CONCERNS OF ADULT OPEN HEART SURGERY PATIENTS DURING THE THREE TO FOUR WEEKS FOLLOWING DISCHARGE FROM HOSPITAL

by

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ABSTRACT

A DESCRIPTIVE STUDY TO EXPLORE THE CONCERNS OF ADULT OPEN HEART SURGERY PATIENTS DURING THE THREE TO FOUR WEEKS FOLLOWING DISCHARGE FROM HOSPITAL

This descriptive study was designed to explore the perceived concerns of open heart surgery patients following their discharge from hospital. The study was conducted by means of semi-structured interviews of twenty patients who were convalescing from open heart surgery, who met a set of specified criteria, and who gave written consent to participate in the study. All twenty patients had undergone open heart surgery in a large urban hospital over a period of four months.

The patients were interviewed by the investigator during their third or fourth week at home in order to obtain a fairly accurate view of the concerns and difficulties faced by them early in their convalescence. Subsequently, the investigator was to identify the common concerns.

A semi-structured, verbal interview schedule was employed to elicit spontaneous responses about the patients' physiological, emotional and socio-economic concerns. Patients were also asked for some evaluation of the printed Discharge Guidelines they received prior to hospital discharge. The investigator transcribed the tape-recorded

interviews and compiled the data noting specific common concerns of patients during said period of convalescence.

Ninety-five percent of the patients expressed concerns of a physiological nature. The most common concerns in this area were pain, difficulty sleeping, and continued weakness and tiredness. Seventy-five percent of the study group experienced emotional concerns, the most common being frustration resulting from a low tolerance for physical activity, and feelings of depression. Thirty percent of the patients expressed socio-economic concerns of which only one concern, that of financial need, was common to two of the patients.

All twenty patients received the Discharge Guidelines in the hospital. Nineteen of these instruction sheets were completed, one was not. Eighty-five percent of the patients received some explanation of these printed instructions. Thirty-five percent of the study group received some written elaboration of the instructions, including a schedule for increasing walking activity.

The study concluded with recommendations for better preparation of open heart surgery patients for hospital discharge, and suggestions of areas for further investigation.

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CHAPTER I

INTRODUCTION TO THE STUDY

INTRODUCTION

Health education is a responsibility of the hospital that delivers health care to patients. Because learning is motivated by need it becomes a responsibility of health professionals to ascertain the patients' needs for learning.[1] One tangible way of identifying patients' common learning needs is to document the concerns and difficulties experienced by patients with similar conditions. Until this type of documentation is available the content of health education programs risks being somewhat irrelevant to the patients' actual situations. This study was undertaken to explore the concerns and difficulties of a specifically defined group of patients, although the larger need was recognized.

THE PROBLEM

Statement of the Problem

The factors which combined to give impetus to

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[1]Carl R. Rogers, Freedom to Learn (Columbus, Ohio: Charles E. Merrill Publishing Co., 1969), pp. 158-159.

initiating this study were the investigator's personal experience of having undergone open heart surgery and the dearth of documentation available as to the difficulties and worries experienced by the open heart surgical patient following his discharge from the hospital. It seemed appropriate, therefore, to invite patients to express their concerns; i.e. the events or feelings that caused them discomfort or anxiety or that raised questions during their first three to four weeks out of the hospital.

Significance of the Problem

During the past twenty years open heart surgery has become commonplace in the larger medical centers in Canada. At the time of the study open heart surgery candidates from British Columbia and the Yukon Territory were referred for their operations to two medical facilities in Vancouver. In one of the facilities, the group of "out-of-town" patients comprised nearly one-third of the population in the cardiac surgical unit. These patients often returned to their homes immediately following discharge from hospital and their local physicians guided their convalescent course. As Aspinall pointed out, a planned postoperative teaching program was essential to prepare these patients for discharge and to ensure continuity of care during the ensuing convalescent period.[2]

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[2]Mary Jo Aspinall, Nursing the Open-Heart Surgery Patient (New York: McGraw-Hill Co., 1973), p. 222.

Despite the fact that open heart surgery was now a relatively common type of major surgery and the risk factor was as low as two percent in many cases,[3] the patient often saw himself with a mere fifty percent chance of survival, thereby unnecessarily increasing his anxiety level.[4] Preoperative teaching programs which included information and instructions had been devised in most cardiac surgical units to help allay the patients' anxiety and to promote their participation in their own care preoperatively and postoperatively.[5] Postoperative teaching and discharge preparation was a different matter. Pohl stated that in common practice this was an area which did not receive the emphasis it deserved:

> As a rule, convalescent patients are well motivated to learn because they want to return to their homes and resume their normal lives... The teaching of the convalescent patient is, unfortunately, often neglected. It is unfortunate because this is the time when teaching and learning may be most effective... when he and his family know that he is safe and everyone's emotions are under control.[6]

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[3]University of Toronto Interhospital Cardiovascular Surgical Group, "The First 1000 Coronary Artery Repair Operations in Toronto;" Canadian Medical Association Journal, CXI (September 21, 1974), 525.

[4]Richard S. Blacher, "The Hidden Psychosis of Open-Heart Surgery," Journal of American Medical Association, CCXXII (October 16, 1972), 306.

[5]Madeleine L. Long, Mary Scheuhing, and Judith L. Christian, "Cardiopulmonary Bypass," American Journal of Nursing, LXXIV (May, 1974), 863-865.

[6]Margaret L. Pohl, The Teaching Function of the Nursing Practitioner (2d ed.; Dubuque: Wm. C. Brown Co. Publishers, 1973), pp. 45-46.

Many studies reported on the severe physical and psychological stresses of cardiotomy patients during the immediate postoperative period. Other studies reported the long-term results of open heart surgery and also the success in rehabilitating these patients. The early convalescent phase following hospital discharge had apparently been almost neglected by the researchers and the problems and concerns of patients during this period remained to be identified more conclusively.[7]

Purpose of the Study

The purpose of this study was to explore the concerns perceived by patients who had undergone open heart surgery. This survey was to deal with the first three to four weeks following discharge from hospital, and subsequently the investigator was to identify the concerns common to these patients.

Objectives of the Study

The objectives of this study were to:

1. identify the physiological, emotional and socio-economic concerns of open heart surgery patients during the first three to four weeks following hospital discharge;

2. identify concerns common to these patients;

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[7]Sharon C. Wahl, "The Problems of Thirty-One Post-Operative Open Heart Surgery Patients after Discharge" (unpublished Master's thesis, University of Oregon, 1973), p. 3.

3. determine the patients' perceptions of the adequacy of the written instructions received prior to discharge;

4. note the positive elements in the convalescent period.

Limitations of the Study

The study was limited by: (1) the small size of the sample, (2) the limited setting, and (3) the predominance of males in the sample population. Some of these limitations were unavoidable because of the investigator's limited time.

Size of sample. Since the collection of data was by interview, only those patients who could be reached in their homes were chosen for the sample. Patients were asked to participate in the study prior to their discharge from hospital. Those who were discharged without the researcher's knowledge were not contacted for an interview. Some patients who signed the consent form could not be contacted for an interview. The sample of twenty patients was not a random selection but, rather, was based on a set of specified criteria, as explained in Chapter III.

Limited setting. During the time period of this study at least one-third of the patients in the cardiac surgical unit setting were from rural or small urban settings. It is possible that these persons perceived their

concerns differently, since the expert help of the cardiologist was not readily available. All patients interviewed lived in or near the Greater Vancouver area and therefore all were close to expert medical help should they need it.

Predominance of males. Seventeen persons out of the twenty in the sample were males. This number is fairly consistent with the predominance of men affected with coronary artery disease but may give a distorted view when reporting the concerns of open heart surgery patients as a group.[8] The results of this study applied only to the group studied.

DEFINITION OF TERMS

Complications of Open Heart Surgery

In this study the term refers to any event which caused (1) a return to the Intensive Care Unit after transfer to the Cardiac Surgery Unit, (2) a return to the Operating Room, and (3) a prolongation of the hospital stay beyond this study's average of sixteen days.

Concerns

This refers to any occurrence or condition that was perceived by the patients as the cause of discomfort or worry, or that raised questions which seemed important to

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[8]Marvin J. Goldman, "Medical Aspects," The Cardiac Patient: A Comprehensive Approach, ed. Richard G. Sanderson (Philadelphia: W.B. Saunders Co., 1972), pp. 62-95.

them during the interviews.

Discharge Instructions

This refers to the printed Discharge Guidelines given to the patients before discharge from hospital. It was the custom in the Cardiac Surgical Unit used in this study to have the cardiologist, or more rarely the surgeon, fill in the two pages of printed instructions as he or she saw fit. Patients going home on anticoagulant therapy received a copy of the explanation of anticoagulants. These handouts are to be found in Appendix B.

Open Heart Surgery

This term is limited to surgical procedures carried out using total cardiopulmonary bypass.

OVERVIEW OF THE REMAINDER OF THE STUDY

The remainder of the study is as follows: Chapter II is a selected review of the literature pertaining to open heart surgery: the present state of this type of surgery, the physiological and psychological trauma associated with it, and postoperative convalescence and rehabilitation. Consideration is also given to the areas of planning for discharge and of teaching patients prior to their discharge. Chapter III reports on the research design and the methodology of the study. Chapter IV contains a discussion on the method of analysis and an interpretation of the find-

ings. Chapter V contains the summary of the study, the conclusions, and the areas for further investigation.

CHAPTER II

SELECTED REVIEW OF THE LITERATURE

INTRODUCTION

This chapter reviewed selected literature that pertained to the care of open heart surgery patients. Since it would have been incomplete to consider one facet of open heart surgery in isolation from the others the review covered five major areas: (1) the development of open heart surgery to date, (2) the preoperative considerations of open heart surgery patients, (3) the physiological and psychological trauma caused by open heart surgery, (4) the period of convalescence and rehabilitation and (5) planning and teaching for discharge from hospital.

DEVELOPMENT OF HEART SURGERY TO DATE

It was just twenty-one years ago that Gibbon performed the world's first successful open heart surgery for correction of a congenital heart defect.[1] By 1974 the diagnostic evaluation of patients had become more accurate with advances in cardiac catheterization and coronary

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[1]John H. Gibbon, "Application of a Mechanical Heart and Lung Apparatus to Cardiac Surgery," Minnesota Medicine, XXXVII (March, 1954), 171-180.

cineangiography.[2] The surgical techniques had kept pace with these diagnostic advances and open heart surgery was now carried out to correct congenital heart defects as well as to repair the effects of acquired heart disease.

