THE PATIENTS' PASSAGE OF DECISION IN STROKE PREVENTION

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ABSTRACT

The purpose of this study was to gain a greater comprehension of the decision-making process as perceived and experienced by patients undergoing a selected surgical procedure for the prevention of stroke. Stroke is the third leading cause of death and disability in the United States. The major disease entity responsible for this statistic is cerebrovascular occlusive disease which accounts for 80 per cent of the 450,000 new strokes that occur each year. One surgical procedure presently being used for the prevention of progressive neurological deterioration and stroke associated with cerebrovascular occlusive disease is Microvascular Neurosurgical Bypass. Patients found to be clinically qualified to undergo this intracranial bypass procedure are subsequently confronted with the decision to have surgery or not to have surgery. Basic to this decision is the component of prevention and the role of the patient in decisions that affect his health care.

The methodology used for this study was field method with interviewing being the primary research tool. Analysis of data was accomplished through the constant comparative method in conjunction with the generation of grounded theory advanced by Glaser and Strauss.

A sample of convenience consisting of fifteen adult patients was obtained. This sample represented 12 per cent of the total patients who had bypass procedures performed by the neurosurgeon

during the study. To gain a variance in perspective of the patients' decision-making a sample of convenience numbering seven family members or significant others was additionally secured.

Findings indicate that the patients' process of decision can not be studied as a separate entity but only in the context of the decision. The decision process was found to comprise a series of interrelated and progressive phases based upon specific components that influence the decision. The goal to which the process of decision is directed is "quality of life." The phases of the decision process identified were: Threat, Trust, Holding, Contemplation, and Compliance. The basis from which the process of decision evolves are four major influential components of decision: Brain Symptomatology, Time Table, Physician Dyad, and Family or Significant Other. As a result of the similarity discovered among the phases of the decision process and the major components influencing the decision, a conceptual model, "The Patients' Passage of Decision in Stroke Prevention," was developed. This model provides a means of viewing decision-making from the patients' perspective and offers the health professional a framework for developing individualized health care plans for patients confronted with the decision to undergo bypass surgery for the prevention of stroke. The model, in addition, has potential value in its application to other forms of preventive surgery. Although information consistent

with the requirements of informed consent could be identified by the patient respondents of this research, it was not found to be among the major influential components of their decision.

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INTRODUCTION

Guiding Perspectives

Stroke is the third leading cause of death and disability in the United States.[1,2] Approximately four hundred thousand new strokes occur per year and two million people in the United States are presently disabled and unemployed as a result of this disease process.[3] Two thirds of these two million people presently disabled and unemployed are under the age of sixty five and thus can be considered by most man's standards of longevity and productivity to be within the pre-retirement age range.[4] According to a report released in March 1973, by the Commission on Stroke of the National Institute of Neurological Diseases and Stroke, no other disease entity is more costly in terms of the care needed by survivors in the post-acute stage.[5]

One area of stroke prevention is directed toward the more common vascular occlusive diseases which develop over a period of years and are responsible for eighty per cent of stroke mortality and morbidity.[6] Strategies utilized in this area of stroke prevention include the identification of hi-risk populations with diagnostic confirmation and the implementation of prescribed medical regimes or therapeutic surgical intervention. Microvascular Neurosurgical Bypass, developed in the mid-sixties, is one procedure presently utilized in stroke prevention. To date evidence indicates that a seventy-five to eighty

per cent degree of success with this type of intracranial surgery in alleviating temporary neurological deficits often experienced by the stroke prone patient as well as decreasing the incidence of stroke.[7,8]

Patients experiencing temporary neurological deficits and demonstrating evidence through angiographical findings of inaccessible occlusive vascular problems may be prime candidates for Microvascular Neurosurgical Bypass surgery. If found clinically qualified to undergo surgery, these patients are confronted with a decision to have surgery or not to have surgery. Basic to this decision is the component of prevention as a means of avoiding the possibility of progressive neurological deterioration or sustaining a stroke.

Patients have the right to actively participate in any decision concerning their therapeutic management.[9] Decisions that are appropriate to an individual must emanate solely from within that person and responsibility is the ultimate by-product of decisions which are growth promoting to that individual.[10] A review of the literature indicates little study has been devoted to decision making as perceived by the patient in which prevention is a basic component. The majority of the findings relating to decision making are manifested through the disciplines of mathematics and economics with a statistical stance focused toward managerial and administrative solution. Decision making theorists approach the subject of decision through a systematic and deductive process.[11,12,13] These theorists suggest objective

methods of analyzing information, yet identify subjectivity as a final determinant.

Problem (Focus and Statement)

The focus of this research is (1) to identify realities of the decision making process from the perspective of the patient, and (2) to describe how candidates for Microvascular Neurosurgical Bypass view their illness process in relation to the decision of surgical intervention. A one to one relationship with potential candidates for bypass surgery was deemed essential in pursuing these objectives. Field methodology with emphasis upon interviewing offered the most appropriate means by which the realities of patients as participants in the health care system and confronted with a decision of surgical intervention could be explored. In addition field methodology offered the means by which the following research questions could be answered:

1. What are the components of the decision making process as perceived and experienced by patients confronted with the decision to have Microvascular Bypass surgery for the prevention of progressive neurological deterioration or stroke?

2. What are the implications of the decision making process as experienced and perceived by the patient for the delivery of health care services?

A number of questions are relevant for patients who may qualify for Microvascular Neurosurgical Bypass: How is the decision to have Microsurgical Bypass surgery determined? Does a

process of decision exist and if so are there identifiable commonalities consistent with the decision making process among potential candidates? Who is involved in the decision and to what extent? Is the preventative component in the decision to have surgery significant? A number of suppositions have been offered by members of the health delivery system in answer to these inquiries, yet, the patient's perspective is infrequently considered. This research seeks answers to the aforementioned questions from the patient's perspective.

Due to the innovativeness of the surgery, the limited number of neurosurgeons qualified to perform the procedure and the distance involved because of the communities from which surgical candidates are referred, this research includes only those patients whose option was to pursue the surgical route of Microvascular Neurosurgical Bypass surgery. Patients interviewed numbered 15 out of 125 who had surgery and thus represented 12% of the total bypass cases performed during the period of this research. Despite minor variations in the patients' diagnosis, all the respondents interviewed stated the major purpose of having bypass surgery was stroke prevention.

Comprehensive health care is frequently identified by health professionals as a major goal in the delivery of health care services. The basic foundation for comprehensive health care suggests the implementation of care activities commensurate with both pathophysiological and psycho-social parameters inherent in total well being. To provide additional substance and meaning to

comprehensive health care a greater in-depth understanding of the patient as a consumer of health care is indicated. This understanding, particularly if reflective of the patient's perspective, may provide health professionals with insight to the consumer's role in the health care system, his motivation for seeking care, and his rationale for acceptance of and adherance to recommended treatment programs. Data of this calibre would provide more meaningful and comprehensive health care plans consistent with the needs of the consumer. Increased effectiveness in the delivery of health care services would subsequently result.

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CHAPTER I

THEORETICAL AND EXPERIENTIAL PERSPECTIVES OF DECISION-MAKING

This research seeks to determine the components of the decision-making process as perceived and experienced by patients undergoing Microvascular Neurosurgical Bypass surgery for the prevention of stroke. The major emphasis of the research is thus directed toward the patient's perception of the process involved in decision-making. However, to provide a comprehensive picture of the concept of decision-making and to illustrate the dimension of the patient's perception in decision-making, both the theoretical and the experiential perspectives of decision-making require consideration. Therefore, the purpose of this chapter, "Theoretical and Experiential Perspectives of Decision-Making," is to (1) identify the major theoretical perspectives of decision-making, (2) identify the relationship of the decision-making process to decision-making, and (3) illustrate the patient's perception of the decision-making process through case presentations. To provide anonymity and insure confidentiality, letter symbols to represent the respondents are being used throughout the dissertation. Similarly, doctors to whom patients referred to are also represented by letter symbols.

Theoretical Perspectives: Relationship of Process to Decision-Making

The major portion of the literature relating to decision-making concerns the aspect of the decision itself and suggests theoretical

conceptualizations derived from a mathematical or economic stance. Basic to these findings are statistical inferences conceived through managerial or administrative problem solution. Decision-making theorists approach the subject of decision-making through a systematic and deductive process.[1,2,3,4,5,6,7] According to Easton, activities of decision begin with a perception of a need for change followed by a diagnosis of the unsatisfactory factor involved.[8] Resolution of the problem requires defining the aims or goals, identifying the interests that may be affected and their relative urgencies, and determining how goal attainments will be evaluated and reached. Miller purports a formula of steps to be identified and analyzed toward the identification of the "best" decision.[9] Miller further advocates the assignment of a "worth factor" to identified alternatives of decisions according to individual selected preferences. According to Miller, "Worth judgments, a derivative of the assigned worth factors, can neither be true nor false, exist in the minds of human beings to be accepted or rejected, and as a property of human beings infer subjectivity."[10] Lee identifies a rational or optimal decision (concept of rationality) as the ultimate choice in viewing alternatives and suggests the use of a decision principle in identifying the rational or optimal decision.[11] A "rational decision" or "best decision" in the final analysis is dependent upon relevant information available to the person's preferences and beliefs. Pervasive themes reflective of decision-making theory characterize decision-making as a sysematic deductive process involving a number of known factors analyzed by quantitative means

yet possessing an element of subjectivity in the final analysis.

