial ventricular node. The form that an arrhythmia takes is classed according to the speed of the rhythm, irregularities stemming from premature beats arising from areas of the heart other than the

¹²Andrioli, op. cit., p. 4.

sinoatrial node, and blockages of the electrical impulse. Terms that describe the speed of the rhythm are tachycardia, an abnormally fast rhythm; and bradycardia, an abnormally slow rhythm. In fibrillation, the heart muscles are stimulated at such a rapid rate that the recovery period after contraction disappears. As a result the muscle fibers merely twitch continuously but do not contract. Premature beats are early beats that may arise in any portion of the heart muscle. Blockage of the electrical impulse is referred to as heart block.

In acute myocardial infarction the most common arrhythmia is the occurrence of premature ventricular contractions. Not only are they the most common, but they are also the most dangerous, for they warn of impending ventricular tachycardia or fibrillation. Ventricular fibrillation is responsible for at least 80% of sudden deaths due to arrhythmias.¹³

The Regional Medical Program has contributed greatly to the formation of the coronary care unit throughout the United States. This is a program instituted by Congress, designed to improve the quantity and quality of the prevention, diagnosis and treatment of heart disease, cancer, stroke and related diseases. The program entails cooperation from all health resources of an area, focused on the specific needs of

¹³Harold A. Braun, M.D., et al., Coronary Care Unit Nursing Part II, A Workbook in Clinical Aspects, Mountain Press, Missoula, Montana, 1969.

that area and putting knowledge from research into practice. The program is a part of Health Services and Mental Health Administration within the Department of Health, Education and Welfare. The National Advisory Council and its review committee provide advice and assistance to the regions as they develop their planning and operation programs.

A cooperative arrangement exists among medical schools, research institutions, and hospitals for research and training in an area to aid existing health resources in outlying districts, that do not have the advantage of being close to large medical centers. Application for aid is made through a non-profit organization. In the Mountain States Region this agency is the Western Interstate Council for Health Education.

Montana is included in the Mountain States Regional Medical Program along with Idaho, Nevada, and Wyoming. There are no set boundaries of the program and application for aid may go to the nearest or most convenient center.¹⁴

As coronary care units have become increasingly popular, at no little expense to the hospital, it is deemed of interest at this point to offer a report on the effectiveness of these units. Numerous studies have been published on this subject and typical of these is

¹⁴Veronica L. Canlez, and Stanley W. Olson, "Regional Medical Programs," American Journal of Nursing, September, 1968, p. 1916.

Meltzer's report from Presbyterian Hospital.

Perhaps the most definitive evidence in behalf of intensive care comes from a continuing study at the Presbyterian Hospital. In this investigation, fatality rates have been compared among those patients with acute infarctions, treated under the optimum conditions of the intensive care unit, versus patients receiving normal care in regular hospital facilities. Random selections of patients was achieved and since the same physicians treated both groups of patients the major variant has been the system of intensive care. Using the fatality rate at 72 hours as the point of comparison, the results in over 200 patients thus far show a 35% reduction in the mortality among those treated in the intensive care unit.¹⁵

Studies Relating Stress Factors to Electrocardiographic Changes

Numerous studies have been written concerning the response of the circulatory system to additional work load from both physical and emotional causes. The majority of these studies have used such items as oxygen consumption¹⁶, increased heart rate, or increased blood pressure¹⁷ as the determining factor by which the level of stress was evaluated. There were three reports that could be found that utilized electrocardiographic changes for determination of stress agents in cardiac patients.

The following report by Norman Shaftel and associates is

¹⁵Meltzer, op. cit., p. 31.

¹⁶M. Flores Angeles and Lenore R. Zohman, "Energy Cost of Bed Making to the Cardiac Patient and the Nurse," American Journal of Nursing, 70:1264, 1970.

¹⁷J. A. Mathews, et al., "Effect of Ascending Ordinary Flight of Stairs on the Work Load of the Heart," Circulation, 3:224, 1951.

primarily concerned with the production of cardiographic changes produced by the Valsalva maneuver. This maneuver describes the increase of pressure within the lungs when straining during defecation occurs. The result is a decrease of circulation to the heart. The Valsalva maneuver is described more fully at the end of the report.