> Today, complex congenital anomalies may be definitively repaired, damaged valves may be repaired or replaced, coronary arteries may be repaired or bypassed, and even the heart itself can be replaced.[3]

Surgery to correct congenital defects was usually performed on young children.[4] Only a small percentage of adults had uncorrected congenital defects and surgical correction of these was advocated.[5] The usual indication for open heart surgery on an adult was some form of acquired heart disease, such as coronary artery disease and valvular disease.

Correction of Coronary Artery Disease

The surgical correction of acquired coronary artery disease had received much attention in both Canada and the

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[2]John A. Crouch et al, "Operative Rssults in 1,426 Consecutive Cardiac Surgical Cases," Journal of Thoracic and Cardiovascular Surgery, LXVII (October, 1974), 606.

[3]Richard G. Sanderson, "Surgical Aspects," The Cardiac Patient: A Comprehensive Approach, ed. Richard G. Sanderson (Philadelphia: W. B. Saunders Co., 1972), p. 107.

[4]Douglas M. Behrendt and W. Gerald Austen, Patient Care in Cardiac Surgery, (Boston: Little, Brown and Co., 1972), p. 1.

[5]Barbara Rogoz, "Nursing Care of the Cardiac Surgery Patient," Nursing Clinics of North America, IV (December, 1969), 632.

United States. The pathological problem was "a narrowing of the coronary arteries which prevents adequate amounts of blood from reaching the heart muscle."[6] It was commonly corrected by a coronary bypass operation using either reversed segments of autogenous saphenous vein or, less frequently, the internal mammary artery which was directly anastamosed into the coronary artery.[7] The usual indication for surgery was medically intractable angina pectoris without severe impairment of left ventricular function. Wilson commented that usual indications for the coronary artery bypass are crescendo, accelerated, unstable or 'pre-infarction' angina, and refractory cardiogenic shock complicating an acute infarction.[8]

The mortality figures for coronary bypass grafting appeared to be more directly related to left ventricular function preoperatively than to any other single factor. The University of Toronto Interhospital Cardiovascular Surgery Group reported that with good left ventricular status the hospital mortality rate was less than 3 percent

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[6]Richard G. Sanderson, "Anatomy, Embryology, Physiology and Pathology," The Cardiac Patient: A Comprehensive Approach, ed. Richard G. Sanderson (Philadelphia: W. B. Saunders Co., 1972), p. 50.

[7]Nicholas T. Kouchoukos and John W. Kirklin, "Coronary Bypass Operations for Ischemic Heart Disease," Modern Concepts of Cardiovascular Disease, XLI (October, 1972), 47; see also W. Stan Wilson, "Aortocoronary Bypass Surgery II - An Updated Review," Heart and Lung, III (May-June, 1974), 440-442.

[8]Wilson, p. 445.

in the one thousand patients operated on over a fifty-six month period and less than 2 percent in the last twelve months of the study.[9] Kouchoukos and Kirklin reported a hospital mortality rate of just over 6 percent in 480 patients with good left ventricular functioning who underwent surgery prior to 1972.[10] Wilson, defining the current status of aortocoronary bypass surgery, stated that almost all surgical series reported 6 percent or less surgical mortality in appropriately selected patients.[11]

The relief of angina pectoris was more rapid when revascularization was carried out using a saphenous vein graft, because blood was immediately supplied to ischemic segments of myocardium.[12] The anastamosis of the internal mammary artery initiated the establishment of a collateral circulation and relief of angina pectoris was delayed until this circulation was established.[13] This fact had importance in planning for the convalescence of patients undergoing a revascularization procedure.

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[9]University of Toronto Interhospital Cardiovascular Surgical Group, "The First 1,000 Coronary Artery Repair Operations in Toronto," Canadian Medical Association Journal, CXI (September 21, 1974), 525.

[10]Kouchoukos and Kirklin, p. 48.

[11]Wilson, p. 435.

[12]Mary R. Brogan, "Nursing Care of the Patient Experiencing Cardiac Surgery for Coronary Artery Bypass," Nursing Clinics of North America, VII (September, 1972), 519.

[13]Rogoz, p. 633.

Long-term results of revascularization procedures cannot be researched as yet. Morch et al. followed up one hundred patients with coronary bypass grafts twelve to twenty-four months postoperatively (a mean of 19.7 months) and found that 75 percent of the grafts were patent.[14] Wilson reported that in comparing patients treated conservatively with those treated by vein bypass graft "survival from one year onward is favorably influenced by vein bypass surgery...at least in patients with multi-vessel or left main proximal disease."[15]

Correction of Valvular Disease

Acquired valvular disease was commonly found in patients who had had one or more attacks of rheumatic fever, though there were other causes as well.[16] The standard surgical treatment for severe congenital and acquired cardiac valvular disease was total replacement of cardiac valves with homograft or heterograft valves, stinted or unstinted valves, or mechanical valves made from synthetic materials.[17] Crouch et al. noted that of 247 patients

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[14] John Morch et al., "Late Results of Aortocoronary Bypass Grafts in 100 Patients with Stable Angina Pectoris," Canadian Medical Association Journal, CXI (September 21, 1974), 530.

[15] Wilson, pp. 444 and 448.

[16] Sanderson, "Anatomy, Embryology, Physiology and Pathology," pp. 42-50

[17] Denton A. Cooley et al., "Ten Year Experience with Cardiac Valve Replacement: Results with a New Mitral Prosthesis," Annals of Surgery, CLXXVII (June, 1973), 818.

operated on for valvular replacement, mechanical valves were inserted in 234 of the patients and the overall mortality rate was only 5.6 percent.[18] Barrett-Boyes reported a hospital mortality rate of 5.5 percent and a late mortality rate of 8 percent using homograft aortic valves in patients with severe aortic valve disease.[19]

Various other open heart surgical procedures were routinely performed[20] in lesser numbers than the above-mentioned ones. They were not considered here because they were not relevant to the present study.

PREOPERATIVE CONSIDERATIONS

Brogan stated that:

> Preoperative preparation is directed toward the attainment of maximum physical and psychologic stability in order to assist the patient to withstand the stress of surgery.[21]

Long, Scheuhing and Christian noted that the preoperative care of all patients undergoing cardiopulmonary bypass was similar and involved a thorough physiological and psychological assessment, as well as a great deal of teaching for

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[18]Crouch et al., p. 607.

[19]B. G. Barratt-Boyes, "Homograft Replacement for Aortic Valve Disease," Modern Concepts of Cardiovascular Disease, XXXVI (January, 1967), 1.

[20]Rogoz, p. 632; see also Crouch et al., p. 608.

[21]Brogan, p. 520.

both patients and families.[22] These three areas, physiological and psychological assessment, and teaching were here considered with reference to selected literature.

Physical Assessment

Rogoz suggested that the preoperative medical work-up include: (1) medical history, (2) physical examination, (3) daily weight, (4) observation of vital signs twice a day, (5) measurement of intake and output, (6) low sodium diet, (7) laboratory tests relevant to any major surgery, (8) electrocardiogram, (9) chest X-ray, and (10) medications as necessary for sleep, electrolyte stability and digitalization.[23] Special examinations such as pulmonary function studies, angiocardiography and cardiac catheterization should have been performed at this time if they had not already been done.[24] Other necessary measures noted in the literature included good skin care,[25] prevention of infection,[26] and pulmonary preparation, including the

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[22]Madeleine L. Long, Mary Scheuhing, and Judith L. Christian, "Cardiopulmonary Bypass," American Journal of Nursing, LXXIV (May, 1974), 863.

[23]Rogoz, p. 636.

[24]Mary Jo Aspinall, Nursing the Open-Heart Surgery Patient (New York: McGraw-Hill Co., 1973), p. 8; see also Rogoz, pp. 636-637.

[25]Aspinall, p. 8; see also Long, Scheuhing and Christian, p. 864.

[26]Rogoz, p. 638; see also Sanderson, "Surgical Aspects," p. 99.

cessation of smoking.[27] All dental work was to have been completed, especially in patients who were to have prosthetic materials used in their cardiac repair.[28]

Psychological Determinants of Postoperative Well-being

It was the investigator's experience that open heart surgery patients endured the anxieties common to persons about to undergo major surgery. Additional anxiety stemmed from the emotional investment represented by the heart, as Blacher states:

> The anxiety this type of surgery evokes in both patient and staff discourages a free discussion of the emotional aspects of having one's heart cut open . . . It has become apparent that there is a sense of awe surrounding the opening of the heart. It is almost unbearable for most patients to conceive of their hearts being incised . . . . For this reason the use of denial is prominent both preoperatively and postoperatively.[29]

Abram reported that " . . . patients reacted to the operation as presenting not merely a symbolic but a realistic threat to life."[30] The symbolism and emotional overtones of

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[27]Sanderson, "Surgical Aspects;" pp. 98-99; see also William E. Neville and Robert D. Lynch; "The Coronary Patient for Myocardial Revascularization," Care of the Surgical Cardiopulmonary Patient, ed. William E. Neville, (Chicago: Year Book Medical Publishers, 1971), p. 84; see also Brogan, p. 520.

[28]Behrendt and Austen, p.3.

[29]Richard S. Blacher, "Hidden Psychosis of Open Heart Surgery: With a Note on the Sense of Awe," Journal of the American Medical Association, CCXXII (October 16, 1972), 305-306.

[30]Harry S. Abram and Benjamin F. Gill, Predictions of Postoperative Psychiatric Complications," New England Journal of Medicine, CCLXV (December 7, 1961), 1128.

"heart" were deeply ingrained in many individuals and thus had a potent psychological impact.[31] This may not have been consciously recognized by patients and staff.

Kennedy and Bakst identified anxiety as a factor common to all patients with heart disease. They observed that the causes of this anxiety were the terrifying symptoms such as chest pain and palpitations, the threat of death that is inherent in heart disease, and the actual or anticipated experience of physical limitations along with the knowledge that these limitations are progressive.[32] In the open heart surgery patients they studied, the highest mortality rate was in those preoperative patients with high anxiety levels and low motivation to recover. They concluded that the patients' preoperative physiological and psychological states were inseparable and both must be attended to for optimal surgical conditions.[33] Henrichs et al. reported that male non-survivors showed pronounced anxiety preoperatively and female non-survivors were observed to have emotional overcontrol.[34]

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[31] Janet A. Kennedy and Hyman Bakst, "The Influence of Emotions on the Outcome of Cardiac Surgery," Bulletin of the New York Academy of Medicine, XLII (October, 1966), 812

[32] Kennedy and Bakst, p. 826.

[33] Kennedy and Bakst, pp. 842-845.

[34] Theodore F. Henrichs, James N. MacKenzie and Carl H. Almond, "Psychological Adjustment and Acute Response to Open Heart Surgery," Journal of Nervous and Mental Disease, CXLVII (February, 1969), 164.