Kast and Rosenzweig as well as Miller and Starr suggest the application of decision-making principles to any situation that requires decision. Situations that require decision consist of four major factors and are considered "open" or "closed" dependent upon the existence of known factors and the influence of extraneous variables.[12,13] According to these authors the four major factors of situations that require decision are: (1) a set of possible actions, (2) outcomes associated with these actions, (3) the probability of each outcome's occuring if a given action is taken and (4) the value of the outcome to the decision-maker. If the actions of a particular decision and the outcomes of that action are known with certainty and if environmental factors can be excluded from the decision-making process, decision-making is termed "closed." If, in contrast, actions of a particular situation and the outcomes resulting from that action are not known and if other factors have the potential of entering into the process, decision-making is considered "open." Decision-making that is considered "open" may, therefore, include situations in which an identified action and its outcome is questionable and where the existence of psychological or sociological variables have the potential of influencing the decision-making. "Closed" situations of decision-making imply a more "controlled" aspect where identified actions and their outcomes may be predicted. Situations involving decision-making incorporate four major factors and dependent upon specific characteristics of these factors may be viewed as "open"

or "closed."

Decision-making suggests an act of choice following a period of time devoted to deliberation and judgment.[14] In order for an individual to make a decision or to identify a particular course of action he must reflect upon the available alternatives and make a judgment about which alternative and its consequences are most preferable. Schaffer[15] suggests in addition to the basic conditions of freedom and voluntarity being present for decision-making, deliberation and judgment or the "condition of rationality" must also be fulfilled prior to making the decision. Cognitive processes of deliberation and judgment indicate an on-going process. Thus, activities of an individual in a phase of deliberation and judgment, whether the activities are those associated with cognition and/or result in behavior, are processual by nature. Decision-making includes not only the act of choice resulting with a decision but also the process of deliberation and judgment. Therefore, process is an inherent factor of decision-making.

Case Presentations

An important research principle associated with "Symbolic Interactionism," elaborated upon in Chapter V, requires the researcher to take the perspective or "role of the acting other" and view the world from his subject's, i.e. the other person's point of view.[16] The approach of viewing the world from his subject's point of view enables the researcher to capture the definitions and meanings used by the subject or respondent in order to better understand

his behavior. "Taking the role of the acting other permits one to escape the fallacy of objectivism, that is, the substitution of his own perspective for those he is studying."[17] In this respect field researchers attempt to enter the field with a minimum of preconceptions allowing the respondents to tell it "as it is." One of the objectives of this research is to determine the realities of the decision-making process from the patient's perspective. Thus, upholding the key element of Symbolic Interaction (taking the role of the acting other) is essential.

To learn more about the decision-making process as perceived and experienced by patients undergoing Microvascular Neurosurgical Bypass surgery for the prevention of stroke two patients from the sample were selected for the following vignettes. The purpose of these selected vignettes is to provide the reader with an opportunity to vicariously take the role of the patient in the decision-making process and to grasp the significance of being faced with the decision to have bypass surgery for the prevention of stroke.

"The Beginning To An End" - Mr. Y.

Mr. Y. is a sixty year old Caucasian male who is presently retired and receiving disability insurance. A former claims adjuster for Fireman's Fund, Mr. Y. is a high school graduate with three years additional education related to the insurance business. Mr. Y. is married with two grown children. The historical events leading to Mr. Y.'s present hospitalization for bypass surgery began approximately one year ago. According to Mr. Y., "It was like the

world came to an end, or the beginning to an end. I felt useless, the bottom had dropped out." Mr. Y. had been admitted to a local community hospital a year prior to his present hospitalization for bypass surgery with a diagnosis of "stroke." Presenting symptoms at that time were a "loss of balance," "lightheadedness," and a "floating right hand." During hospitalization for these complaints, Mr. Y. stated that the symptoms were gradually alleviated and he was placed on anticoagulant therapy for a "period of time." Surgery for a "block of the right artery in the neck" was considered during this initial hospitalization but subsequently deemed inadvisable by the medical staff. Mr. Y. returned home after the hospitalization with no physical limitations, yet, "just not feeling good." "Something must be better, it had been better," stated Mr. Y. Convalescence at home was "non existent" according to Mr. Y. and a year passed with little change except the noting of interval "attacks of blindness," and a persistant generalized malaise. The year at home, post hospitalization, was characterized by Mr. Y. as a "feeling of going downhill, both physiologically and psychologically."

Mr. Y. discontinued his employment and chose to retire earlier than anticipated on disability insurance due to the continued "physiological and psychological low." The blinding attacks experienced by Mr. Y. became progressively more frequent. One year after Mr. Y.'s initial hospitalization for "stroke" and a month prior to Mr. Y.'s present hospitalization for bypass surgery, Mr. Y. was admitted to a large, metropolitan hospital for evaluation, observation and a "diagnostic workup." A team of physicians at this time

concluded "carotid artery surgery (carotid endarterectomy) was a poor alternative" to Mr. Y.'s complaints. Transient ischemic attacks or "little strokes" characterized by sudden, brief and repetitive episodes of cerebral dysfunction were identified by the team of physicians as the major problem. One of the team of physicians mentioned the procedure, "Temporal Artery Bypass" (Microvascular Neurosurgical Bypass) and the fact that a surgeon in the near-by vicinity was performing this type of surgery. "My wife's sister's brother-in-law is a doctor and he picked up on the idea of the bypass surgery," stated Mr. Y. The relative telephoned the surgeon and received the details of the operative procedure. "I saw the surgeon who performs the bypass surgery about three weeks later," said Mr. Y. The three week interval between Mr. Y.'s second hospitalization and prior to seeing the surgeon who performs bypass surgery was described by Mr. Y. as a "continuance of feeling no good; some days were just better than the poor days." Symptoms of "case of fatigue" and more frequent "blinding attacks up to twenty per day began to occur." "Something had to be done, I'm a chicken but I knew I had to try anything; I decided I was a burden to my wife and to myself," relayed Mr. Y. Mr. Y. stated that the surgeon offered no guarantees but thought the bypass surgery should help curtail the blinding attacks and further symptoms associated with transient ischemic attacks.

Mr. Y. returned home after the appointment with the surgeon to think about having surgery. A few days after seeing the sur-

geon, Mr. Y. lost the use of his right leg for "sixteen hours" and gave up his recreational interests of bowling and golfing. "I made the decision," Mr. Y. stated, "I discussed the situation with my wife and called my own doctor to call the surgeon." According to Mr. Y., surgery offers the "last straw, as without it I can only see dwindling health, sickness, being a burden and finally expiring." Mr. Y. concluded, "There are risks but that's life; with surgery I have the best odds."

"I Really Didn't Know What To Do" - Mrs. H.

To illustrate another patient's perception of the decision-making process in relation to having Microvascular Neurosurgical Bypass surgery for the prevention of stroke Mrs. H. has been selected. Mrs. H. is a sixty one year old widow who is employed as a clerk typist in a community hospital. Self supporting for several years, Mrs. H. lives alone and has two married daughters residing in the near-by vicinity of her home.

According to Mrs. H., she had been "okay" until a few weeks prior to her present hospitalization. The "trouble" began one day as Mrs. H. was walking to the hair dressers and noticed that the cigarette she held in her hand fell to the ground. "I didn't pay any attention to it until that evening when I noticed I couldn't hold onto my fork while eating supper nor hold onto my sewing needle," commented Mrs. H. She continued, "I thought I was just tired so I decided to get some sleep. I was in bed and went to turn off the light and noticed I couldn't seem to find my arm. It seemed at that

time I was going to get paralyzed so I managed to get to the phone and call my daughter." The daughter arrived at Mrs. H.'s home and discovered her mother could not talk. Mrs. H. spent the night at her daughter's and the following Monday returned to work only to find she was unable to "type or read". Encouraged by her daughter to seek medical attention Mrs. H. made an appointment with her doctor that day and was subsequently hospitalized for observation and evaluation.

Diagnostic tests performed during the hospitalization were negative with the exception of the arteriogram which "suggested a couple of blocked arteries." "The doctors told me I had had a little stroke," said Mrs. H. According to Mrs. H., the doctors were "very concerned" and contacted the surgeon performing bypass surgery. An appointment for Mrs. H. with the surgeon was made by her family doctor. "The doctor at the hospital where I went for all those tests said I wouldn't need surgery if I decided against it and could manage on pills," relayed Mrs. H., "but I'm sixty one years old and I'm not afraid of dying. My kids are all taken care of. . .what bothers me is to think of having a stroke and being flat on my back and being a burden. I don't want to go through life taking pills and praying every minute nothing is going to happen."

Mrs. H. stated that her family wanted what was best for her and had spoken to the family doctor and the surgeon about having surgery. "Medical talk is beyond me; it's too technical whether

I hear it or read it," Mrs. H. said. "The family encouraged me to have the surgery. They (family) know how worried I am, but I guess it will lessen their concern for me as well." Mrs. H. continued speaking of her perception of the experience of the decision to have bypass surgery stating she had confidence in her own doctor and the surgeon performing the surgery. "The doctors, my family doctor and the specialist, are very nice. You can talk with them and they don't think you're silly. They listen, too, and have taken a real interest in me. Even my own doctor said if I was his mother he'd advise the same thing." Mrs. H. said she had had surgery on previous occasions but she seemed to be more "shakey" with the forthcoming bypass surgery. "I think any operation on the heart or the brain is very serious," Mrs. H. explained, "after all those organs keep you going." "I really didn't know exactly what to do," continued Mrs. H., "but remembering some people lying paralyzed on stretchers in the hospital where I work made me think there's no other thing to do."