The target population consisted of a group of 209 subjects, of these 104 were males, ranging in age from 14 to sixty-six years. These groups evidenced no cardiac abnormalities after examination by a detailed history, physical examination, cardiac fluoroscopy or roentgenography, a routine twelve lead electrocardiogram, and, when feasible a single or two step exercise test.

The Valsalva maneuver was performed by having each subject maintain an expiratory pressure of at least 40mm og for 10 to 12 seconds by blowing into a sphygmmanometer.

Of the 209 subjects forty seven (22.5%) exhibited one or more electrocardiographic changes. These modifications included lowering of the T waves to less than half value, inversion of the T waves and a depression of the S-T segment. In addition there was some disturbance in rhythm such as premature ventricular beats or incomplete heart block.¹⁸

The authors felt that the most likely explanation of the changes would appear to be related to the hemodynamics of the Valsalva maneuver itself.

Shortly after the onset of this maneuver, blood is pooled in the extremities and cardiac filling is reduced. As a result the cardiac output is quite low and the arterial systolic and pulse pressures are minimal, often described as "empty pulses". It seems reasonable to assume a minimal coronary perfusion resulting in a worsening of the myocardial nutrition.

¹⁸ Norman Shaftel, et al., "Electrocardiographic Changes Produced by the Valsalva Maneuver in Healthy Adults," The American Journal of Cardiology, April, 1960, p. 473.

Shaftel et al believe that this Valsalva maneuver may account for cardiac fatalities during bowel evacuation. Work in progress on cardiac patients indicates such possibilities. It is possible that those patients who evidenced cardiographic changes may have occult coronary disease.

Another more comprehensive study was made by Stevenson and Duncan in an effort to correlate cardiovascular function and life stress. Seventy clinical patients were followed for a period of six months to two years. All of these patients had various complaints of cardiovascular disturbances.

Information concerning cardiovascular function was obtained by measuring heart rate, stroke volume, blood pressure and by recording electrocardiograms.

The response to physical and emotional stress was measured by electrocardiograms taken during certain exercises, then related to the prevailing life situation.

The authors report the following conclusions:

1. In the few instances where the stress evokes dejection and despair the cardiovascular response was a hypodynamic one, with decrease in the heart rate and cardiac output and usually a lowering of the blood pressure.
2. Tolerance to exercise was impaired during periods of anxiety and resentment related to life stress, with an exaggerated cardio-

vascular response to the exercises.

3. Rapid alterations in the electrocardiogram, including changes in the amplitude and direction of the T wave, occurred in association with changes in the feeling state.
4. Disturbances in the cardiac rhythm occurred in relation to anxiety, resentment and depression evoked by life stress.¹⁹

A more recent and ongoing study conducted at Emory University by Gerald F. Fletcher discusses the ability of rectal temperature to stimulate the vagal mechanisms as evidenced by electrocardiographic changes.

In a study of 44 patients thus far, the Emory University group found electrocardiographic changes during sigmoidoscopy. These changes were found in 60 percent of the patients without heart disease and in 75 percent of the patients with known heart disease. These changes included increased heart rate of 10 or more beats per minute, ectopic beats in 25 percent, S-T elevation or depression of at least one millimeter in 25 percent, and non-specific T wave alterations in 30 percent.²⁰

¹⁹Ian Stevenson, M.D., and Charles H. Duncan, M.D., "Alteration in Cardiac Function and Circulatory Efficiency During Periods of Life Stress as Shown by Changes in the Rate, Rhythm Electrocardiographic pattern and output of the Heart in Those with Cardiovascular Disease," Research Publication Association, Review of Nervous and Mental Disorders Vol. 29, 1950, p. 799.

²⁰Gerald F. Fletcher, et al., "Atlanta M.D. Sees Hazard in Rectal Thermometers," American Journal of Nursing, Vol. 67, No. 12, p. 2598.