Layne and Yudofsky studied fifty-eight cardiotomy patients and twenty major vascular surgery patients who would not or could not express their anxiety preoperatively and these researchers found a high correlation between this non-expression and postoperative psychotic episodes.[35] Abram and Gill also found that the degree of preoperative anxiety experienced by open heart surgery patients was one of the factors related to the postoperative psychological course.[36]

POSTOPERATIVE COURSE

Physiological Trauma of Open Heart Surgery

Besides postoperative difficulties such as shock and hemorrhage associated with general surgery, there were some problems that were unique to patients who underwent cardiopulmonary bypass. These are considered below.

Cardiac complications. Cardiac arrhythmias were fairly common and appeared to be the result of operative trauma, acid-base imbalance, drug toxicity, hypotension or hypoxia.[37]

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[35]Ottis L. Layne and Stuart C. Yudofsky, "Postoperative Psychosis in Cardiotomy Patients," New England Journal of Medicine, CCLXXXIV (March 11, 1971), 518-520.

[36]Harry S. Abram and Benjamin F. Gill, "Predictions of Postoperative Psychiatric Complications," New England Journal of Medicine, CCLXV (December 7, 1961), 1128.

[37]Long, Scheuhing and Christian, p. 866; see also George W. Barclay, "Possible Medical Problems Associated with Cardiac Surgery," Texas Medicine, LXIX (July, 1973), 78.

Other possible cardiac problems to be aware of were cardiac output syndrome and cardiac tamponade. Sanderson noted that cardiac complications may have occurred separately, but they were often interrelated.[38]

Pulmonary complications. Verderber reported that these may have occurred in the face of a variety of long-standing heart and lung problems. Atelectasis could occur easily unless the lungs were hyperventilated intermittently during cardiopulmonary bypass and in the immediate postoperative period.[39] Post pump perfusion syndrome (pump lung) characterized by atelectasis, pulmonary edema and hemorrhage was observed to be becoming less common but was often fatal when it occurred.[40]

Bleeding complications. Significant changes took place in patients' clotting mechanisms. Patients were heparinized before being placed on the pump-oxygenator and reversal of this anticoagulation may have been imperfect in the immediate postoperative period. Mechanical trauma damaged and decreased the platelets, prothrombin and fibrinogen causing clotting abnormalities which contributed to bleeding

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[38]Sanderson, "Surgical Aspects," pp. 124-128.

[39]Anne Verderber, "Cardiopulmonary Bypass: Postoperative Complications," American Journal of Nursing, LXXIV (May, 1974), 869.

[40]Verderber, p. 869.

problems.[41] Inadequate hemostasis was a common cause of excessive bleeding and fairly frequently required re-operation to control the blood loss.[42]

Fluid and electrolyte problems. The balance of fluids and electrolytes may not have returned to normal for several days and patients were observed closely for pulmonary edema, congestive heart failure and hypokalemia.[43] Behrendt and Austen warned that great care must be taken to avoid hyponatremia and acidosis.[44]

Renal complications. When cardiac output had been or was poor, oliguria could occur. At the same time, the renal tubules were coping with tissue-breakdown products and hemolyzed red blood cells. For this reason it was necessary to maintain a urine output of at least twenty milliliters per hour.[45]

Fever and infection. Patients could be febrile for several days following cardiopulmonary bypass.[46] If the fever

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[41] Verderber, p. 868.

[42] Barclay, p. 76.

[43] Verderber, p. 868.

[44] Behrendt and Austen, pp. 53 and 56.

[45] Behrendt and Austen, p. 57.

[46] Behrendt and Austen, p. 63.

lasted for more than a few postoperative days it might have been caused by pericarditis and further action was necessary.[47] Kouchoukos and Kirklin noted that in a small number of patients phlebitis occurred in the lower extremity from which the saphenous vein had been removed.[48]

Central nervous system complications. Verderber stated that cerebral edema and brain damage might occur following open heart surgery. Possible causes might be inadequate supply of blood to the brain during surgery, air or fat emboli, calcium debris, or microemboli.[49] Thromboemboli were considered to be the most dreaded complication of mitral valve replacement according to Cooley et al.[50]

Psychological Trauma

Psychosis or delirium had been noted by many who observed or studied open heart surgery patients in the early postoperative period. Layne and Yudofsky noted that this psychosis was characterized by transient visual distortion, visual and auditory hallucinations, and disorientation and/or paranoid delusions. In some cases these were accompanied by hyperventilation, tachycardia and anorexia, and

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[47] Barclay, pp. 79-80.

[48] Kouchoukos and Kirklin, p. 48.

[49] Verderber, p. 868.

[50] Cooley et al., p. 826.

occurred after a brief postoperative lucid interval.[51] Hazan stated that there was a higher incidence of psychiatric complications with open heart surgery than with general or closed heart surgery.[52] Kornfeld, Zimberg and Malm reported a psychosis of acute organic variety occurring in 38 percent of ninety-nine adult, open heart surgery patients.[53] Abramson and Block noted that most authors estimated the occurrence rate of open heart surgery postoperative psychopathology at 15 to 33 percent.[54]

Many causes were postulated for this psychosis. Egerton and Kay felt that the unfamiliarity of the Intensive Care Unit, with its simultaneous sensory deprivation and overstimulation, was responsible for patients becoming disoriented.[55] Kornfeld, Zimberg and Malm also identified the major factor as the environment of the open heart Recovery Room, which, they said, provided an atmosphere of

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[51] Layne and Yudofsky, p. 518.

[52] S.J. Hazan, "Psychiatric Complications Following Cardiac Surgery." Journal of Thoracic and Cardiovascular Surgery, LI (March, 1966), 315.

[53] Donald S. Kornfeld, Sheldon Zimberg and James R. Malm, "Psychiatric Complications of Open-Heart Surgery;" New England Journal of Medicine, CCLXXIII (August 5, 1965), 291.

[54] Ronald Abramson and Bernard Block, "Ego-Supportive Care in Open Heart Surgery," International Journal of Psychiatry in Medicine, IV (Fall, 1973), 427.

[55] N. Egerton and J. H. Kay, "Psychological Disturbances Associated with Open Heart Surgery," British Journal of Psychiatry, CX (May, 1964), 434-436.

sensory and sleep deprivation.[56] McFadden and Giblin concluded, from their study, that open heart surgery patients definitely suffered sleep deprivation in the Intensive Care Unit.[57] Abram said that patients often perceived the Intensive Care Unit as psychologically threatening.[58] Budd and Brown demonstrated the positive effect of a "reorientation procedure" begun immediately upon the patients' return to consciousness.[59]

Organic causes were postulated to explain psychic disturbances postoperatively. Gilberstadt and Sako, and Gilman suggested that there were signs of cerebral disturbance or damage in open heart surgery patients which had organic causes, particularly prolonged cardiopulmonary bypass time.[60] Egerton and Kay proposed dehydration, electrolyte imbalance and drugs as some of the precipitating

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[56] Kornfeld, Zimberg and Malm, p. 292.

[57] Eileen H. McFadden and Elizabeth C. Giblin, Sleep Deprivation in Patients Having Open-Heart Surgery," Nursing Research, XX (May-June, 1971), 253.

[58] Abram, p. 666.

[59] Suzanne P. Budd and Willa Brown, "Effect of Reorientation Technique on Postcardiotomy Delirium," Nursing Research, XXIII (July-August, 1974), 342-346.

[60] Harold Gilberstadt and Yoshio Sako, "Intellectual and Personality Changes Following Open-Heart Surgery," Archives of General Psychiatry, XVI (February, 1967), 210-214; see also Sid Gilman, "Cerebral Disorders after Open-Heart Operations," New England Journal of Medicine, CCLXXII (March 11, 1965), 498.

factors for psychotic behaviour.[61] Blachly and Kloster noted that increased cardiac output with rising catacholamine levels preceded psychotic episodes.[62] However, none of these authors appeared to have conclusive evidence in support of their reports.

Layne and Yudofsky, and Abram and Gill related the degree of preoperative anxiety to psychological problems following surgery. They observed that some patients relied heavily on denial but the mechanism was not strong enough to allow them to cope with the trauma of surgery and the environment of the Intensive Care Unit.[63] Once the mechanism failed, psychotic episodes were noted. Weiss observed that an ". . . individual's reaction to surgery appears to be based in large measure on his ability to respond effectively to overwhelming psychological stress."[64]

Blacher viewed the sense of awe surrounding the opening of the heart as being a prominent feature among the

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[61] Egerton and Kay, pp. 435-436.

[62] Paul H. Blachly and Frank E. Kloster, "Relation of Cardiac Output to Post-Cardiotomy Delirium," Journal of Thoracic and Cardiovascular Surgery, LII (September, 1966), 427.

[63] Layne and Yudofsky, p. 520; see also Abram and Gill, p. 1128.

[64] Stephen M. Weiss, "Psychological Adjustment Following Open-Heart Surgery," Journal of Nervous and Mental Disease, CXLIII (October, 1966), 367.

various factors leading to the psychosis and he stated:

> . . . [the] unique role of the heart provides the background for the awe reaction; when the denial can no longer be sustained, the psychosis can be seen as defending against awareness of an awesome reality. When reality is too much to bear, a psychosis may be one's only protection.[65]

Egerton and Kay noted several personal predisposing factors to postoperative delirium such as marital instability and overwhelming personal problems unrelated to the surgery.[66]

CONVALESCENCE AND REHABILITATION

Convalescence and rehabilitation following open heart surgery appeared to be dependent on the fact that the patients had suffered both physical and psychological trauma as a result of the surgery. White described the rehabilitated cardiac patient as

> . . . one who, within the physical limitations of his disease, has been psychologically oriented to accept the limitations, and who has been returned to a productive and gainful status in his community with these limitations, without fear or anxiety, and with a sense of usefulness in his own eyes and those of his associates both at work and in the community.[67]

This rehabilitation might be difficult for some cardiotomy patients as Kaplan pointed out by observing that in many

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[65] Egerton and Kay, p. 438

[66] Blacher, pp. 306-307.