The above illustrations represent a sample of the data collected by the researcher while conducting interviews with patients undergoing Microvascular Neurosurgical Bypass surgery for the prevention of stroke. These illustrations are representative of the data retrieved. The influence of others in the decision to have surgery, the significant relationship between the patient and the physicians and the reasons patients give as the rationale for undergoing surgery are common themes the researcher identified while attempting to

take the patient's role in the decision-making process as described in Chapter V.

In summary, the purpose of this chapter, "Theoretical and Experiential Perspectives of Decision-Making" was to (1) identify the major theoretical conceptualizations of decision-making, (2) identify the relationship of the decision-making process to decision-making and (3) illustrate the patient's perception of the decision-making process through case presentations. The inherent subjectivity of the patient's decision to have Microvascular Neurosurgical Bypass for the prevention of stroke, the questionable result of therapeutic options and their outcomes as well as the possible influence of sociological and psychological variables affecting the decision suggests that theoretical conceptualizations of decision-making are relevant to this research. Emphasis of this research, however, is not primarily upon the theoretical conceptualizations; the focus is upon the decision-making process and the patient's perception of this process and thus offers a somewhat different dimension to the existing concepts of decision-making.

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CHAPTER II

CEREBRAL VASCULAR OCCLUSIVE DISEASE

The major emphasis of this research is directed toward the patient's perception of the decision-making process prior to a selected surgical procedure. It is essential, however, to provide a comprehensive background of those factors which directly relate to the problem for decision. The purpose of this chapter is to provide a background of the disease entity cerebrovascular disease.

Significance

Stroke is the third leading cause of death and disability in the United States.[1,2] Approximately four hundred thousand new strokes occur each year and two million people in the United States are presently disabled and unemployed as a result of stroke.[3,4] Two thirds of these two million people presently disabled and unemployed are under the age of sixty five and thus can be considered by most standards of longevity and productivity to be within the pre-retirement age range.[5] Rehabilitation from stroke may be extremely difficult and the cost of this phase of illness has been estimated to be three billion dollars a year excluding acute hospitalization.[6] The major disease entity responsible for these statistics is cerebrovascular occlusive disease. According to a report released in March 1973, by the Commission on Stroke of the National Institute of Neurological Diseases and Stroke, no other

disease entity is more costly in terms of the care needed by survivors in the post acute stage. Psycho-social abberrations frequently experienced by the stroke victim and his family are beyond measure. Cerebrovascular occlusive disease, the major disease entity responsible for the high rates of mortality and morbidity of stroke, poses an immense challenge to the allied health professions and society.

Epidemiological Factors

The major epidemiological factors of stroke are hypertension, cardiovascular disease, and diabetes mellitus.[7] These epidemiological factors suggest that stroke is a disease usually associated with the adult population. Persons having a history of hypertension, cardiovascular disease or diabetes risk twice the possibility of incurring a stroke than those persons who do not report these diseases.[8] Statistical rates of stroke incidence and prevalence suggest, in addition to increasing age, that stroke occurs more frequently in males than females and among persons of the black race rather than those persons of Caucasian origins.[9,10] Studies to date demonstrate serum cholesterol levels and smoking may be contributing factors of stroke yet the findings from these studies are not consistent.[11,12] Geographically the Southeast region of the United States has the highest incidence and prevalence of stroke.[13] In summary, an epidemiological profile suggests stroke is a high risk factor for the progressingly older black male residing in the Southeast region

of the United States.

Physiological Considerations of Stroke

The brain is dependent upon a consistent supply of glucose and oxygen and the removal of carbon dioxide for functional and structural integrity.[14] To achieve this goal of functional and structural integrity, a consistent supply of blood, the transportation vehicle for glucose, oxygen, and carbon dioxide, is essential to the brain. Transportation of blood to the brain and other parts of the body is accomplished through the systemic circulatory system which acts as a continuous circuit. Disturbances of blood flow at any point in the systemic circulatory system have the potential of altering normal blood flow at other points in the circuit. Symptoms consistent with alterations of cerebral blood flow may therefore be due to either intracranial or extracranial factors. Functional and structural integrity of the brain requires a consistent flow of blood.

The high incidence of stroke confirms the vulnerability of the brain to disturbances in its blood supply. Anatomical aspects of the vasculature are subsequently significant in comprehending clinical manifestations associated with neurological disease. The major portion of the blood supply to the brain flows through the main trunk vessels arising from the aortic arch. The arterial supply of blood is generally bilaterally symmetrical except for the origins and proximal portions of the trunk vessels. On the right side of the neck the brancheocephalic trunk vessel (innominate

artery) arises from the aorta and divides to supply the arm via the subclavian artery and the head via the common carotid artery. On the left side of the neck the subclavian artery and the common carotid arteries originate independently from the aortic arch. Each of the common carotid arteries divide into an external carotid artery and an internal carotid artery. The internal carotids ascend into the skull without branching and give rise to the ophthalnic artery. Further branching of the internal arteries give rise to the anterior choroid and the posterior communicating arteries. The internal carotid then divides into the middle, cerebral and anterior cerebral arteries. On each side of the neck the internal carotid artery is the main source of blood supply to the eye and cerebral hemisphere. The external carotid arteries continue their ascension and supply blood to the structures of the head and neck, except for the eye and cerebral hemispheres. The first branch from each subclavian artery is the vertebral artery. The two vertebral arteries enter the cranial cavity through the foramen magnum, follow the ventral surface of the medulla where they unite to form the basilar artery which supplies several cranial structures in the posterior portion of the cranial cavity. Both intracranial and extracranial communications of blood flow exist between the various main channels. The most significant communication channel of blood flow from the main vessels of the brain is the Circle of Willis.

The total cerebral blood flow in an average male adult is approximately 750 ml/minute.[15,16] To insure this approximated

blood flow two primary factors can be identified. These two primary factors of cerebral blood flow are perfusion pressure of the brain and vascular resistance.[17]

Perfusion pressure of the brain is the cerebral arterial pressure minus the cerebral venous pressure.[18,19] Perfusion pressure of the brain is maintained at relatively consistent levels despite variations in the systemic or cerebral arterial pressure through an inherent capability of intracranial vessels called autoregulation. Autoregulation inhibits perfusion changes due to body posture, alterations of the intracranial pressure, decreases in cardiac output and narrowing or occlusion of major neck vessels. Autoregulation thus plays a protective role in cerebral blood flow regulation.

The second primary factor in regulating cerebral blood flow is cerebrovascular resistance. Cerebrovascular resistance provides a consistent intracranial pressure through the mechanism of vessel resistance. Vessel resistance is the difference between extravascular and intravascular pressure in relation to vessel diameter.[20] The major influence affecting cerebrovascular resistance is carbon dioxide. An increase in carbon dioxide reduces the vascular resistance and increases cerebral blood flow by vessel dilatation. Conversely, a decrease in the amount of circulating carbon dioxide in the blood increases vascular resistance and decreases cerebral blood flow by constriction of the vessel. The percentage of carbon dioxide present in the blood is

directly related to metabolism. Metabolism then indirectly affects cerebral blood flow. Other indirect factors influencing blood flow are the central nervous adrenergic responses, blood viscosity and oxygen. Glucose, a primary component of metabolism, has no effect on cerebral blood flow.[21] Despite several factors that directly or indirectly influence the regulation of cerebral blood flow, the primary determinants of cerebral blood flow are perfusion pressure and cerebrovascular resistance.

Pathophysiology - Historical Overview

The history of cerebrovascular disease dates back to the age of Hippocrates and stretches to modern times where modern technology suggests the pathogenesis of cerebrovascular disease results from regional or local disturbances of blood flow. Cerebrovascular disease was first described by Hippocrates as apoplexy, a word of Greek origin meaning "to strike down."[22] Stroke became the more commonly used term to describe cerebrovascular disease although both the historical term, apoplexy, and the currently used term stroke suggest clinical aspects of the disease rather than specific pathology. In 1761, Morgagni[23] provided the first explanation of the pathogenesis of cerebrovascular disease. Morgagni suggested stroke or apoplexy was a "nonsanguineous" or "without blood" state associated with cerebral softening or infarction resulting from changes in the arterial vessel. Seventy years later Abercrombie conceptualized cerebral softening or cerebral infarction as an ischemic condition caused by a narrowing of the arteries in the immediate vicinity of the cerebral

lesion.[24] Both local (immediate) factors and extracranial causes were considered plausible explanations for stroke by Abercrombie. Prevailing opinions in the nineteenth century, however, accepted the belief that cerebrovascular disease was caused by intracranial factors resulting in arterial occlusion. During the early part of the twentieth century extracranial sources of cerebrovascular disease were primarily being considered. Fisher,[25] in 1951, suggested that internal carotid artery disease was an important etiological factor in cerebral infarction. Gradual recognition of Fisher's theory and Abercrombie's explanation gained more acceptance for the etiological basis of cerebrovascular disease. The development and widespread use of angiographic techniques for the visualization of the extracranial and intracranial vasculature assisted in confirming the observation of Fisher and his predecessors. At the present time the pathogenesis of cerebrovascular disease is based upon regional or local disturbances of blood flow. This concept, known as cerebrovascular insufficiency, was introduced by Corday and Rothenberg in 1957 and suggests a general or local defect in the circulation which becomes insufficient to sustain brain metabolism.[26] Historically, the pathogenesis of cerebrovascular disease has included intracranial or extracranial factors, intracranial and extracranial causes as well as general or local circulatory deficits.