Studies Relating to the Use of the Hospital Record in Research

A thorough review of literature revealed a decided lack of studies utilizing the patient's hospital record for research purposes. This is not to say that there is a dearth of literature concerning the hospital record. Quite the contrary, for the nurses notes have been the subject for many studies, all with the same end in view, namely providing a clear and precise record to facilitate better patient care.

In a study published in Nursing Research, author Rita F. Stein describes the ideal instrument for use in recording nurses notes by hospital personnel as an automated standardized one which provides a common frame of reference, allows for choices in a forced recall basis, yet maintains flexibility of notation. She explains that in the interest of more efficient patient care, observation and communication, and predictive potential for clinical research, an instrument for recording patient care was constructed, revised and evaluated. A resume of progress in the development of the report on medical and surgical wards indicated that in this study computerization of forced recall clinical data promoted accuracy and reliability in reporting. Automated reports tended to give more information than traditional reports and inferences are suggested for potential in predicting crises situations.²¹

Rosenberg and Cariker stated in "Automating Nurses Notes," that

²¹ Rita F. Stein, "An Exploratory Study in the Development and Use of Automated Nurses Notes," Nursing Research, 18:14, Jan-Feb. 1969.

by using the automated technique nursing personnel quickly chart refined observations which would otherwise require extensive writing. Having the opportunity to record more information has sharpened their observation of patient behavior. This record was a check list that did not allow for extra notation. However, the material was constructed for easy computerization of data.²²

In a report that does not utilize computerization of data, Elizabeth M. Morgan describes an attempt to improve the nurses notes by combining them with the doctors notes on the patients progress. This method used the entire page for notes rather than a small column on the right hand side of the page.²³

Alice W. Banks, et al., in "Tape Recorded Nurses Notes," Nursing Outlook, 14:32, October, 1966, describes a central dictating system used at Anne Arundel General Hospital, Annapolis, Maryland, for recording nurses notes. Findings from the use of this central dictating system included: 1) nursing personnel experienced no difficulty in using the equipment, 2) this method reduced the number of trips made to the nurses station, 3) improvement in recorded observations was significantly greater than written notes. Phones were so placed that the nurse

²²Melvin Rosenberg and Delores Cariker, "Automating Nurses Notes," American Journal of Nursing, 66:1021, May, 1966.

²³Elizabeth M. Morgan, "New Chart Forms Solve Old Problems," American Journal of Nursing, 65:93, March, 1965.

could dictate immediately after she left the patient's room and before going to another one. 4) Time consumer in noting observations was decreased by 83 percent. The main conclusions drawn were more time available for nurses to be with the patients and better nursing notes. There is also the necessity for revising the role of the ward secretary as she would not be able to do all the transcribing plus her other duties.

Chapter 3

METHODOLOGY

The Problem

The problem of this study was to determine if this record was a reliable source of information by which one could determine if there were certain reoccurring stimuli related to the occurrence of premature ventricular contractions.

The Sample

In order to yield consistant results it was decided by the investigator to use only the records of patients who had suffered an acute myocardial infarction. Not all patients admitted to the coronary unit have a confirmed diagnosis of an infarction at the time of their admittance to the unit. Should it be discovered that the patient has a condition other than a heart problem he is generally transferred out of the acute coronary care unit. The decision to use premature ventricular contractions as the stress indicator came from literature which supports the presence of premature ventricular contractions in stressful situations. Ventricular tachycardia was included because this arrhythmia comes under the heading of five or more premature ventricular contractions per minute. Ventricular tachycardia is a series of rapid premature ventricular contractions.

The Method

It was fortunate for this investigator that a means of selecting the patient population existed within the coronary unit. Regional Medical Program records are filled out on every patient admitted to the coronary unit. These are filed in alphabetical order and kept in a special room on the same floor as the acute care unit. These records contained the patient's diagnosis and the types of arrhythmia manifested, among many other items concerning the patient. (See Appendix A) These records were perused systematically for all those patients who had evidenced those variables necessary to the study.

A target population of 45 patients was obtained through the use of the Regional Medical Program records that spanned the years from 1968, when the coronary care unit at this hospital was formed, to March of 1970 when the survey was conducted. A random sample of the target population was obtained by selecting every third record. It was hoped that this sample would be representative of other hospitalized coronary patients.