[67] Paul D. White et al., Cardiovascular Rehabilitation, (New York: McGraw-Hill Co., 1957), p. 55 cited by Doris Houser, "Outside the Coronary Care Unit," Nursing Forum, XII (1973), 97.

cases, patients had changed their patterns of living as their heart pathology warranted that change. Following surgery they often had the opportunity of resuming their lifestyle but at that point it became apparent that some patients had used their disease for psychologically adaptive purposes.[68] Kennedy and Bakst observed similar occurrences and agreed that for those patients who found the secondary gains of illness more satisfying than health, the motivations for rehabilitation might be unacceptable. They found that convalescence was bound up with the patients' postoperative somatic complications, and the high or low cost that they would have to pay in "assuming the burden of . . . new-found freedom."[69]

Return to employment was used as an index of rehabilitation. Finchum found that surgery was often palliative and not curative, with the result that some symptoms reduced patients' motivation to work even though they were physically able. There was also a high correlation with the length of time unemployed preoperatively.[70] Blachly and

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[68]Stanley M. Kaplan, "Psychological Aspects of Cardiac Disease: A Study of Patients Experiencing Mitral Commissurotomy," Psychosomatic Medicine, XVIII (May-June, 1956), 222-233.

[69]Kennedy and Bakst, p. 824.

[70]R. Newell Finchum, "Rehabilitation Following Cardiac Surgery," Circulation, Supplement XLIII-XLIV (May, 1971), I-157.

Blachly found this same correlation in their study of 329 open heart surgery patients. They found that 41 percent of these patients remained unemployed despite the fact that only 6 percent of the total group felt that they had received little or no benefit from the surgery. Eighty-two of the unemployed (57.8 percent) blamed health problems as the reason for not returning to work and the remaining unemployed patients had various other reasons. These investigators offered their "Law of the Year"; namely: "If a person is unemployed for any reason for a period exceeding one year, the chance of re-employment is poor," as an explanation. They suggested coordinated pre and postoperative programs to counteract this difficulty. They also advised realistic discussion with the patients and their families to prevent disappointments . Expectations were too high or out of line with what was possible. They appeared to recognize the patients' needs for support and knowledge after discharge by suggesting that a public health nurse could make home visits to identify the problems patients took for granted.[71] Zohman and Tobis recognized the need for counselling family members who would be able to provide added support for patients.[72]

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[71]Paul H. Blachly and B. J. Blachly, "Vocational and Emotional Status of 263 Patients after Heart Surgery," Circulation, XXXVIII (September, 1968), 524-530.

[72]Lenore R. Zohman and Jerome S. Tobis, Cardiac Rehabilitation (New York: Grune and Stratton, Inc., 1970), pp. 187-189.

PREPARATION FOR DISCHARGE

Recognizing the trauma that the open heart surgery patients endured and the variables connected with successful convalescence and rehabilitation, it was necessary to consider how patients might be helped to cope with difficulties during the first weeks following discharge from the hospital. This included looking at the nurse's responsibility in teaching patients prior to discharge. Most of the literature in this area did not pertain directly to open heart surgery patients but could be applied to them.

Wynn found that "inadequate help and planning in this phase [discharge planning] of the patient's illness were considered . . . to be responsible for excessive worry and distress. . ." in 32 percent of four hundred male patients with ischemic heart disease.[73] Spiegel and Demone reported that out of 108 medical, surgical, and obstetrical patients only 17 percent said they had received more than five minutes of instruction related to carrying on their care at home. The other 65 percent stated they had received no instruction at all.[74] Frank et al. had eight hundred cardiotomy patients respond to a questionnaire and

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[73]Allan Wynn, "Unwarranted Emotional Distress in Men with Ischemic Heart Disease," Medical Journal of Australia, II (November 4, 1967), 850.

[74]Allen D. Spiegel and Harold W. Demone, "Questions of Hospital Patients- Unasked and Unanswered," Postgraduate Medicine, XLIII (February, 1968), 216.

of these, 17 percent felt they had not been advised about activity after discharge.[75]

The method that should have been used for teaching appeared to be a matter of opinion among medical and nursing personnel. Spiegel and Demone, and Behrendt and Austen recommended a checklist for discharge instructions so that the attending staff knew what had been taught and what still remained to be taught. Mullen suggested that prior to discharge the physician should have reviewed the recovery plan with the patient and his/her family and prepared them for physical symptoms which were not serious but might cause anxiety once the patient was home.[76] Zohman stated that it was necessary for the physician to question patients and to evaluate physical performance, psychological function, social relationships, and vocational capacity in order to know what education was needed for both patients and families.[77] Powell and Winslow submitted that:

> The nurses' and doctors' lack of time and lack of awareness of the patients' learning needs, and their

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[75]Kenneth A. Frank, Stanley S. Heller and Donald S. Kornfeld, "A Survey of Adjustment to Cardiac Surgery," Archives of Internal Medicine, CXXX (November, 1972), 737.

[76]Patricia D. Mullen, "Health Education for Heart Patients in Crisis," Health Services Reports, LXXXVIII (August-September, 1973), 673.

[77]Lenore R. Zohman, "Cardiac Rehabilitation: Its Role in Evaluation and Management of the Patient with Coronary Heart Disease," American Heart Journal, LXXXV (May, 1973), 707-709.

> feeling that "someone else will explain it to the patient" as well as the patients' lack of aggressiveness in asking questions, all contribute to the inadequacy of discharge teaching.[78]

They proposed using written discharge guidelines as an adjunct to the nurses' teaching. Stackman found that a group of myocardial infarction patients who received pre-discharge instructions by a systematic teaching program had much greater understanding of their discharge orders than a control group who received informal instruction.[79] From her study of patients convalescing after myocardial infarction Royle concluded:

> When specific instructions were given to patients and their spouses about prescribed therapeutic measures, they experienced less anxiety during the initial posthospital period. When instructions were vague, increased anxiety was shown.[80]

She also reported a need for authoritative written material to reinforce and supplement teaching, to provide a permanent source of reference, and to decrease the patients' need to go to friends and news media for information.[81]

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[78]Anne H. Powell and Elizabeth H. Winslow, "The Cardiac Clinical Nurse Specialist: Teaching Ideas that Work," Nursing Clinics of North America, VIII (December, 1973), 728-729.

[79]Jeanne F. Stackman, "Effects of a Systematic Teaching Program upon the Myocardial Infarction Patient's Understanding of His Disease and His Discharge Orders" (unpublished Master's Thesis, University of Washington, 1973), pp. 50-51.

[80]Joan Royle, "Coronary Patients and Their Families Receive Incomplete Care," Canadian Nurse, LXIX (February, 1973), 25.

[81]Royle, p. 24.

The content of teaching should have reflected the individual patient's needs. All surgical patients required instruction with regard to diet, elimination, exercises to be performed, activities to be limited, and possible complications of which to be aware.[82] Patients who had had heart surgery also should have received information about medications and eventual return to normal activity and to work.[83] To be relevant it was obvious that this teaching must be done in light of each patient's age, sex, marital status, socio-economic group, and present life situation.

Redman observed that it was not clear who should carry out patient teaching in order to achieve the desired effects nor what kind of preparation this teacher should have.[84] Mullen saw the physician reviewing the recovery plan and adding to the nurses' teaching and she suggested that former patients could provide extra support.[85] Powell and Winslow viewed the nurse as the primary teacher, with the physician responsible for providing medical information

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[82]Joan Luckmann and Karen C. Sorenson, Medical-Surgical Nursing: A Psychophysiologic Approach, (Philadelphia: W. B. Saunders Co., 1974), p. 340.

[83]Mary A. Brambilla, "A Teaching Plan for Cardiac Surgical Patients," Cardiovascular Nursing, V(February, 1969), 4.

[84]Barbara K. Redman, The Process of Patient Teaching in Nursing (2d ed.; Saint Louis: The C.V.Mosby Co., 1972) 5.

[85]Mullen, p. 673.

and recommendations for activity, etc.[86] Redman stated:

> Physicians rightfully control the prerogative to share information in key areas such as diagnosis, prognosis, and often treatment plan. This information is often a prerequisite to independent or follow-up teaching viewed as the prerogative of the nurse.[87]

She suggested "Standing orders for educational therapy or educational experiences" which could be planned jointly by physicians and nurses and ordered by the physician when he saw fit.[88] Brambilla noted, in this regard, that teaching should reflect the policies of the physicians and surgeons if it was to be of value.[89]

RELATED STUDIES

One researcher had investigated the numbers and kinds of problems experienced by open heart surgical patients in the immediate posthospital period. Wahl interviewed thirty-one open heart surgical patients six weeks to six months after discharge from the hospital. Her findings were that the three most common areas of problems and/or questions were pain, mental-emotional difficulties and complications.[90] In all, there were thirty-five

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[87] Barbara K. Redman, "Client Education Therapy in Treatment and Prevention of Cardiovascular Diseases," Cardiovascular Nursing, X (January-February, 1974), p. 4.

[88] Redman, "Client Education Therapy in Treatment and Prevention of Cardiovascular Diseases," p. 4.

[89] Brambilla, p.1.

[90] Sharon C. Wahl, "The Problems of Thirty-One Post-Operative Open Heart Surgery Patients after Discharge" (unpublished Master's thesis, University of Oregon, 1973), 46.

different problem areas expressed and questions in twenty-seven of these areas.[91] This study by Wahl was not discovered until after the present research was completed. It was of interest to compare the results of these two similar studies.

SUMMARY

The chapter presented a review of selected literature pertinent to the needs of, and the trauma experienced by, open heart surgery patients. It explored the more common surgical procedures for two types of acquired heart disease and pointed out their mortality rates which appeared to be less than 5 percent, on the average. The physiological and psychological considerations pertinent to open heart surgery patients in the immediate postoperative period were discussed. Studies on the convalescence and the rehabilitation of the cardiac patient were reviewed. The need for discharge preparation, the content of the instruction, and the question of who is to do the teaching were reported from the literature. One study directly related to the present one was also outlined.

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[91] Wahl, pp. 70-72.

CHAPTER III

RESEARCH DESIGN AND METHOD OF STUDY

A descriptive study exploring the concerns of open heart surgery patients following discharge from hospital was conducted by means of semi-structured interviews of twenty patients convalescing from open heart surgery.

SETTING

Cardiac Surgical Unit

The twenty patients who were interviewed had undergone open heart surgery in a large metropolitan hospital. They were admitted to a fifteen bed Cardiac Surgical Unit, in most cases three days prior to surgery. This unit was staffed entirely by registered nurses and each patient was under the medical care of a cardiologist and a cardiac surgeon as well as the residents and interns on the cardiac surgical service. Following their surgery, patients spent two to three days in the Intensive Care Unit and then returned to the Cardiac Surgical Unit until their discharge from the hospital.