Pathophysiology - Current Ideologies

Cerebrovascular occlusive disease processes, including thrombosis and embolism, cause approximately eighty per cent of all strokes.[27,28] Characteristic of most occlusive processes is the presence of organic lesions in the arterial circulatory system. The presence of these lesions which develop over a period of years have the potential of impairing normal blood flow and frequently are responsible for states of cerebrovascular insufficiency. Over ninety per cent of these lesions are the result of atherosclerosis and its embolic complications.[29] Atherosclerosis is a degenerative process that invades the sub-endothelial layer of the inner lining of the arterial vessel as well as the innermost fibers of the media or middle layer of the vessel in conjunction with accompanying focal deposits of lipids.[30,31] Progressive atherosclerosis of the artery in relation to lipid deposits produce atheromatous plaques or cholesterol deposits and may lead to either ulceration or stenosis of the vessel. Ulceration of the arterial wall may result in the dissimination of atherosclerotic debris into the lumen of the artery or the production of a thrombus as a source of platelet or cellular emboli. Stenosis of the vessel is a gradual thickening of the intima or inner lining of the arterial wall and results in a narrowing of the arterial lumen. Results of the two processes, stenosis and ulceration impede normal blood flow and produce hemodynamic changes or alterations of the interrelationship of blood pressure, blood flow and vascular resistance.

These hemodynamic changes may be sufficient to produce neurological symptomatology consistent with states of cerebral vascular insufficiency.

The extent normal blood flow is hampered and the degree cerebral vascular insufficiency exists is directly related to the capabilities of collateral circulation. Collateral circulation is a system of alternate pathways or routes which are activated or utilized in an attempt to counteract any injurious effects consistent with normal pathways of blood flow. Although the Circle of Willis is the major collateral system identified with cerebral blood flow other re-routing systems such as the anastomotic channels between the internal and external carotid arteries and the leptomenigeal channels of the anterior, middle, and posterior cerebral arteries exist. Existence of and potential for collateral circulation are based upon the proximal pressure of the artery, the capacity of arterial conduits and peripheral resistance.[32] These factors suggest lesions of the larger vessels may go undetected as no apparent symptomatology is produced. Conversely, the more distal portions of the vasculature have limited capabilities in developing collateral circulation. The degree and the extent to which cerebrovascular insufficiency becomes symptomatic is directly related to the capabilities of the collateral circulation system.

The clinical manifestations associated with atherosclerotic disease of intracranial and extracranial vessels is dependent upon the degree of focal ischemia and infarction. Ischemia (cell hypoxia/

anoxia) and infarction (cell death) are the culminating effects of lesions in the arterial system which obstruct or interfere with normal blood flow. The degree, extent and duration of ischemia and infarction in conjunction with the cerebral vessels occluded or obstructed suggest the basis for which cerebral vascular occlusive disease is formally classified. Clinical profiles of cerebrovascular disease have thus been defined according to a classification system as transient ischemic attacks, stroke in evolution or progressive stroke and completed stroke. Treatment of cerebrovascular disease depends upon the stage of the disease process and the symptoms clinically demonstrated. Medical regimes and/or surgical intervention may be indicated. Treatment is directed toward the preservation of life, limitation of further brain damage, lessening the possible disability and deformity, and prevention of possible reoccurrences.

In conclusion, the purpose of this chapter, cerebrovascular occlusive disease, was to present background material relevant to the patient's decision to have Microvascular Neurosurgical Bypass for the prevention of stroke. The significant aspects of cerebrovascular disease and stroke have been presented.

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CHAPTER III

MICROSURGERY: IMPLICATIONS FOR STROKE PREVENTION

The purpose of this chapter, "Microsurgery, Implications for Stroke Prevention" is to: (1) provide a comprehensive understanding of the history of microsurgery in relation to Microvascular Neurosurgical Bypass and (2) to illustrate the application of Microvascular Neurosurgical Bypass as a therapeutic surgical intervention for patients demonstrating neurological deficits consistent with cerebral vascular occlusive disease.

One aspect of stroke prevention is directed toward the more common occlusive vascular diseases. Strategies used for stroke prevention include the identification of high risk populations with diagnostic confirmation and the implementation of prescribed medical regimes and/or therapeutic surgical intervention. Microvascular Neurosurgical Bypass, developed in the mid-sixties, is one procedure currently utilized in stroke prevention.

Microsurgery is a term currently used to identify an area of surgery which utilizes the assistance of a microscope (capable of magnifying to the extent that it can be used) for surgical intervention upon small structures.[1] Use of the microscope in surgery was first reported by Nylen[2] in 1924 for the purpose of improving the visualization of the operative field. According to Nylen a tube like apparatus was devised to hold a monocular type microscope and despite lighting difficulties encountered at high magnifications, the microscope proved to be of value. Since Nylen's

report of 1924 scientific advancement and technological innovations have been instrumental in providing the surgeon of today with a highly complex optical instrument. The microscope currently used in microsurgery consists of a binocular surgical microscope with stereoscopic vision, the objective magnification being from six to forty times the normal visual acuity with a high degree of illuminating power.[3] In addition the microscope is equipped with photographic lens, motion picture and television cameras all of which enable the operation to be photographed for teaching purposes.

Although the surgical microscope is presently employed by several surgical specialities, the Otologists, during the 1920's, were the first group of surgeons to recognize its clinical application.[4,5,6] Approximately twenty five years after the widespread use of the microscope in Otological surgery, the advantages of microsurgery were recognized by the Ophthalmologists and the microscope became a vital adjunct to Ophthalmic surgery.[7,8] Use of the microscope in surgical areas characterized by bloodless or poorly vascularized fields such as Otology and Ophthalmology became standard procedure.

In 1960 Jacobson and Suarez, vascular surgeons, published an article entitled "Microsurgery in Anastomosis of Small Vessels."[9] This article described the use of a binocular microscope in surgery upon blood vessels smaller than 3 mm's in diameter and introduced the techniques of microinstruments and microsutures. Results of Jacobson's and Suarez's study suggested the possibility of implementing the microscope and microsurgical techniques to surgical

fields rich in blood supply or highly vascularized organs. After 1960 a series of articles representing the work of several surgical specialties ensued describing the success of operative procedures involving the use of the microscope and microtechniques.[10,11,12,13,14] Progress in microsurgery continued as experience, particularly along the channels of vascular surgery was gained. The repair, reconstruction and anastomosis of small vessels with the use of the microscope as well as the concomitant refinement of suturing techniques and studies of blood flow contributed significantly to further progress in microsurgery. The bipolar coagulator, in addition, developed by Malis[15] in 1956 further assured success of microsurgery by providing a means of coagulating fine vessels without damage to surrounding tissue. Surgery involving blood vessels under 4 mm's in diameter and particularly those with an outside diameter of 2 mm's or less requiring the use of the surgical microscope and microtechniques became known as Microvascular surgery.[16]

The first published clinical application of the microscope to the nervous system was introduced by Theodor Kurze of Los Angeles in the late 1950's for the removal of an acoustical neurinoma.[17] In 1960, Jacobson and Donaghy of Burlington, Vermont performed an endarterectomy on the middle cerebral artery of a patient with the use of the operating microscope. Microsurgical techniques for the treatment of aneurysm was reported by Pool, Colton, and Rand.[19,20] Jannetta[21] in 1966, utilizing the surgical microscope, exposed the trigeminal nerve through a trans-tentorial approach. Surgery of the blood vessels in the nervous system have been substantially

documented by Krayenbuhl[22] and Yasargil[23] of Zurich. Yasargil,[24] Donaghy,[25] and Jacobson,[26] in particular, contributed initially to the progress achieved in Microvascular Neurosurgery.

To date, the surgical microscope and accompanying microtechniques have proven to be a significant asset to several surgical specialties. Use of the surgical microscope permits precise magnification under adequate lighting conditions enabling the surgeon closer observation, clearer differentiation and a more gentle exposure of both pathological and normal structures.[27] The microscope, in addition, has permitted the surgeon access to pathological conditions formerly considered inoperable and has provided a means of surgical intervention upon minute vessels.

One such intervention for which the microscope is used is that of vascular lesions of atherosclerotic origin. Vascular lesions of atherosclerotic origin often produce symptoms of temporary neurological dysfunction called transient ischemic attacks (T.I.A.'s). Transient ischemic attacks or "little strokes" are sudden, brief, and repetitive episodes of cerebral dysfunction caused by focal cerebral ischemia due to inadequate perfusion or thromboembolic phenomena.[28] Symptoms of transient ischemic attacks vary depending upon the site of cerebral focal ischemia and may include limb paresis, speech difficulties, visual disturbances as well as syncope and vertigo. Prevailing symptoms suggest the area of inadequate cerebral blood supply and thus transient ischemic attacks are classified as T.I.A.'s of the carotid arterial system, the vertebral-basilar arterial system or both. Diagnosis of transient ischemic attacks depends

entirely upon a history of the patient's symptoms corroborated by neurological examination and angiographical findings. The brief duration of T.I.A.'s commonly identified as lasting no longer than twenty four hours and the characteristic complete recovery experienced by the patient suggest the pathological difference of T.I.A.'s in contrast to the pattern of the "completed stroke" which infers a fixed neurological deficit.