The patient records were identified by use of the hospital number assigned to every patient on admission to the hospital. This number was then submitted to the medical records librarian to obtain the hospital charts of the sample population.

In this coronary unit, rhythm strips of the patient's heart beat were taken periodically and mounted on the patient's chart. The

location of these mountings on the chart varied. When this coronary unit was established it was the practice to mount the strips on the nurses notes across from the remarks column. At a later date a separate sheet was designed to accommodate the rhythm strips. This sheet was placed in the front of the chart, some distance from the nurses notes.

In order to cross check, every rhythm strip on the patient's chart was read by the author and all those showing premature ventricular contraction, or ventricular tachycardia were duly noted by recording the time these occurred. Every strip had been marked with the time it had been taken. The nurses notes were then read thoroughly to find any remarks concerning an activity that would correspond to the time the rhythm strips were taken and mounted. Subsequently, an effort was made to compare the rhythm strips with the remarks made by the nurses in the nurses notes. Information received from this research was then tabulated under the heading of time, type of arrhythmia, and remarks.

Three patients were excluded from the study because information found on their hospital records did not confirm the diagnosis or the arrhythmia as stated in the Regional Medical Program records.

Chapter 4

ANALYSIS AND INTERPRETATION OF DATA

Description of the Sample

The records under study were obtained by random selection from a target population of 45 patient hospital charts. Every third chart was used to obtain a sample that would be indicative of all hospitalized coronary patients who had suffered an acute myocardial infarction and manifested a ventricular arrhythmia of at least five or more premature ventricular contractions per minute.

The records spanned the time from the inception of the coronary unit at a Montana hospital in 1968 to March of 1970 when the study was conducted.

The fifteen hospital charts obtained by the sampling method were examined for the arrhythmia of choice and notations concerning what the patient was doing or what was being done to the patient at the time the arrhythmia was seen on the monitor.

The results of the survey were tabulated under the headings of Time, Type of Arrhythmia, and Remarks. The results are found in Appendix B.

There were a total of sixty episodes of premature ventricular contractions and complications of ventricular tachycardia or fibrillation noted. Of these a total of twelve had some description of

patient or nurse activity at the time the arrhythmia was seen. One patient, while on the bed pan, experienced bigeminy, a premature ventricular contraction on every other beat. Another patient, fifteen minutes after use of the commode, had episodes of premature ventricular contractions on two different occasions. Two patients experienced the onset of premature ventricular contractions on two occasions while napping after dinner. Another patient experienced the onset of premature ventricular contractions on two occasions while visiting with his wife. One patient experienced premature ventricular contractions during ambulation, while another patient experienced the same effect while receiving routine bed time care. Three patients each had one episode of premature ventricular contractions while watching television. One comment described the patient's emotional state during the occurrence of premature ventricular contractions.

There were sixteen episodes reported as having occurred during sleep. Nineteen episodes were reported where there was no mention made of patient activity (or nurse activity) at the time rhythm strips showing the presence of premature ventricular contractions were taken.

There were other occasions in which comments were made concerning the arrhythmia; however, no rhythm strip could be found to substantiate the remark, nor was any activity mentioned.

In the investigation of the hospital record it was noted that rarely was an evaluation of the rhythm strip recorded on the nurses

notes.

Chapter 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This study was a survey designed to determine if the coronary patient's hospital record was a reliable source of information by which one could determine if there were certain reoccurring stimuli related to the occurrence of premature ventricular contractions.

The sample population consisted of fifteen hospital records of patients who had suffered an acute myocardial infarction and had been hospitalized in the acute coronary care unit of one Montana hospital. These records spanned the time from the inception of the coronary unit in 1968 to March of 1970 when the study was conducted.

The method used to evaluate the records was a comparison of electrocardiographic rhythm strips showing premature ventricular contractions and remarks made on the nurses notes concerning the patient at that time.