Preoperative Orientation

During the preoperative period patients and their families received an orientation to the hospital routine

and to the cardiac surgical unit. This orientation included written material and a slide-tape presentation designed to prepare all surgical patients for the events prior to and immediately after their operations. Patients received one period of instruction and some supervised practice in breathing exercises, coughing, and leg exercises from a physiotherapist assigned to the Cardiac Surgical Unit. Patients were also encouraged to attend and observe the daily exercise classes held for postoperative cardiac surgical patients in order to know what to expect following their operations. Nursing instructions to the patients, and to their families if they so desired, covered the disease process and the treatment pattern preoperatively and postoperatively. The treatment pattern included the transfers from one area to another following surgery (Recovery Room, Intensive Care Unit, return to Cardiac Surgical Unit) and what to expect in each area. Patients and one family member or significant other were taken, if they wished, on a tour of the Intensive Care Unit.

Postoperative Teaching

Postoperative teaching by the nursing personnel on the Cardiac Surgical Unit did not have any apparent structure or outline. Patients' queries were answered by the physicians or nurses as these questions arose. A physiotherapist reinforced the preoperative exercise instructions and worked with individual patients to prevent and treat

pulmonary complications. An exercise class was conducted each day for postoperative cardiac surgery patients and all patients were expected to attend these classes from their fifth postoperative day until discharge, unless their general condition prevented attendance.

SELECTION OF THE SAMPLE

Initial Contact with Patients

The researcher's initial contact with each patient in the sample was ordinarily made a day or two prior to the patient's discharge. In two cases it was on the day of discharge. Only patients meeting predetermined criteria were approached; therefore, the sample was not a random one. The criteria for participation in the study were that the patient: (1) had undergone open heart surgery during the present period of hospitalization; (2) understood and spoke English; (3) had no current diagnosis of mental illness; (4) would be convalescing within the Greater Vancouver area and (5) consented to participate. Part way through the study, the fourth constituent of the criteria was waived in order to complete the twenty interviews within the limited time available. However, only two patients lived outside the initially set geographical limits.

The patients who met the above criteria were asked for their consent to be interviewed by the investigator. They were told that the investigator was carrying out a study of open heart surgery patients to ascertain the kinds

of questions and concerns patients had once they left the hospital. They were informed that the results of the study could be useful for planning the preparation other patients received prior to discharge from hospital. Patients who agreed to participate signed a consent form provided by the investigator. They were told they would be contacted by telephone in approximately two weeks to arrange an interview time. They were assured that their anonymity would be preserved in the report of the study.

Interview Arrangements

Interviews were arranged by telephone, at least two days before they took place. All patients except one were interviewed in their own homes; the one patient was convalescing at his daughter's home and was interviewed there. All patients were interviewed during their third or fourth week at home in order to obtain a fairly accurate view of the concerns and difficulties faced by the patients early in their convalescent period.

Interviews

The interviews were intended to evoke responses pertaining to any questions or concerns the patients had encountered in daily living since their discharge. It was decided that, for this type of study, a semi-structured verbal interview schedule was most likely to elicit responses of a spontaneous nature. Kerlinger pointed out that open-ended questions were designed to supply the frame

of reference, with a minimum of restraint, for the interviewees' responses. He stated, "While their [open-ended questions] content is dictated by their research problem, they impose no other restrictions on the content and manner of respondent answers."[1]

The interview was designed to touch on physiological, emotional and socio-economic concerns of patients. Consideration was given to activity, rest, sleep, pain, nutrition, elimination, and medications when physiological concerns were discussed. Emotional considerations were mainly centered on the fears, anxieties, and feelings of frustration and depression experienced by the convalescing patients. Socio-economic concerns included family interactions, interactions with friends, neighbors and co-workers, and future employment plans. Discussion was also directed to a consideration of the printed Discharge Guidelines with regard to their adequacy in meeting patients' needs for information. The outline of the interview is shown in Appendix D.

There was no predetermined order to the interviews. The opening question usually was "In general, how have you felt since you came home?" This question usually sparked a fairly detailed description of what had happened to the patient since discharge. When necessary, the investigator interposed questions to obtain clarification and/or

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[1]Fred N. Kerlinger, Foundations of Behavioral Research, (New York: Holt, Rinehart and Winston, Inc., 1964), p. 471

elaboration of patients' statements. Patients were also questioned about any of the above-mentioned areas if they did not mention these voluntarily. They were further asked about their feelings with regard to the adequacy of the written Discharge Guidelines they had received. The final question asked of each patient was "What has been the most unexpected part of your convalescence at home?" The investigator hoped that this question would give some insight into the areas where most discharge teaching was needed.

COMPILATION OF DATA

All interviews, done over a period of four months, were tape-recorded with the consent of the patients. These were later transcribed by the investigator in order to compile the data. A face sheet had been prepared for each patient utilizing data from hospital charts. A copy of this face sheet is in Appendix C.

The data transcribed from the tapes were listed in six sections on work sheets attached to the face sheet. The pilot study had revealed six common areas of discussion with patients: (1) concerns, (2) adequacy of Discharge Guidelines, (3) the positive aspects of convalescence since hospital discharge, (4) means of coping with concerns, (5) general well-being since discharge and (6) the most unexpected part of convalescence at home.

When all interviews had been completed the data from the worksheets were compiled under the above six

headings in order to identify common elements.

SUMMARY

The descriptive survey method of research was used for this study which was designed to explore the concerns of open heart surgery patients during the early posthospital period of convalescence. The study was carried out by means of semi-structured, tape-recorded interviews of patients. Patients were initially contacted in the hospital by the investigator to obtain consents to interview them in their homes. The data from interviews were compiled according to six major headings and commonalities were noted.

CHAPTER IV

ANALYSIS OF DATA

The purpose of this chapter was to present the data derived from the interviews of convalescing open heart surgery patients and to discuss the implications of this data.

DEMOGRAPHIC DATA

Study Population

Marital status. There were twenty patients interviewed. In this sample there were seventeen males and three females. Seventeen of the subjects were married, two were single and one had been separated from her spouse for many years. One single subject lived alone and another lived in a communal situation. The separated subject lived with a daughter and her family. All of the married subjects lived with their spouses.

Age. Patients ranged in age from twenty-seven to seventy-two years with a mean age of 55.4 years. Only four patients interviewed were under fifty years of age. Six patients were retired from their jobs but all of the remaining fourteen persons had worked until at least four months prior to surgery.

Operative procedures. The operative procedures

undergone by these patients included the repair of an atrial septal defect, single, double and triple coronary artery bypass grafts, aortic or mitral valve replacements, and the resection of a sub-aortic muscular hypertrophy. Table I shows the frequencies and percentages of these procedures. Two of the patients who had aortic valve replacements had undergone open heart surgery previously and this second surgery removed an infected prosthetic valve and replaced it with a new prosthesis. One of these same patients had an epicardial pacemaker inserted at the time of this second valve replacement.

TABLE I

FREQUENCIES AND PERCENTAGES OF OPEN HEART SURGICAL PROCEDURES UNDERGONE BY THE TWENTY PATIENTS IN THE STUDY

Surgical Procedures	Frequencies	Percentage
Single Coronary Artery Bypass Graft	7	35.0
Double Coronary Artery Bypass Graft	4	20.0
Triple Coronary Artery Bypass Graft	1	5.0
Aortic Valve Replacement	4	20.0
Mitral Valve Replacement	2	10.0
Repair of Atrial Septal Defect	1	5.0
Resection of Sub-aortic Muscular Hypertrophy	1	5.0
Total	20	100.0

Documentation showed that five patients (25 percent) suffered post-operative complications during their hospitalization. One contracted pneumonia and another required the insertion of a drain into his femoral incision. Two patients were returned to the Operating Room. One patient required the ligation of several blood vessels to

arrest postoperative bleeding, the second patient required a resuturing of his sternum on his twelfth postoperative day. One patient was sent back to the Intensive Care Unit five days postoperatively because of tachycardia and chills which were eventually diagnosed as symptomatic of either a viral infection or a drug sensitivity. After speaking with convalescing patients it appeared that at least three of them had experienced an episode of postoperative emotional crisis while in the hospital. Two complained of being unable to recall or of "losing" as much as a week following their surgery. One other patient spoke of being very depressed and lethargic for a week or more after surgery.

Postoperative hospital stays ranged from ten to forty-three days. The average stay was 16.4 days and only four patients (20 percent) were hospitalized for longer than seventeen days. It was interesting to note that all four of these persons had undergone aortic valve replacements, two for the second time.

Interview data

Nineteen patients were interviewed in their own homes and one patient was interviewed in his daughter's home where he was convalescing prior to returning to his own home. Eight patients were interviewed with only the investigator present. Eleven had their spouses with them and one had another family member present. Patients were

often prompted to express their concerns or were helped to remember incidents and related questions by the other person present. Family members also expressed their concerns at this time.

Interviews were conducted twenty to twenty-nine days following discharge from the hospital with a mean of 21.4 days. Patients were, therefore, between four and a half weeks and nine weeks postoperative, with a mean of approximately five and a half weeks.

PATIENTS' EXPRESSED CONCERNS

Patients expressed a total of fifty-five different areas of concern. The most common area was physiological with a total of forty separate concerns. Ten areas dealt with emotional concerns and five areas were socio-economic in nature. Table II illustrates the frequencies and percentages of concerns expressed by the twenty patients.

TABLE II

FREQUENCIES AND PERCENTAGES OF CONCERNS EXPRESSED BY TWENTY OPEN HEART SURGERY PATIENTS FOLLOWING HOSPITAL DISCHARGE

Concerns Expressed	Frequencies	Percentages
Physiological	40	72.7
Emotional	10	18.2
Socio-economic	5	9.1
Total	55	100.0

Physiological Concerns

Pain was the physiological problem voiced by the greatest number of patients. Sixteen patients (80 percent) complained of some type of pain ranging in intensity from mild to severe. The most common site of pain was the chest incision as evidenced by eleven complaints. The second most common site of pain was the leg from which the saphenous vein had been removed. Five patients complained of pain in that leg. In all, among the sixteen patients who complained of pain, there were twenty-nine various complaints of the location of the pain, including the shoulders, one or both arms, and the back. The complete listing of these sites is given in Appendix F. Wahl also found that pain was the most common problem, experienced by 68 percent of the patients she interviewed.[1] The higher percentage of complaints in the present study could perhaps be explained by the fact that Wahl's subjects were at least eight to ten weeks postoperative whereas ninety percent of the present sample were less than seven weeks postoperative.

Nine patients (45 percent) noted that one of their greatest concerns was that they felt so weak and tired and, as a result, their tolerance for physical activity was very limited. This weakness and tiredness was a source of anx-

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[1]Sharon C. Wahl, "The Problems of Thirty-One Post-Operative Open Heart Surgery Patients after Discharge" (Unpublished Master's thesis, University of Oregon, 1973), p. 46.

iety for some who interpreted it as a sign that they were not recovering from the surgery. For others, it was a source of frustration since they felt well but when they tried to do anything they tired very easily and rapidly.