A direct cause and effect relationship exists between transient ischemic attacks (T.I.A.'s) and stroke. Baker et al report in a long term prospective study of 79 male veterans, the average age being sixty two years, that 22 per cent of a group of 53 whose presenting problems were T.I.A.'s developed a major stroke in 41 months.[29] Toole et al report 13 per cent of 56 patients diagnosed as having T.I.A.'s and not treated medically or surgically developed a stroke during a follow up study of three to five years.[30] Findings from Whisant's et al's 15 year study suggest 36 per cent of a group of 198 residents of a local and surrounding community identified as experiencing their first episode of T.I.A.'s developed a major stroke within 48 months.[31] Fifty one per cent of the patients in Whisant's study suffering strokes were affected within the initial 12 months after occurrence of their first transient ischemic attack.[32] Ziegler and Hassanein report during a three year study of 109 patients experiencing the onset of symptoms consistent with T.I.A.'s, 15.6 per cent developed a degree of neurological disability comparable to stroke.[33] Thirty seven per cent of a group of 140 patients suffered a stroke over a four

year period according to Goldner et al.[34] Findings from the aforementioned studies suggest patients with a diagnosis of transient ischemic attacks have a significant chance of developing a completed stroke within four years. In addition these studies are representative of additional studies designed to provide statistical data on the natural history of transient ischemic attacks in relation to stroke.[35,36,37] Although variations exist among the findings due to study design, sample selection, or definition of outcomes, the results substantiate a cause and effect relationship between transient ischemic attacks and stroke.

Patients demonstrating neurological deficits caused by lesions of the cerebrovasculature may be candidates for surgical intervention. Depending upon the location of the lesion and the appropriateness of surgery, patients in the past were classified as having operable, inoperable, or inaccessible lesions.[38] Operable lesions are those lesions readily exposed in the extracranial arterial tree at time of operation and amenable to extracranial vascular surgery such as carotid endarterectomy.[39] Operable lesions, therefore, include lesions found in the major arterial channels of the upper portion of the thorax and the neck. Surgically inaccessible lesions comprise those lesions of the intracranial segments of the vertibral arteries, the basilar circulation, and the intracranial segments of the carotid circulation.[40] Thus, surgically inaccessible lesions are basically those whose anatomical location preclude surgical intervention. Inoperable lesions are those vascular lesions

which have resulted in high rates of morbidity and mortality from past experience and thus are considered unacceptable surgical risks. An example of an inoperable lesion considered an unacceptable risk is the old internal carotid occlusion.

Several angiographical studies have demonstrated the extent to which operable, inoperable, or inaccessible atherosclerotic lesions occur in the vasculature. Marshall found in a series of patients studied angiographically who presented transient ischemic attacks (T.I.A.'s) with a mild completed stroke that 33 per cent of his sample demonstrated significant atherosclerotic lesions classified as inaccessible or inoperable.[41] In 1968 a joint committee found 16 per cent of the patients studied had inoperable vascular lesions.[42] In other angiographical studies in patients with extracranial arterial occlusion, 6 to 13 per cent of the patients had inaccessible vascular lesions.[43] Estimates from the above studies suggest 20 to 30 per cent of patients with T.I.A.'s who were studied angiographically have inaccessible or inoperable lesions which are not amenable to the usual mode of current extracranial vascular surgical techniques.[44]

Prior to 1967 patients representing the nontreatable groups of surgically inoperable or inaccessible lesions were primarily treated medically by anticoagulant therapy. Although the use of anticoagulants or "blood thinners" has been found to reduce the frequency and severity of transient ischemic attacks, no appreciable difference has been noted in stroke morbidity or mortality

rates.[45,46]

In 1967, Yasargil of Zurich and Donaghy of Burlington, Vermont applied Jacobson's and Suarez's technique of arterial anastomosis and developed the Microvascular Neurosurgical Bypass procedure.[47,48] The purpose of this intracranial procedure, performed with the use of the surgical microscope and utilizing microtechniques, is to augment the collateral circulation to ischemic areas of the brain in patients demonstrating symptoms consistent with hemodynamic insufficiency caused by vascular lesions. Since the first successful Microvascular Neurosurgical Bypass performed by Yasargil approximately one thousand bypass operative procedures have been performed with a 75-80 per cent success rate in alleviating temporary neurological deficits often experienced by the stroke prone patient as well as decreasing the incidence of stroke.[49]

The feasibility of the Microvascular Neurosurgical Bypass procedure presupposes three basic principles: (1) LaPlace's Law (2) Totality of Flow, and (3) Viability and Function. LaPlace's Law states the tension of a vessel is equal to the pressure multiplied by its radius. The degree of athlerosclerosis present thus tends to be directly proportional to the blood pressure and the radius of the involved vessel. LaPlace's Law suggests that the sites of greatest pathology are more often found in the larger more proximal vessels. The bypass procedure utilizes vessels smaller than 3 mm's and subsequently is capable of by passing the obstructive pathology which is usually found in larger vessels. LaPlace's Law has been found to be the most significant factor

involved in cerebral atherosclerosis.[50] The second principle on which the bypass procedure is based is the Totality of Flow. Totality of Flow suggests symptoms of hemodynamic cerebrovascular insufficiency are due to inadequate collateral circulation rather than the block caused by the atherosclerotic lesion. The third principle which substantiates the feasibility of the bypass procedure is the difference between viability and function of neurons. Neurons may be depleted of sufficient oxygen and thus may be nonfunctional yet they may continue to be "alive."[51] LaPlace's Law, Totality of Flow, and Viability and Function provide the basis of Microvascular Neurosurgical Bypass.

Microvascular Neurosurgical Bypass involves the operative procedure of freeing the superficial temporal artery from the scalp and the fashioning of a small craniotomy of sufficient size to expose a suitable cortical artery of 1 mm in diameter or larger.[52,53] An end to side anastomosis is then performed between the superficial temporal artery and the appropriate cortical artery thus passing the major obstruction with the operating microscope, using micro-instrumentation under 16-25 power of magnification.[54]

Candidates for bypass surgery include those patients whose disease process may be helped by augmenting the cerebral blood flow and cannot be benefited by the other means of surgery. Surgical candidates are individually assessed and are identified as demonstrating either focal or generalized low perfusion syndromes

based upon the etiology and angiographical location of the disease process. Contraindications to bypass surgery include far advanced age and severe systemic diseases of the pulmonary and cardiovascular system. "Additional factors which may preclude the advisability of bypass surgery are: (1) severe static neurological deficit of long duration; (2) cardiac arrhymias which may act as a source of continuing emboli; (3) small scalp vessels for anastomosis, less than 0.8 mm; (4) advanced intracranial parenchymatous vascular disease."[55]

Recent reports from a number of surgeons indicate Microvascular Neurosurgical Bypass plays a significant role in alleviating symptoms consistent with transient ischemic attacks (T.I.A.'s) and reversible ischemic neurological disease (R.I.N.D.) characterized by the presence of neurological symptoms over twenty four hours with subsequent complete recovery.[56,57,58] Chater and Peters report an 83 per cent improvement rate postoperatively of patients diagnosed as having T.I.A.'s or R.I.N.D.[59] In addition to a reduction in the frequency of T.I.A.'s and the improvement of neurological impairment, bypass surgery appears to be of value in stroke prevention.[60] Complications of bypass surgery are few and without serious sequelae; morbidity and mortality rates are acceptably low.[61]

In conclusion, the purpose of this chapter, "Microsurgery, Implications for Stroke Prevention," was to: (1) provide a historical overview of the relation of microsurgery to Microvascular Neurosurgical Bypass and (2) to illustrate the applica-

tion of Bypass surgery as a therapeutic intervention in patients demonstrating neurological deficits consistent with cerebral vascular occlusive disease. Since the introduction of the microscope to clinical areas of surgery it has proven to be a valuable asset to the progress achieved in several surgical specialties. The application of the microscope and microtechniques in Neurosurgery has been instrumental in the development of the operative procedure, Microvascular Neurosurgical Bypass. To date this procedure offers a means to improve the quality of life for many patients who have symptoms of cerebral vascular occlusive disease as a result of hemodynamic insufficiency.

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CHAPTER IV

BACKGROUND AND EXPLORATION

Prior to the formalization of this research a number of essential activities were identified by the researcher to provide a comprehensive picture of Microvascular Neurosurgical Bypass and its role in stroke prevention. These activities included: (1) a review of the literature relating to microsurgery, the application of microtechniques to Microvascular Neurosurgical Bypass and the role of Microvascular Neurosurgical Bypass in stroke prevention (see Chapter III, "Microsurgery: Implications for Stroke Prevention"), (2) observation in the Microsurgical laboratory, and (3) exploration of those factors directly related to the clinical course of patients undergoing Microvascular Neurosurgical Bypass. The purpose of this chapter, "Background and Exploration," is to elaborate upon those preliminary activities and the results which led to and resulted in the development of the research problem.