The survey revealed a total of sixty episodes of premature ventricular contractions and complications. Twelve of the sixty episodes had some description of patient or nurse activity at the time the arrhythmia was seen. These activities were: after use of commode (twice); napping after dinner (twice); while on bed pan (once); visiting with wife (twice); ambulation (once); receiving bedtime care (once); watching television (three times).

Conclusions

Of the stimuli noted in the nurses notes, none were repeated with any frequency, nor were any of the stimuli common to all patients.

As the coronary patient's records are now written they are not useful for determining the relationship between certain reoccurring stimuli and the occurrence of premature ventricular contractions. There is no consistency in: 1) recording the patient's reaction to environmental stimuli on the nurses notes; and 2) the mounting of rhythm strips in the record when an arrhythmia is seen on the monitor.

Because of these facts the patient's hospital record cannot be considered a reliable research tool for this type of survey.

Recommendations

It is necessary that the patient's hospital record be a complete and accurate transcription of the patient's progress, not only because the hospital record is considered to be a legal document²⁴, but for the physicians use and information. Since the doctor generally sees the patient at widely spaced intervals he must rely on the accuracy of the nurses' recording for factual and precise information concerning the patient's condition.

It would certainly be a great aid to research if the patient's

²⁴Nathan Hershey, "Nurses Notes. They Can Play a Critical Role in Court," American Journal of Nursing, November 1969, p. 2403.

hospital record could be brought up to a standard where it was consistent and precise.

This study has certainly provided an awareness of the need for development of objectives in the area of recording. An answer is needed to the following question before any plan of action to improve charting procedures is undertaken. What should nurses notes contain? Once this question has been solved the problem of how these observations should be recorded can be investigated.

It is therefore recommended that the above question be investigated and a system of standardized charting methods be employed. It is also recommended that these charting procedures be incorporated into educational programs for nurses.

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APPENDIX A

CONTENTS

APPENDIX A

Typed Reproduction of the Regional Medical Program form

1. IDENTIFYING DATA (* Data desirable but not essential.) (Print or use addressograph)

* Name _____
 Last First Initial
 Hospital No. _____ Admission date: _____
 Age: _____ Birthdate _____ Sex _____
 Hosp. name: _____ 136 _____
 Hosp. location _____
 * Physician _____

CLASSIFICATION ON ADMISSION

2. _____ Class I No complications. Left vent. function seems good.
 3. _____ Class II Cong. heart failure, mild or mod. Hypotension
 without clinical shock.
 4. _____ Class III Acute pulmonary edema.
 5. _____ Class IV Clinical shock (cold & clammy. CNS Sx. BP 80)
 6. _____ Class V Admitted with cardiac arrest.

ADMISSION DIAGNOSIS

7. _____ A. Acute transmural infarction
 8. _____ B. Probable acute infarction
 9. _____ C. Possible acute infarction
 10. _____ D. _____

INTERVAL FROM ONSET OF SYMPTOMS TO ADMISSION

11. _____ 0 - 12 hours
 12. _____ $\frac{1}{2}$ - 1 day
 13. _____ 2 days
 14. _____ 3 days
 15. _____ 4 or more days

DISCHARGE DIAGNOSIS

16. A. _____ Acute Transmural Infarction
 Yes No
 17. _____ | _____ Symptoms
 18. _____ | _____ Q waves
 19. _____ | _____ Changing ECG
 20. _____ | _____ Enzyme rise
 21. B. _____ Probable Acute Infarction
 22. _____ | _____ Symptoms
 23. _____ | _____ ST-T abnormalities
 24. _____ | _____ Changing ECG
 25. _____ | _____ Enzyme rise

26. C. Possible Acute Infarction

Yes No

27. Symptoms

28. Abnormal non-specific ECG

29. Enzymes equivocal or normal

135. D. Other

DISCHARGE STATUS

Alive

Dead

Date

from Intensive Coronary Care 30. 31. 32.

from Hospital 33. 34. 35.