Difficulty sleeping was common to nine patients (45 percent) at the time of the interview. Four of these persons could not get comfortable in order to sleep or else they woke themselves when they attempted to turn over in bed. Five patients found that they could not sleep without medication even though they had very little pain or discomfort. Most of these five had not been in the habit of taking sleeping medications prior to their hospitalization and were not pleased to have to take them at this time. There were no apparent reasons for the difficulties these persons were experiencing.

Five patients questioned how much activity, such as walking, lifting objects, swimming, and mowing the lawn, they ought to be doing or when they could begin various physical exercises and activities. One patient, who had been receiving physiotherapy preoperatively for paralysis left by a cerebral vascular accident, wished to know when she could resume her therapy. All of these patients had experienced faintness, extreme weakness, or dizziness following some activity and were now very cautious as to what they should be doing. They all spoke of "overdoing it" on at least one occasion during the weeks after discharge.

Another area of concern was related to what the

surgery had accomplished and what could possibly go wrong in the future; e.g. heart attack, return of angina, or some other problem. One patient questioned as to how he could know that the surgery had been effective. The patient who had received the pacemaker was very unclear as to its placement and operation. Two patients queried the cause of severe chest pain during their convalescence and neither had contacted the doctor though the pain was stated to be severe. All these patients seemed to be seeking assurance that they were fine, that nothing could go wrong with their hearts at this time and that their postoperative discomfort was normal and not a cause for alarm. Four out of five of the patients who expressed these above concerns had been admitted for emergency open heart surgery.

Redman explained that the psychosocial adaptation to illness might be lengthy and that until the patients have passed through the stages from disbelief to acceptance of the illness they were probably too preoccupied with themselves to retain most of the information given to them.[2] Postoperatively the patients' attention spans may be shortened because of the effects of pain, medication and fatigue. It would appear that the patients who had gone through open heart surgery with very little warning had not worked

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[2]Redman, Barbara K. The Process of Patient Teaching in Nursing, 2d. ed., (Saint Louis: The C. V. Mosby Co., 1972) pp. 36-37.

through the necessary stages of adaptation before information was given to them both preoperatively and postoperatively. Only at this later date when the interview took place were they ready to seek out that information.

Table III illustrates the common physiological concerns according to frequencies and percentages of patients expressing them. There were also twenty-six miscellaneous physiological concerns expressed by individuals in the study group. These are listed in Appendix E.

TABLE III

COMMON PHYSIOLOGICAL CONCERNS OF PATIENTS IN THE STUDY GROUP EXPRESSED IN FREQUENCIES AND PERCENTAGES

Concerns expressed by patients	Frequencies	Percentages
Pain	16	22.9
Difficulty sleeping	9	12.8
Weakness and tiredness	9	12.8
How much activity and when allowed	5	7.1
Loss of appetite	4	5.7
Nausea	4	5.7
Shortness of breath	4	5.7
Overexertion	4	5.7
Difficulty walking because of leg discomfort	3	4.3
Slowness of recovery	3	4.3
Weight loss	3	4.3
Questioning reason for chest pain	2	2.9
Medications causing nausea	2	2.9
Swelling of leg	2	2.9
Total	70	100.0

Emotional Concerns

Fifteen patients (75 percent) expressed one or more mental or emotional concerns. The largest group, nine patients, reported that they were frustrated. This frustration seemed to stem from a combination of weakness and tiredness, and the inability of patients to be as active as they wanted to be. They expressed their frustration in terms such as,

"tired of sitting around doing nothing",

"frustrated with always feeling so tired",

"wish I could manage to do more".

The second common concern was depression. Five patients related that this was an occasional occurrence, not a constant feeling. All of the patients who reported this depression also noted their inability to tolerate much activity without becoming very tired. Long, Scheuhing and Christian commented in this regard that there is a ". . . characteristic postoperative depression which may be triggered by the patient's awareness of his weakness and fatigue following surgery."[3] This certainly appeared to be true for the patients who reported being depressed. It seemed to the investigator, that there was often no distinction between depression and frustration as described

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[3]Madeleine L. Long, Mary A. Scheuhing, and Judith L. Christian, "Cardiopulmonary Bypass," American Journal of Nursing, LXXIV (May, 1974), 867.

by the patients and that for most of the patients either term could have been used.

The five patients who underwent the open heart surgery on an emergency basis appeared to be more anxious, on the whole, than the other patients interviewed. Two of these patients complained that they could not remember what had happened during periods of their hospitalization. One person also commented several times that the whole experience still seemed very unreal to him. He was also very anxious with regard to the possibility of future problems.

TABLE IV

COMMON EMOTIONAL CONCERNS OF PATIENTS IN THE STUDY GROUP EXPRESSED IN FREQUENCIES AND PERCENTAGES

Concerns expressed by patients	Frequencies	Percentages
Frustration	9	52.9
Depression	6	35.3
Memory Loss	2	11.8
Total	17	100.0

Socio-economic Concerns

No problems were noted with regard to family relations or to contacts with friends and/or co-workers. Family members often seemed to accept the patients' disab-

ilities more realistically than did the patients themselves since families' expectations did not seem to be as high as the patients'. The impression gained by the investigator was that families and friends considered survival as just short of miraculous and expected the patients to have a long convalescence. This attitude may later have led to problems of pampering patients, sheltering them, and prolonging their convalescence. Wahl mentioned this as a problem area[4] but at the time of this study most patients were still at least moderately incapacitated and uncomfortable from the surgery itself, so this problem had not yet arisen.

In response to questioning about return to work, only four patients had any real concerns. Two patients, both self-employed, were very eager to return to work and one, in particular, was frustrated that the physician would not give him permission to work fulltime. One patient had no one to take over his job for him and was going to work periodically for a few hours at a time. He stated that he felt guilty about "sitting around and doing nothing" while the work piled up and people waited for important decisions to be made. A patient with a managerial position disapproved of the way some things were being done while he was away from work, but he said he was not overly concerned

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[4]Wahl, pp. 72-73.

about this. Most patients apparently had not thought too much about their future employment or return to work. Some did mention that they had been promised easier jobs or "bench jobs" upon initial return to work. It became evident that convalescing was the business at hand and since returning to work was at least several months away there was no concern about it that early in the post-operative period.

Two patients had drawn all of their sick leave pay and benefits from their jobs and were reaching the end of their unemployment insurance benefits. One patient had applied for social assistance and the other was eligible to apply for "Mincome".[5] Neither patient seemed overly concerned about this financial situation. Appendix H contains the miscellaneous socio-economic concerns reported.

DISCHARGE INSTRUCTIONS

Variety of Instructions

All twenty patients received the hospital's printed Discharge Guidelines, a copy of which is in Appendix B. One patient had received the instructions but nothing had been filled in on either of the two pages. All of the other sheets were at least checked (✓) under "Level of Activity", filled in under "Medications" with the name and dosage of the medications, and marked for "Next Appointment with the

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[5] A pension paid by the British Columbia Government to handicapped persons under 60 years of age and to persons 60 years and older who receive less than the British Columbia minimum guaranteed income.

Doctor". They were also marked if patients were on anti-coagulants and needed a prothrombin time done.

For seven patients (35 percent) there was further elaboration written on the instruction sheets concerning walking activity (specifically a graded schedule for distance to be walked), sexual activity and driving an automobile. These latter two were specified according to the number of weeks before either of these activities could be performed. These patients received the instructions with the written additions as well as a verbal explanation from the cardiologist.

The remaining twelve patients (60 percent) received the marked instructions with no written elaborations. Of these patients, two stated they had received only the marked sheet with no verbal explanation. The patient who received the unmarked sheet reported he did not receive any verbal explanation. Explanations had been given to three patients by the registered nurses and to seven other patients by their cardiologist or surgeon. Table V shows the frequencies and percentages by which patients in the study group received varying amounts of discharge instruction.

TABLE V

FREQUENCIES AND PERCENTAGES OF AMOUNTS OF DISCHARGE INSTRUCTION RECEIVED BY STUDY GROUP PATIENTS

	Frequencies	Percentages
Checked, written elaboration, verbal explanation by cardiologist	7	35.0
Checked, verbal explanation by cardiologist	7	35.0
Checked, verbal explanation by registered nurse	3	15.0
Checked, no explanation	2	10.0
Not checked, no explanation	1	5.0
Total	20	100.0

Adequacy of Discharge Guidelines

Patients' responses. Patients were asked what they thought of the Discharge Guidelines and replies were generally in a positive vein. Twelve patients (60 percent) reported that they had found the first three paragraphs helpful because they included information as to what could be expected and what was "normal".

Three patients suggested that a specific activity program would be of help. Two other patients thought that persons could be warned of signs that might precede common

complications such as phlebitis. There was no discussion on the areas of sexual activity or driving an automobile as these two activities were generally restricted for six weeks after discharge. The area of diet seemed to pose little problem since all but one patient had been sent home with instructions to maintain an unrestricted diet for at least one month and their diets would be reassessed.

Differences among patients receiving varying instructions. The main difference between those seven patients who had received the instructions, elaboration, and explanation, and the other thirteen patients, was that the latter persons, on the whole, appeared to be more fearful and anxious about doing too much walking or other physical activity. Of the seven patients who received the whole gamut of instruction and explanation, only one was walking less than one-half mile per day and the other six were walking up to a mile. Of those thirteen who received no elaboration as to walking activity only five patients were walking over one-half mile a day. It should be noted that three of those patients who were walking less than one-half mile appeared too physically ill to be expected to go any further. This cautious reaction is in keeping with Wynn's findings that when a careful program of physical activity was not planned for the convalescing patient "many patients were left unsure of how much they could or

should do; many as a consequence, did too little."[6] Royle also reported on the fact that those patients who received specific instructions with regard to activity, diet, and medications were less anxious in the posthospital period than those who received vague instructions.[7]

POSITIVE ASPECTS OF CONVALESCENCE

All of the positive comments were spontaneous on the part of the patients. Nine patients (45 percent) noted that they were much stronger than they had been in the hospital or during their first week at home. By "stronger" they meant having a higher tolerance for activity and not tiring as easily as they had earlier in their convalescence. Nine patients also commented on their good or improved appetites and were pleased with this sign of returning health. Other positive elements were also noted, though by fewer patients. Only one patient did not make some positive remarks about the period of convalescence at home. Appendix I lists the positive aspects of the convalescent period.

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[6]Allan Wynn, "Unwarranted Emotional Distress in Men with Ischemic Heart Disease," Medical Journal of Australia, II (November 4, 1967), 850.

[7]Joan Royle, "Coronary Patients and Their Families Receive Incomplete Care," Canadian Nurse, LXIX (February, 1973), 25.