Preliminary Activity - Microsurgical Laboratory

Several days were devoted to the observation of a Microsurgical laboratory and the development of an understanding of the objectives, principles, and technique of microsurgery. The Microsurgical laboratory, observed by the researcher, was located in a metropolitan medical center and developed for the purpose of providing a facility where surgeons could visit and in part, learn the

techniques of microsurgery. Surgical microscopes, microsurgical equipment, and experimental animals were available for the visiting surgeon to practice the skills of microsurgery and gain the necessary experience required to perform microsurgery in the clinical arena. Audiovisual tapes and slides of microsurgical procedures as well as literature pertaining to microsurgery were provided to facilitate the surgeon's acquisition of microtechniques and the application of this skill to microsurgery. Supervision of the Microsurgical laboratory was under the direction of a neurosurgeon especially skilled in microsurgery. On-going maintainance of the Microsurgical laboratory and guidance in the use of the microscope and microtechniques were provided by a designated laboratory director.

Information acquired from the observational period in the Microsurgical laboratory provided the researcher with an understanding and appreciation of the concept of microsurgery and the application of microtechniques to the operative procedure Microvascular Neurosurgical Bypass. In addition, the observational period generated a number of questions related to the patient's experience with microsurgery and the patient's operative course. Questions generated from this period of observation were: (1) What are the patients' impressions of their microsurgical experience? (2) What is the extent of the patient's knowledge of Microvascular Neurosurgical Bypass? (3) What areas of the hospital social structure are involved in caring for the patient having Bypass surgery? (4) What is the role and

responsibility of the individual hospital units in caring for the patient having Bypass surgery?

Preliminary Activity - Exploration

To seek answers to the above questions patients having Bypass surgery and key persons who were responsible for the hospital units involved with the patients' operative course were contacted. Since the clinical questions related to two main areas, patients and key hospital personnel, a two phase exploratory study was conducted. Some of the information sought related to private patients and thus a discussion with the neurosurgeon explaining the purpose and the rationale for the study was indicated. Entry to private patients was subsequently gained through cooperative agreement with the neurosurgeon who suggested that the researcher identify herself as "one of the team." "One of the team" was interpreted by the researcher to mean "working with" and thus cooperation and support from the neurosurgeon were perceived to be viable components in the researcher's endeavors. Access to private Bypass patients and entry into the hospital social system was thus facilitated by the neurosurgeon.

Phase I of the exploratory study was directed toward contacting key personnel responsible for the hospital units viewed as significant in the patient's operative course. These hospital units included the nursing unit responsible for the care of Microvascular Neurosurgical Bypass patients, the operating room, the recovery room, and the intensive care unit. Contact with the

identified key persons was accomplished by personal contact with a brief resume of the researcher's professional background and the purpose for the contact. During the initial contact an appointment was arranged to further discuss with the key persons the roles and responsibilities of the hospital units in relation to the operative course of Bypass patients. Permission was granted to visit the hospital units for the purpose of gaining a more comprehensive picture of the role and responsibility of those persons on the hospital units concerned with the patient's operative course.

Phase II of the exploratory study was directed toward gaining information from and about patients undergoing Microvascular Neurosurgical Bypass for the prevention of stroke. Four patients, two preoperative and two postoperative, were selected on the basis of availability to provide assessment. A semi-structured interview was devised to obtain from the patient information related to the historical accounts of their illness leading to Bypass surgery, the patient's perception of surgical intervention as a preventative measure, and general impressions of the health delivery system in relation to their current situation. Consent to interview patients in this exploratory phase was granted by the neurosurgeon and the patients. Patients were told the purpose of the interview was to gain a greater understanding of the illness process in relation to surgical intervention from the patient's point of view. Patient's records were utilized as an adjunct to the information received from the patients. These records were

perused to ascertain information consistent with the history of the patient's illness, symptomatology, general physical and neurological status, diagnosis, treatment plan and pertinent demographic data. Information obtained from the records assisted the researcher toward integrating theory of cerebrovascular occlusive disease to clinical observation and provided a more comprehensive picture of the medical ramifications of patients undergoing Bypass surgery.

Information given to patients regarding Bypass surgery was viewed by the researcher as an additional source of significant data pertaining to the goal of "Phase II" of the exploratory study. Thus, literature describing Bypass surgery and its ramifications, which is routinely given to potential candidates for Bypass surgery by the neurosurgeon, were perused for content. In addition, two interviews between prospective surgical candidates and their families with the neurosurgeon for the purpose of giving information and answering questions were observed by the researcher.

Data obtained from "Phase I" of the exploratory study suggested that those areas of the hospital complex involved in the operative course of the Bypass patient provided vital support services essential to a satisfactory operative course. An interdependent relationship among the hospital units was identified as being significant in providing comprehensive quality patient care consistent with a satisfactory surgical experience as viewed from both the patient and the professional staff. Although Bypass

surgery requires additional and specific equipment, particularly in the operating room, and a high degree of skill by the surgeon, the researcher perceived the role and responsibility of the hospital units to be similar to other major neurosurgical or speciality procedures. Role and responsibility were perceived to be analagous to the individual hospital unit's identity, i.e. operating room, recovery room, intensive care unit and nursing care unit.

Data obtained from "Phase II" of the exploratory study, patient assessment, suggested to the researcher that although the postoperative patients were pleased with the results of surgery, particularly the unanticipated early convalescence and minimal side effects, brain surgery for prevention of disease posed a challenge for decision resolution. Difficulty in making a decision to have brain surgery on a preventative basis was also expressed by the preoperative patients. In addition, data collected from patients in this exploratory phase suggested to the researcher a limited layman's comprehension of the illness process and the outcomes of Bypass surgery.

Findings from the exploratory study suggested questions for further study espcially in regard to patient assessment. Although the data collected reflected the views of only four patients, analysis of it suggested areas of concern in relation to quality patient care and health care delivery. Basic to the areas of concern were: (1) all patients have the right to actively participate in any decision concerning their therapeutic management,[2] (2) good

decisions that are appropriate to an individual must emanate solely from within that person and responsibility is the ultimate by-product of decisions which are growth promoting to that individual,[3] (3) a rational decision or best decision in the final analysis is dependent upon relevant information available to the person and consistent with a person's preferences and beliefs,[4] (4) escalating health care expenses have resulted in demands by consumers for greater participation in the planning and the delivery of their health services.[5,6,7,8] The results of the data collection from the exploratory study, "Phase II," in conjunction with the above basic premises led to the following inquiries: (1) How and by whom is the decision to have Micro-vascular Neurosurgical Bypass determined? (2) Are there similarities in the decision-making process among patients undergoing Bypass surgery? (3) What are the roles of health professionals in the decision-making process?

It was determined by the researcher that the identified inquiries could be most realistically and appropriately answered through the patients' impressions of their illness and the decision to have surgery. If health professionals accept the belief that decisions are an inherent right and responsibility of patients in the health care system, one logical point at which to begin is with the patient. The research focus selected was the patient's perception in the decision-making process. Further reflection and analysis of the research focus resulted in the formalization of the research problem: What are the components of the decision-

making process as perceived and experienced by the patient undergoing Microvascular Neurosurgical Bypass surgery for the prevention of stroke?

To summarize, the purpose of this chapter, "Background and Exploration" was to elaborate upon those preliminary activities in which the researcher engaged in seeking a greater comprehension of the role of Microvascular Neurosurgical Bypass in stroke prevention. The results of the activities, Observation in the Microsurgical Laboratory and Exploration, Phase I and II were influential in determining the research focus and conceptualizing the research problem.

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CHAPTER V

THEORETICAL FRAMEWORK AND METHODOLOGY

To answer the questions posed in the research problem, "What are the components of the Decision-Making Process as Perceived and Experienced by Patients Undergoing Microvascular Neurosurgical Bypass for the Prevention of Stroke," a theoretical framework to lend structural support to the research was developed and the methodology for data collection was designed. The purpose of this chapter, "Theoretical Framework and Methodology," is to discuss the theoretical framework for the research, and field methodology.

Framework

To obtain data to answer the research question, meanings that patients give to their experiences leading to and resulting in the decision to have Bypass surgery were sought. The events surrounding patient experiences were also judged to be of value. The theoretical perspective of Symbolic Interactionism provided an appropriate framework from which the meanings that patients give to their experiences and the events surrounding these experiences could be studied.[1]

"Symbolic interactionism," a term coined by Herbert Blumer in the late 1930's, refers to a distinctive approach to the study of human behavior and group activity. Symbolic Interactionism provides a means of examining interactions between and among human beings in their natural environment and during everyday

activities. The symbolic interaction in this natural environment is the interaction that takes place between human beings. The process of socialization is basically a process of symbolic interaction.[2]

Three premises furnish the foundation for Symbolic Interactionism: (1) people act toward things (self, others, values, situations) in terms of the meanings these things have for them, (2) meanings derive from or arise out of the social interactions that one has with others, and (3) these meanings are modified through interpretative processes one uses in dealing with things he encounters.[3] Human beings are social and capable of taking attitudes toward themselves. Each human being is also an individual determining his own meanings for situations and these meanings may and often do change through experience in the process of "becoming."[4] Meanings that things have for human beings are constantly being modified by the individual and to ignore these meanings is seen by the symbolic interactionist as falsifying the behavior under study.[5] Symbolic interactionists thus focus on interpersonal relationships and the meanings the individual ascribes to a situation, an object, or an event including those associated with himself.