36. Routine Hospital facilities throughout entire stay

37. Intensive Coronary Care Facilities utilized

38. from 39. to

COMPLICATIONS

I. Arrhythmias

	Never	Yes	List dates if you can
70.	<u> </u>	<u> </u>	Atrial fib.
71.	<u> </u>	<u> </u>	Atrial flutter
72.	<u> </u>	<u> </u>	Atrial tachy.
73.	<u> </u>	<u> </u>	A-V block 1 ^o
74.	<u> </u>	<u> </u>	A-V block 2 ^o
75.	<u> </u>	<u> </u>	A-V block 3 ^o
76.	<u> </u>	<u> </u>	BBB
77.	<u> </u>	<u> </u>	Nodal rhythm
78.	<u> </u>	<u> </u>	Nodal tachy.
79.	<u> </u>	<u> </u>	Prem. at beats (5+/min)
80.	<u> </u>	<u> </u>	Prem. vent. beats (5+/min)
81.	<u> </u>	<u> </u>	Sinus standstill
82.	<u> </u>	<u> </u>	Sinus brady. (60 or less)
83.	<u> </u>	<u> </u>	Sinus tachy. (100 or more)
84.	<u> </u>	<u> </u>	Vent. fib., PRIMARY
87.	<u> </u>	<u> </u>	Vent. fib., SECONDARY
85.	<u> </u>	<u> </u>	Vent. standstill, PRIMARY
88.	<u> </u>	<u> </u>	Vent. standstill, SECONDARY
86.	<u> </u>	<u> </u>	Vent. tachy.
89.	<u> </u>	<u> </u>	
90.	<u> </u>	<u> </u>	

II. Congestive Heart Failure

91. Slight or moderate

92. Frank pulmonary edema

III. Cardiogenic shock

93. Brief or mild

94. Profound (cold & clammy; CNS Sx; BP 80)

Never Yes List dates if you can

IV. Embolism

95. _____ Pulmonary

96. _____ Systemic

LAB. AND TEMP.

Date	Hosp. day	Enzymes			12 Lead ECG		Max. temp.	
		SGOT	LDH		yes	no		
	1	40	46	52	58		64	po R
	2	41	47	53	59		65	po R
	3	42	48	54	60		66	po R
	4	43	49	55	61		67	po R
		44	50	56	62		68	po R
		45	51	57	63		69	po R

THERAPY RECEIVED:

Never Yes List dates if you can

97. _____ I.V. drip

98. _____ Rotating tourniquets

99. _____ Central venous pressure

100. _____

101. _____ PRECORDIAL SHOCK for

102. _____ Vent. fibrillation

103. _____ Vent. tachycardia

104. _____ Atrial fibrillation

105. _____ Atrial flutter

106. _____ Atrial tachycardia

107. _____ Shock by RN without M.D.

108. _____ Shock by RN with M.D.

109. _____ Shock by M.D.

110. _____ MONITORED ECG

111. _____ Bedside monitor only

112. _____ Bedside & central station

113. _____ CARDIOPULMONARY RESUSCITATION

114. _____ Closed chest

115. _____ Open chest

116. _____ 24 hr. survival

	Never	Yes	List dates if you can
			DRUGS
117.			Atropine
118.			Digitalis
119.			Diphenylhydantoin
120.			Isoproterenol
121.			Lidocaine
122.			Procaine amide
123.			Propranalol
124.			Quinidine
125.			Oxygen
126.			
127.			PACEMAKER
128.			External applied but not used
129.			External used
130.			Transvenous inserted but not used
131.			Transvenous used
132.			Direct myocardial puncture
133.			R.N. _____
	(completed by)		M.D. 134. _____
			(date)

WICHE Mountain States RMP

CORONARY CARE DATA FORM

APPENDIX B

APPENDIX B

Results Obtained From the Survey of the Patient's Hospital
Record Comparing the Occurrence of Premature Ventricular
Contractions to Remarks in the Nurses Notes