ADDITIONAL STUDY FINDINGS

Some of the data acquired from the interviews of patients in the study group was not relevant to the objectives of the study. It was included here so that the information it provided might be taken into account in preparing open heart surgery patients for discharge from hospital.

Coping with Concerns

Patients reported the difficulties and anxieties they had encountered during their period of convalescence but they also spoke of what they had done to cope with their concerns. By the time patients were interviewed, all of them had visited their family physician in his/her office. This was according to the usual recommendation of the cardiologist that the patient see the family doctor two weeks after discharge from hospital. Some patients had also seen the cardiac surgeon before the interview date. Both of these visits had afforded them the opportunity of asking questions and of receiving reassurance concerning their problems. Many of the patients said they had asked questions at that time and had voiced their difficulties to the doctor.

Some patients, however, appeared to question the family physician's ability to deal with problems they felt were directly related to their open heart surgery. At the same time they were reluctant to contact the "busy"

cardiologist or cardiac surgeon in case the problem was really only a minor one or something that was normal for convalescing open heart surgery patients. Several patients spoke of being upset when they visited the cardiac surgeon in his office. After listening to their complaints, he told them everything was "normal" though he had not examined them to their satisfaction.

Half of the patients had attempted to cope with their concerns by relying on themselves and/or their spouses. In some cases this simply meant doing nothing and hoping the difficulty or cause of anxiety would disappear on its own. Five patients had contacted their family physicians for help, three had gone to some family member other than their spouses, and two patients had waited for the investigator in order to ask her assistance. Table VI shows on whom patients relied to help them cope with their concerns.

TABLE VI

FREQUENCIES AND PERCENTAGES OF PERSONS ON WHOM PATIENTS RELIED TO HELP THEM COPE WITH CONCERNS

Persons relied on	Frequencies	Percentages
Self, or self and spouse	10	50.0
Family physician	5	25.0
Family member	3	15.0
Investigator	2	10.0
Total	20	100.0

Patients' Feelings of Well-being

The opening question of the interview, "In general, how have you felt since you came home?" yielded a variety of responses. It appeared that these responses could be categorized into four levels of well-being: (1) feeling well, (2) feeling fairly well, (3) noting a constant improvement, and (4) feeling quite ill. Five patients (25 percent) stated that they were feeling very well and the investigator noted that they looked well and were also very positive in their outlook. Some of their responses included:

"feel like a million dollars",

"feeling so good and doing really well",

"really good; no complaints".

Nine patients (45 percent) reported that they were feeling fairly well and gaining strength. Five of these patients had expected to feel much better and therefore found it difficult to see that they were making any progress in recovering. One patient appeared to be quite depressed by this occurrence. Responses from this group were varied:

"think I feel good for what I've been through",

"good days and bad days",

"on the whole, pretty good",

"feeling stronger every day".

The third group of patients saw some element of improvement, particularly in their physical capacities, even though most of them did not feel too well. All four

patients (20 percent) in this group had been quite severely incapacitated prior to surgery and even though they were not feeling too strong they could detect a definite improvement in their condition. The sixth patient had phlebitis at the time of the interview but despite this he felt very much improved. These patients responded to the question with such comments as:

"the ability to walk further shows an element of improvement",

"breathing much improved",

"feeling much stronger each day",

"don't need pain pills any more".

One patient in this third group was very frustrated over his slowness in recovering but the rest of the patients appeared to be contented with whatever improvement had taken place.

There were two patients who could feel no improvement and who, in fact, felt worse than they had preoperatively. Both of these patients appeared to be very anxious and to have more concerns than the other patients.

Unexpected Aspects of Convalescence

Patients' responses to the question, "What has been the most unexpected part of your convalescence at home?" were both positive and negative. Six patients (30 percent), although they had experienced some difficulties and anxiety, stated that nothing had been unexpected during their three or four weeks out of the hospital. Three patients (15 percent) expressed their surprise at feeling so well. They

apparently had expected a much slower recovery. Three others reported that they had not expected to feel so ill during their first week at home. They had felt fine in the hospital but once they came home things seemed to start going amiss. All unexpected elements are listed in Appendix J.

SUMMARY

This chapter reported the data gained from interviews of twenty posthospital open heart surgery patients. Seventeen men and three women were interviewed in their homes between four and a half weeks and nine weeks postoperatively. All but two patients reported that they were feeling improved. All but one expressed concerns of a physiological nature, the most common one being pain. Seventy-five percent of the patients expressed some emotional difficulties, mainly frustration and depression resulting from their physical limitations. Socio-economic concerns were small in number.

The amounts of discharge instructions that patients received were reported and differences between patients receiving the instructions were noted. The positive elements of convalescence were taken from the interview data. Additional findings noted the patients' manner of coping with concerns, the patients' states of well-being, and the unexpected aspects of the early posthospital period.

CHAPTER V

SUMMARY, CONCLUSIONS, AND AREAS FOR FURTHER INVESTIGATION

SUMMARY

Purpose of the Study

The purpose of this study was to explore the concerns perceived by patients who had undergone open heart surgery. This survey was to deal with the first three to four weeks following discharge from hospital and subsequently the investigator was to identify the concerns common to these patients.

Methodology

The investigator carried out a descriptive study by means of a semi-structured interview schedule to obtain responses from twenty convalescent open heart surgery patients. Patients meeting a set of specified criteria were interviewed at home during their third or fourth week following discharge from hospital. The interviewer explored what had happened to these patients since their return home and, in this way, attempted to identify the physiological, emotional, and socio-economic concerns faced by these patients during the stated time period. Patients were also asked for some evaluation of the printed

Discharge Guidelines they had received. Interviews were tape-recorded and later transcribed in order to compile the data. The interviewer compiled the data and noted specific common aspects of patients during said period of convalescence.

Findings

The study showed that there was a variety of concerns encountered by convalescing open heart surgical patients during their first three to four weeks at home.

Ninety-five percent of patients expressed concerns of a physiological nature. The common concerns were pain, difficulty sleeping, continued weakness and tiredness, questions as to the correct amount of activity, loss of appetite, nausea, shortness of breath on exertion, and overexertion. Seventy-five percent of the study group experienced emotional concerns, the most common being frustration resulting from a low tolerance for physical activity, and feelings of depression. Thirty percent of the patients expressed socio-economic concerns of which only one concern, that of sick-leave pay and benefits, and unemployment insurance being used up, was common to two of the patients. One half of the patients relied on themselves or on themselves and their spouses to cope with their concerns. The other ten patients looked for help or information from their family physicians, or other family members, or the investigator.

All twenty patients in the study received the hospital's Discharge Guidelines which except in one case, were completed. Fifteen percent of the study group received no explanation of these guidelines before their discharge. Only thirty-five percent of the patients interviewed received some written elaboration regarding the amount of activity they should do. Among the other sixty-five percent of the patients who received no elaboration there appeared to be some reluctance to increase the length of daily walks or to engage in other light physical activity.

All but two patients could see some element of improvement in their conditions. Many of them remarked that they found their recovery very slow. However, with regard to their convalescence, all but one patient had positive remarks to make. Thirty percent of the study group had experienced nothing that was of an unexpected nature during the stated period of convalescence.

CONCLUSIONS

The variety of questions from and concerns of the patients was great and indicated a probable need for improved teaching in preparing open heart surgery patients for discharge. The major concerns of these patients seemed to focus mainly on postoperative pain, difficulties with sleep, fatigue, and frustration stemming both from physical

fatigue and the inability to be as active as they wanted to be.

The present study revealed some patients who questioned whether or not the problems they were experiencing were indicative of complications. Such problems included severe chest pain experienced by two patients and the pain and tenderness caused by phlebitis in another patient. These incidents indicated that discharge teaching should provide information regarding the signs and symptoms of possible complications.

Patients who did not receive any written elaboration regarding activity appeared to be somewhat reluctant to increase the extent of their walking and other light physical activities. Five patients questioned the amount of activity they should be doing and the appropriate time for certain activities to be undertaken. Both of these findings pointed to the need for more specific Discharge Guidelines, especially with regard to the amount and timing of activity suggested for each patient.

The four patients who underwent emergency open heart surgery sought information concerning the effectiveness of their operations, the possibilities of future problems and the normalcy of their convalescent course. This suggested that patients who have undergone open heart surgery on an emergency basis should receive a more thorough briefing on their condition prior to discharge from hospital.

Two patients waited for the investigator's visit to seek help with particular physiological concerns. They evidently saw the nurse as someone who could provide reliable information and help. For that reason it is suggested that at a determined time following discharge a nurse or nurses be assigned to contact patients by telephone to intervene by assessing concerns and providing encouragement, reassurance, and information.

AREAS FOR FURTHER INVESTIGATION

An experimental study utilizing a variety of instructional techniques and methods should be carried out to determine the best means of preparing open heart surgery patients for discharge.

The present study could be replicated with the following changes:

1. employing a more structured interview guide to obtain more specific data on patients' concerns;

2. controlling for the presence of those other than the patient at the interview;

3. checking the reliability of the data analysis from the tape-recorded interviews.

A study of the concerns of patients who return to their homes outside of the Greater Vancouver area should be carried out to determine if these patients have concerns differing from patients who live in closer proximity to the hospital.

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APPENDIXES

APPENDIX A

CONSENT TO ACT AS A SUBJECT FOR STUDY

Subject's Name:_____ Date:_____

I hereby consent to participate in a study being conducted by Sister Maureen O'Loane and to be interviewed by Sister O'Loane two weeks following my discharge from the open-heart surgical unit at Saint Paul's Hospital.

An explanation of the study has been given to me by Sister O'Loane.

I understand that there are no risks involved and that no identifying information will appear in the completed study.

I further understand that I am free to withdraw from the study at any time.