Man lives in a symbolic world created and named in the process of relating to others and from which he defines the ways he will act.[6] Contingent upon any self determined act of behavior, "definitions of the situation" may be identified. An individual's definition of the situation and his identity in that situation is

significant for an individual's life philosophy as well as his personality may follow from a series of such definitions.[7] To determine how a patient defines a particular situation, the meaning he attaches to it, and what he believes about his identity and the identity of others in that situation, the researcher must go directly into the empirical or real world in order to observe what is occurring in the on-going group life.[8] The empirical or real world allows the researcher to comprehend the meanings patients ascribe to their situations and objects.

A naturalistic or empirical approach was utilized by the researcher to view the symbolic world of those patients confronted with the decision to have Bypass surgery and the realities and meanings the patient constructed around the "is" and the "because" of his present illness in relation to the decision of preventative surgical intervention. The "is" and "because" identified the content of the patients' designations as well as the reasons and processes of their thinking.[9] To grasp the properties of the symbolic world of patients, the researcher must view human conduct from those he is studying, i.e., "taking the role of the other."[10] To this extent, the researcher learns the patient's language and captures the patient's salient views of himself and his situations. Taking the role of the "acting other" (the person being observed) prevents substitution of one's own perspective for that of the individual he is studying.[11] Thus, the patient's perspective may be determined by the researcher.

Methodology

Field methodology with the strategy of listening and watching (interviewing as conversation) was chosen as an appropriate means for collecting data consistent with the patient's perception of the decision-making process. Field research is an inductive scientific mode of inquiry directed toward discovering relations and interactions among sociological, psychological, or educational variables in real social situations.[12] Problems of social structure or specific phenomenon relating to on-going social situations are subsequently well suited to field methodology.[13] Field research permits one to seek what is, rather than to predict relations to be found. Of all the methods open to researchers, field research studies are the closest of all to real life.[14]

The process of this field research was directed toward generating substantive theory rather than formal theory. Substantive theory is that theory developed for empirical areas of sociological inquiry such as patient care, race relations or professional education.[15] Formal theory, in contrast to substantive theory, is developed for a conceptual area of sociological inquiry such as socialization, authority and power, or social mobility.[16] "Substantive and formal theory exist on distinquishable levels of generality which differ only in terms of degree."[17] Consistent with the attempt to generate substantive theory, the concept of "Grounded Theory" was utilized. "Grounded Theory," according to Glasser and Strauss refers to the production of theory, either substantive or formal, by a direct on-going comparative analysis of

the data obtained.[18] On-going and concurrent collection, collation and analysis is the inherent characteristic in generating "Grounded Theory." Theory derived by this concurrent process of data collection, collation and analysis is considered "grounded" by the data. Analysis of the data by the "constant comparative method" provided a systematic means by which "core categories" of information and their properties evolved. "Core categories" were those central themes identified and named by the researcher which were derived from similarly perceived properties of the retrieved data. An example of a "core category" identified by the researcher from the data was "Threat". "Threat" evolved as a number of similarly perceived properties of the data occurred. For example, comments such as, (1) "I could not hold my sewing needle," (2) "I could not make the right words come," and (3) "My arm and hand became numb as though they belonged to someone else" resulted in the properties of fear, scare, crisis, alarm, fright, and anxious. From these properties the theme of "Threat" prevailed and became one of the "core categories." The continuous development of "core categories" from the properties of the data and the perceived interrelationship by the researcher of the "core categories" contributed to an organized scheme that directed the retrieval of additional data from the interviewees or patients. The continued and successive on-going analysis of the data resulted in a unified interpretation and the generation of a conceptual model of decision in stroke prevention. (Presented in Chapter VII, "The Patients' Passage of Decision in Stroke

Prevention: The Components of Decision"). For clarity of presentation, the description of the research process will be divided into three phases: Planning, Executing, and Interpreting.

The Research Process

1. Planning

Specific planning was essential prior to the collection of the research data. The preliminary planning concerned three major areas: (1) site and scope, (2) research tool, (3) sample or population. Once a researcher has his focus of interest he must locate a site that contains people and social activity bearing upon that interest.[19] Due to the innovative and uniqueness of Bypass surgery the site identified for the research was that site established in the exploratory study (see Chapter IV, "Background and Exploration"). Efforts in preparation thus related to the specific area where the interactional process between the researcher and the patient interviewees took place. Permission was granted from the head nurse to use her office on the unit housing the Bypass patients. This office provided a quiet, infrequently utilized space to which patients had easy access. A sign was devised and placed upon the office door to discourage intrusions during the interview. Interviews were conducted on a schedule commensurate with and accommodating an interim period between the patient's day of hospital admission and the proposed day of surgery. The nursing staff on both the evening and day shifts were informed of the researcher's identity and the purpose of the study. An

agreement between the surgeon's secretary and the researcher was negotiated to alert the researcher of the anticipated surgical cases and the dates of admission.

An interview schedule was developed and pretested with three patients not included in the exploratory study to determine if the unstructured questions were eliciting responses the researcher logically presumed to be related to the patient's decision to have Bypass surgery (See Appendix: Interview Format). Pretesting the interview tool was essential in contributing to an acceptable degree of content and internal validity. Experience with the pilot interviews (pretest interviews) led to some revision of the interview questions to achieve greater patient comprehension and a more logical and fruitful sequence. Interview techniques and strategies from both the disciplines of Sociology and Psychiatric Nursing were incorporated into the interview schedule and utilized during the interactional process of the interview. (See Appendix: Interview Strategies and Techniques). A specific interview format was designed and served as a guide to cover salient areas reflective of the patient's perception of the decision-making process.

The research sample consisted of those patients admitted to the hospital anticipating Bypass surgery and available for the researcher to interview. The research sample was thus one of convenience. Patients interviewed for the research included those referred to the neurosurgeon performing Bypass surgery from physicians, neurologists, and neurosurgeons representing both local and

outlying communities. No restriction was placed upon socio-economic or cultural status of patients. Criteria for the sample selection included:

1. Patients clinically qualified as candidates for Bypass surgery.
2. Male or female adults.
3. Patients void of clinically demonstrated aphasia or confused mentation.
4. Patients of a non-emergency status.

2. Executing

Implementation of the data collection began with an initial contact with the patient. Contact with the patient was made on a "one to one" or personal basis, usually in the patients' assigned rooms of the hospital nursing unit caring for Bypass patients. The purpose of the research was explained by the researcher and a consent form left with the patient for perusal. The term study was used in lieu of the term research to avoid a possible increase in the patient's anxiety level. Components of the information given and the contract made with the patient were as follows:

1. The investigator was a doctoral student in nursing at the University of California.
2. The purpose of the study was to gain information consistent with the patient's view of the decision-making process to have Bypass surgery.
3. The time commitment required of the patient would be approximately sixty minutes.

4. Anonymity of the patient would be assured through a coding system on the interviews.

5. Permission to conduct the study had been granted by the surgeon.

6. A written consent form required the patient's signature for participation in the study. (See Appendix: Consent Form).

A return visit to the patient was made to ascertain the patient's willingness to participate in the study. The return visit also provided an opportunity to answer any questions related to the patient's participation in the study. All consent forms were signed by the patients with little hesitation. Few questions were asked of the researcher by the patients but several positive comments in response to the purpose of the study were offered. All interviews were conducted at least twenty four hours prior to surgery.

The interviews were conducted in the head nurse's office after the patient's general well being had been assessed and the consent form signed. Two of the interviews were conducted at the bedside due to the patients' non-ambulatory status. Several of the patient interviewees stated they hoped the information they provided would be of some assistance to other patients and their families confronted with a similar problem.

A general topic outline consisting of unstructured or open-ended questions was utilized as a guide during the first few interviews. This outline was deemed essential by the researcher for

guiding the interview towards the identification of similarly developing categories of information. Reportorial questions of who, what, when, where, and how of events were initially utilized in seeking the meaning of the patient's perception of the process of decision-making. As the researcher became more adept at gaining information relating to the developing categories of data and their interrelationships, questions of "higher order" such as posing an ideal, suggesting hypothetical situations and playing the devil's advocate role were incorporated into the interview. Efforts during the interview were directed toward maintaining a conversational style of interviewing. The researcher found that nodding the head, verbally reflecting upon the respondents' expressed thoughts and probing for clarification and expansion of thought were deemed especially helpful interviewing techniques.[20] Demonstrating a sincere concern and interest through verbalization and nonverbal gestures were perceived by the researcher to contribute significantly to an openness in communication. Being "one's self" was viewed by the researcher as a primary asset.

3. Interpreting

Data collection and analysis proceeded on a simultaneous, on-going basis according to the requirements of the constant comparative method of field methodology advocated by Glaser and Strauss. Data collected were subjected to a consistent concurrent analysis of interpretation and categorization. Elements of the

emerging theory involved the identification of core categories and their properties as well as the relations among categories and their properties. Theoretical sampling, defined as purposeful collection of data, provided direction toward the retrieval of additional data. Efforts were directed toward acquiring as many "slices" of reality or multiple sources of data as possible. As a result, in addition to data collected from the patient, an interview was similarly devised and administered to a family member or "significant other" of the patient's which reflected their perspective on and understanding of the decision-making process. Patient records were also scrutinized for the purpose of obtaining demographic data and identifying events in the illness process in relation to surgical intervention.