Patient Number	Time	Type of Arrhythmia	Comments
1	2:50 a.m.	Brady cardia	sleeping
	2:00 p.m.	5 premature ventricular contractions x 1	sleeping
2.	1:15 a.m.	Bigeminy	on bed pan
	10:40 a.m.	Bigeminy	sleeping
	10:30 a.m.	Ventricular tachycardia	out of bed
	4:10 p.m.	Ventricular tachycardia	sleeping
	12:00 M	Ventricular tachycardia	sleeping
	7:30 a.m.	Ventricular tachycardia	sleeping
3.	3:35 p.m.	occ. premature ventricular cont.	no comment *
	9:30 p.m.	occ. premature ventricular cont.	H.S. care
	12:00 M	occ. premature ventricular cont.	dozing
	3:35 p.m.	ventricular tachycardia	no comment *
	12:00 M -		
	6:00 a.m.	occ. premature ventricular cont.	dozing
4.	4:00 p.m.	ventricular tachycardia	dozing
	9:30 p.m.	no strip	no comment *
	11:26 p.m.	premature ventricular contraction	sleeping
	8:35 a.m.	ventricular tachycardia	no comment *
	8:45	no strip	dead
5.	5:00 a.m.	occ. premature ventricular cont.	no comment *
	5:45 p.m.	occ. premature ventricular cont.	no comment *
	3:30 p.m.	occ. premature ventricular cont.	sleeping
	7:30 a.m.	occ. premature ventricular cont.	tense
	1:00 p.m.	occ. premature ventricular cont.	no comment *
6.	5:50 a.m.	occ. premature ventricular cont.	sleeping
	4:10 p.m.	occ. premature ventricular cont.	resting
	8:45 a.m.	occ. premature ventricular cont.	no comment *
	12:00 noon	occ. premature ventricular cont.	visiting with wife

Patient Number	Time	Type of Arrhythmia	Comments
6 continued			
	2:15 a.m.	occ. premature ventricular cont.	sleeping
	9:30 p.m.	occ. premature ventricular cont.	visiting wife and watching T.V.
7.	12:00 M.	occ. premature ventricular cont.	no comment *
	2:00 a.m.	occ. premature ventricular cont.	at intervals
	10:40 a.m.	occ. premature ventricular cont.	after commode
	2:00 p.m.	occ. premature ventricular cont.	watching T.V.
	6:30 p.m.	occ. premature ventricular cont.	after commode
	4:00 p.m.	occ. premature ventricular cont.	sleeping
8.	6:30 a.m.	no rhythm strip	15 minutes after commode
	12:40 a.m.	no rhythm strip	no comment *
9.	6:15 a.m.	no rhythm strip	no comment *
	9:00 p.m.	no rhythm strip	no comment *
10.	8:15 p.m.	ventricular tachycardia	no comment *
	9:30 p.m.	ventricular tachycardia	no comment *
	11:15 a.m.	ventricular fibrillation	alert
	12:40 a.m.	ventricular tachycardia	no comment *
	1:00 a.m.	ventricular tachycardia	sleeping
	6:30 p.m.	occ. premature ventricular cont.	restless and awake
	8:45 p.m.	occ. premature ventricular cont.	no comment *
11.	9:12 p.m.	ventricular fibrillation	resting
	2:24 a.m.	ventricular fibrillation	dozing
	3:53 a.m.	occ. premature ventricular cont.	sleeping
	4:10 a.m.	ventricular fibrillation	sleeping
	7:25 a.m.	ventricular tachycardia	alert
12.	3:30 a.m.	occ. premature ventricular cont.	restless
	7:10 a.m.	occ. premature ventricular cont.	no comment *
	6:45 p.m.	occ. premature ventricular cont.	sleeping
	1:00 a.m.	occ. premature ventricular cont.	sleeping

Patient Number	Time	Type of Arrhythmia	Comments
13.	11:10 a.m.	occ. premature ventricular cont.	no comment *
	11:35	occ. premature ventricular cont.	no comment *
14.	6:45 p.m.	occ. premature ventricular cont.	no comment*
	5:40	occ. premature ventricular cont.	after dinner
	1:00 p.m.	occ. premature ventricular cont.	watching T.V.
15.	6:00 p.m.	4/6 per minute	after dinner
	2:00 a.m.	no rhythm strip	restless

*The no comment in the remarks column indicates that there was no comment regarding any environmental stimuli at that time. Where a rhythm strip had been taken the remarks column would simply state the occurrence of the arrhythmia.