_____

(Subject's Signature)

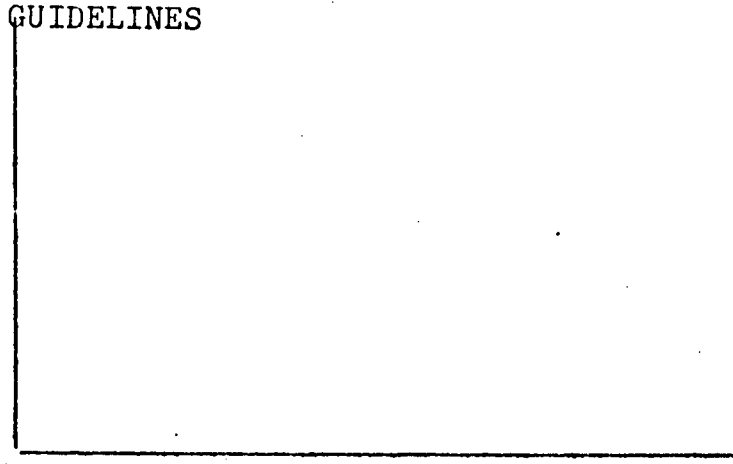
APPENDIX B

DISCHARGE GUIDELINES

ST. PAUL'S HOSPITAL

OPEN HEART SURGICAL AREA

Discharge Guidelines



Although your primary heart problem has been corrected, do not expect to return to "normal" for at least three months. You can expect various types of chest pain for some time. Dull aching in the back or under the breasts is common, especially on damp days and is muscular in nature, arising from your chest wall which was stretched at the time of surgery. Heat, in the form of a hot water bottle or electric pad is very helpful. Sometimes a sharp stabbing pain which lasts a second or two is alarming - again, it is not serious - perhaps a lung adhesion being freed from the chest wall is to blame. If you develop a persistent pain like pleurisy, which tends to be severe and is worse on deep breathing, it would be wise to report this to your doctor.

You may notice an occasional "clicking" noise from your sternum (breast bone), especially on deep breathing - this is of no consequence and will disappear when the bones are firmly healed.

Do not be worried if you have a poor appetite for several weeks more. It takes time for the body to "get over" heart surgery and the appetite usually returns in a month.

Level of Activity following Discharge from Hospital

Week #1 - Carry on with same amount of activity reached in hospital
Climbing stairs permitted Yes ☐ No ☐

Week #2 - Begin to increase the amount of walking and go outdoors if weather permits
Climbing stairs permitted Yes ☐ No ☐

Special Limitations, if any:

Sexual Activity - may be resumed following heart surgery. You are encouraged to discuss this subject with your doctor, if you wish.

You are cautioned against driving an automobile until you have been seen in your doctor's office.

(2)

Medications

The medications you will be taking at home, and the times you are to take them are as follows:

_____

_____

_____

_____

_____

_____

Diet: Dietician to see ☐

Community Referral Agencies to be used:

Meals on Wheels ☐

Victorian Order of Nurses ☐

Public Health and/or Home Care Program ☐

Next Appointment with Doctor will be:

Surgeon:

Cardiologist:

Family Doctor:

If you are receiving a blood thinner (anticoagulant) you will require a blood test (prothrombin time) in _____ days. Please go to St. Paul's Hospital Laboratory, or the Laboratory designated by your doctor for this test. Your nurse will give you a requisition for this test, if it is to be done in St. Paul's Hospital. You do not need to fast prior to this test.

Your doctor has decided that you should receive anticoagulant medications when discharged from hospital. We thought you would be interested in knowing a little about the action of this medication. Anticoagulants (also known as "blood thinners") slow the clotting prcesses of the blood. Normally, when the liquid blood is outside the body it will form a solid clot within a few seconds. If an anticoagulant has been added, the blood will require more time to clot, and if too much anticoagulant has been added, the blood may remain liquid and never form a clot.

You may have been given your anticoagulant for a number of different reasons. Perhaps you have received a new artificial heart valve and your doctor wants to prevent blood clots from forming on its surface. Perhaps you have had a bout of thrombophlebitis, a form of inflammation of the veins of the legs, from lying in bed a long time, or from pregnancy, and your doctor wants to prevent blood clots from forming in the veins. Perhaps you have a form of heart rhythm change which allows blood to stagnate and hence leads to clotting. Perhaps you have narrowed arteries to the brain and your doctor wants to keep your blood flowing freely through the narrow channels. There are many reasons for taking anticoagulants, but whatever the reason, it is necessary that you receive just the right dosage.

No two people need just the same amount of anticoagulant. If you do not take enough, you will receive no benefit. If you take too much, you may bleed spontaneously. Your doctor will arrange for you to have your blood checked periodically to determine just how much anticoagulant you need. The blood test is called a "prothrombin time". The technician takes a sample of your blood and determines how many seconds are required before your blood will clot. She then compares this time to a normal individual's prothrombin time, and will report the results to your doctor, both in seconds of time and in percentage of the normal. For instance, if a normal person's blood clots in 13 seconds, and your blood clots in 13 seconds, your report will read - "13 seconds 100% of normal". On the other hand, if your blood clots in 28 seconds - your report will read - "28 seconds 30% of normal". Your doctor is trying to keep your blood under 30% of normal and he would be pleased with such a reading. If your blood clots too soon and your percentage approaches the normal, he may ask you to take more anticoagulant. On the other hand, if your prothrombin time were less than 10%, he would ask you to take less anticoagulant.

At first, while you are in hospital, a blood test for prothrombin time is taken every day. Once you are "controlled" your doctor will decrease the number of blood tests to every other day, then once a week, and later perhaps, once every four to six weeks. As long as you are taking anticoagulants you will require periodic blood prothrombin times, for unfortunately the action of the medications tends to change. Many things make the prothrombin time change. For example, if you drink alcohol, you may need less anticoagulants than if you do not. Certain drugs change the amount of anti-coagulant needed - e.g. aspirin, sedatives, antibiotics. This does not mean that you may not drink a martini, or take aspirin for your headache - but it does mean that if you drink more than you are accustomed to drink, your prothrombin time may change and you may require more, or less anticoagulant than at other times.

The probthrombin time test is done either in the hospital or in a nearby laboratory. Your doctor will arrange for your first test and tell you when and where to report for it. You do not need to fast for the test and it usually just takes a minute. Once your blood has been taken you may leave. The laboratory will call your doctor that day and give him the report. He, or his secretary, should call you that day or the next, and tell you whether or not the dosage of your anticoagulant should be changed, and ask you to return for another prothrombin time on a certain date. If you are not contacted by your doctor, please call him. The report may have gone astray.

If, in error, you take too many anticoagulant tablets, you may bleed more easily than normal. You may see large bruises on your body, pass bloody urine, or your teeth may bleed excessively after brushing. Call your doctor if you notice any of these things. If you cut yourself while taking anticoagulants, you will notice that you will bleed more easily than at other times. If it is a small cut, such as one caused by shaving, just apply pressure over the cut for five minutes and it will stop. If it is a larger cut, and pressure does not help, call your doctor. He may want to give you vitamin K which is the antidote to your anticoagulant. Never have an operation while taking anticoagulants. Tell your dentist and any new doctor unfamiliar with your case that you are taking anticoagulants. They may wish to stop your anticoagulant for two or three days before taking out your tooth, or may give you an injection of vitamin K before taking out your appendix. It is a good idea to carry a little card in your wallet which states that you are taking anticoagulants, in case you are in an auto accident. It may also be wise to remind your doctor that you are on anticoagulants when new drugs are prescribed, especially antibiotics.

Anticoagulants taken by mouth are of many different types. The most popular types are Dicoumarol, Warfarin, and Marcumar, but you may have been given a prescription for still another variety. Know which type you take and question any change in appearance of the pill when you get your prescription refilled.

December, 1973

APPENDIX C

FACE SHEET

Age:

Sex:

Marital Status:

Occupation:

Surgery:

Postoperative Complications:

Length of Postoperative Hospitalization:

Surgeon:

Cardiologist:

Interview Data

Location:

Persons present:

Days Postoperative:

Days Postdischarge:

Readmission to Hospital:

Reasons:

APPENDIX D

INTERVIEW SCHEDULE

The interview for each patient was unstandardized as to format but was based on the following content:

I. Patient's General Feeling of Well-being since Discharge
   - A. Progress
   - B. Questions that occurred
   - C. Areas of concern
   - D. Means of coping with concerns and questions

II. Physiological Considerations
   - A. Present physical condition
   - B. Complaints - most frequent
     most bothersome
   - C. Activity - type
     amount; how decided
     amount of sleep and rest
     difficulties with sleeping
   - D. Nutrition - appetite at present
     special diet
     any difficulties with diet
   - E. Elimination - constipation and straining
   - F. Medications - prescriptions
     dosages and schedules
     important side effects known

III. Emotional Considerations
   - A. Worries
   - B. Feelings about present state of health
   - C. Feelings about worth of surgery

IV. Socio-economic Considerations
   - A. Family's treatment of patient since discharge
   - B. Feelings about present role in family
   - C. Acceptance of patient's condition by friends
   - D. Concern showed by friends, work associates
   - E. Expectations and plans re employment
   - F. Person(s) most relied upon for knowledge of what one may do

V. Feelings about pre-discharge teaching
   - A. Successful Areas
   - B. Failings

APPENDIX E

MISCELLANEOUS PHYSIOLOGICAL CONCERNS

Lack of balance in early morning

Cough

Palpitations

Phlebitis in one leg

Drainage from leg incision

Gout

Cerebral vascular accident

Loss of voice

Tightening of chest

Fractured clavicle queried

Swelling above sternum

When to resume rehabilitation that stopped preoperatively

Effectiveness of surgery

What was actual heart problem and how was it repaired

Placement and operation of pacemaker

Early discharge from hospital

Erratic pulse

Poor circulation to lower extremities

Medication causing insomnia

Incompatibility of medications

Weight gain

Numbness in arm

Numbness around leg incision

Difficulty getting out of bed

Inability to cough or deep breathe

APPENDIX F

LOCATIONS OF PAIN REPORTED BY PATIENTS

Chest incision	11 complaints
Leg incision	5 complaints
Arms	4 complaints
Legs	3 complaints
Shoulder	2 complaints
Chest (angina)	2 complaints
Back	1 complaint
Ribs	1 complaint

APPENDIX G

MISCELLANEOUS EMOTIONAL CONCERNS

Unreality of the experience

Easily irritated

Knowledge of surgery's limitations

Distance from hospital

Number of physicians on the case

Future problems that could occur

Whom to contact for help

APPENDIX H

MISCELLANEOUS SOCIO-ECONOMIC CONCERNS

Possibility of having to change jobs

Disapproval of substitute's handling of job

Guilt about not working

Fearful that family physician feels guilty about not discovering defect

APPENDIX I

POSITIVE ASPECTS OF CONVALESCENCE

Feeling stronger

Appetite good or improving

Weight gain

No pain

Less shortness of breath on exertion

Less pain

Sleeping well

No angina

Improved circulation and color

Greatly improved relations with wife and children

Able to keep weight down

Adjusting to discomforts

Doing better than wardmates who had also been discharged

APPENDIX J

UNEXPECTED ASPECTS OF CONVALESCENCE

Nothing

Feeling so well

Feeling so "rough" during first week

Weakness and tiredness

Difficulties sleeping

Slowness to pick up strength

Severe chest pain

Phlebitis

Exacerbation of gout followed by cerebral vascular accident