The analysis and the collection of data were facilitated by a systematic, organizational schema. Beginning with the first interview, data were recorded and analyzed by the researcher according to Observational Notes (O.N.), Methodological Notes (M.N.), Theoretical Notes (T.N.), and Personal Notes (P.N.). The O.N.'s represented statements made by both the interviewee and the interviewer during the watching and listening, interactional period of the interview. Interpretation of the O.N.'s were limited and represented data directly stated in the interview. O.N.'s included the reportorial inquiries and the questions of higher order asked and the responses given by the patient in respect to the patients' perceptions of the decision-making process. The M.N.'s represented notes to the interviewer in relation to the evaluation and tactical opera-

tions of the interview format. The M.N.'s provided direction in assessing and planning future strategies in seeking additional data. The T.N.'s provided conceptual linkages of Observational Notes and theoretical concepts that later formed the analytical base.[21] The P.N.'s were notes reflective of the researcher's own free-flowing thoughts and ideas.

The patient sample consisted of fifteen patients. Additional interview data were received from seven family members or "significant others." The age range of the patient sample was between fifty and seventy-one years. The mean age of the patients was sixty-one. The patient sample included ten males and five females. Races represented in the patient sample were Black, Caucasian, Mexican, and Oriental. Socio-economic backgrounds varied, but the majority of the patients were on Social Security or State Disability. Patient interviewees, previously employed as professional, skilled, and unskilled workers as well as housewives and mothers were represented in the "sample of convenience." For demographic data of the patient sample see Appendix: Patient Demographic Data.

The on-going comparative data analysis resulted in the development of the "core categories" of Threat, Trust, Holding, Contemplation and Compliance. Additional and final analysis resulted in the development by the researcher of a conceptual model, "The Patients' Passage of Decision in Stroke Prevention." The central focus of the conceptual model was directed toward the decision-making process in preventive surgical intervention. The

developing theory, the conceptual model and the data collected to support the model are presented in Chapters VI and VII.

In conclusion, the purpose of this chapter, "Theoretical Framework and Methodology was to identify and illustrate the theoretical framework for the research, Symbolic Interactionism, and the accompanying research methodology Field Research. To clarify the presentation of the research process the phases of "Planning," "Executing," and "Interpreting" were illustrated.

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CHAPTER VI

THE PATIENTS' PASSAGE OF DECISION IN STROKE PREVENTION: THE DECISION-MAKING PROCESS

Kast and Rosenzweig state that decision-making may be studied from three distinct vantage points: (1) the decision, (2) the decision-making process, and (3) the decision maker.[1] Data analysis of this research, "The Components of the Decision-Making Process as Perceived and Experienced by the Patient Undergoing Microvascular Neurosurgical Bypass for the Prevention of Stroke," reveals however, that the decision-making process cannot be studied as a distinct or separate entity, as indicated by Kast and Rosenzweig, but only as an integral part of the decision itself. Nevertheless, for clarity of presentation two chapters of this dissertation have been developed according to two major areas of "The Patients' Passage of Decision in Stroke Prevention." This chapter is devoted to the first major area, The Decision-Making Process. Chapter VII, which follows, discusses The Decision Components.

The purpose of Chapter VI, "The Decision-Making Process" is two-fold: (1) to illustrate the method of data analysis in relation to the research findings, and (2) to describe the components of the decision-making process in conjunction with a conceptual model of "The Patients' Passage of Decision in Stroke Prevention." Process infers a dynamic concept rather than a static concept. Thus, although process may be defined as a series of actions and operations culminating to an end thus appearing as a static concept in written communi-

cation, the reader is encouraged to keep in mind the dynamic and cyclical characteristics that denote process.[2,3]

ANALYTICAL PROCESS OF DATA ANALYSIS

Data analysis was a concurrent process of data collection, collation, and analysis in conjunction with an on-going classification and comparison of data. Use of the constant comparative method of data analysis, advocated by Glaser and Strauss and elaborated upon in Chapter V, precluded the usual technique associated with other research methods of waiting until all the data were collected before proceeding with data analysis. Data received from each successive interview were compared with the data obtained from previous interviews to determine consistency of information as well as to identify unique properties and their categories. The purpose of this analytical process was to generate theoretical ideas; properties and their categories as well as hypotheses, resulting in a redesigning and reintegrating of theoretical ideas as the researcher reviewed the data.[4]

A variety of expressions and events were reported by the respondents during the interviews. Although the researcher did not witness the actual events described by the respondents, she did, however, experience the respondents telling of and expressing feelings about the events involved in decision-making such as; why the decision was made to have bypass surgery, who was influential in the decision, and how the decision was determined. Data

obtained from the respondents indicated an emphasis upon the prospect of dwindling health without the option of surgery, the influence of physicians and family in the decision, the anxiety associated with brain surgery, and the role of the patient as a recipient of health care.

Statements or phrases made by the respondents during the interviews frequently suggested multiple meanings and themes. For example, in response to a question of why the patient was undergoing surgery, one patient replied to the researcher, "My doctor said the surgeon performing bypass surgery is the best in the business." This response was judged by the researcher to be an expression of trust in their doctor's opinion and an indication of the passive dependent role assumed by the patient in the patient-physician relationship. To promote organization and utilization of these statements containing more than one meaning, as perceived by the researcher, it was necessary to develop a method of classifying the statements in a systematic manner. Thus a code was developed by the researcher to facilitate the organization of retrieved data. This code consisted of assigning a key thematic word (s) for each phrase or statement spoken by the respondent. As a result of the code, it was possible for the researcher to identify, in abstraction, a referent for each phrase or statement. For example, a statement such as, "Something had to be done, I could not go on like this anymore," was judged by the researcher as indicating "desperation" or a "point of impasse," whereas, the statement,

"Surgery seemed to be the best alternative after I talked with the doctors," indicated "limited choice" and a "going along with" the doctors' recommendation. Each statement or phrase expressed by each respondent was thus analyzed for single and multiple meaning and assigned a code word. Statements exhibiting multiple meanings were multiply coded. Each assigned code word was then compared with other previously identified words and placed in groups according to their similarity in concept as perceived by the researcher. Thus, the preliminary process of data analysis for each statement or phrase consisted of: (1) analysis of meaning, (2) assignment of a code word, (3) comparison of code words, and (4) grouping of each code word according to similarity with each other in concept. As the data was analyzed in accordance with the previously mentioned process, it was possible to determine emerging and pervasive themes. This process of preliminary analysis was perceived by the researcher as a process of coding and code building leading to themes.

The process of coding and code building contributed to the development of several groups of data which, after further comparison, resulted in the formation of five general classes of data called thematic categories. The five categories of data were termed: (1) Threat, (2) Trust, (3) Holding, (4) Contemplation, (5) Compliance. These five categories of data were identified by the researcher as the most "universal," that is, classes of data that were being used again and again which emerged directly from the language of the respondents. Universality helps to establish

the extent to which the data is empirically grounded. Using the process of coding enabled the researcher to determine which of the thematic categories were "universal," which categories were less than universal or which categories were being used only intermittently, and which categories were idiosyncratic or utilized infrequently. The latter two categories, "less than universal" and "idiosyncratic" were eliminated from final data analysis.

The five thematic categories identified as "universal" were Threat, Trust, Holding, Contemplation and Compliance. These categories are in themselves an abstraction for a number of subsidiary themes. Thus, the category of "Holding" is an abstraction not only of an existing unconfirmed diagnosis of the patient's presenting symptoms by the physician but also of a period in which the patient has been informed of the option of surgery yet a commitment to surgery has not been decided upon. The continued process of coding data resulted in the development of groups of data perceived to be similar in theme which contributed to the formation of five categories or "universals" of data.

Findings from the research indicate that the patient's perception expressed by statements from them of the decision-making process to undergo Bypass surgery for the prevention of stroke is a series of phases or activities that are experienced by the patient in a progressive goal-directed fashion. These phases or activities of the decision-making process comprise the universal categories of

Threat, Trust, Holding, Contemplation and Compliance. Each is characterized by unique properties and exist under definable conditions. Although the phases (universal categories) may be viewed as separate entities they are interrelated and progressive in nature. The goal toward which these phases or activities are directed is the patient's perception of "quality of life." The universals which represent the phases of the decision-making are grammatically identified as nouns yet each may be changed to a verb to emphasize the process involved. Thus, "Threat" is a phase but threatening is characteristic of the process. Similarly "Compliance" is a phase but complying connotes the process. The five phases established from the data of this research comprise a group of activities directed toward a specific goal, the patient's perception of "quality of life."

A search began for a single process to serve as a key link for the core variables of Threat, Trust, Holding, Contemplation, and Compliance derived from the data analysis. From the researcher's sociological and nursing perspectives in analyzing the data a number of concepts appeared to be related to the process of decision as illustrated by the core variables. These concepts included: (1) Roth's structuring the passage of time in hospital treatment of patients,[5] (2) Becker's concept of "career" involving the stages of development within a system based upon factors of positional mobility[6], (3) Davis' concept of "passage" connoting stages of crisis situations of polio victims and their families, and (4) Glaser

and Strauss' "Status Passage", a study of society as a negotiated order of interlocked "careers" and changes in status.[8] Each of the conceptual processes, developed by Roth, Becker, and Davis as well as Glaser and Strauss assisted the researcher in her exploration and delineation of an appropriate key link to represent the phases of the decision-making process as perceived by patients undergoing bypass surgery for the prevention of stroke. The single process ultimately identified by the researcher to serve as a key conceptual link for the core variables of the decision-making process became "Passage."

With the identification of "Passage" as the key conceptual link for the core variables and the consequent generalizing and comparison of the data, the researcher achieved two major requirements of theory construction, (1) parsimony of variables and formulation, and (2) scope in the applicability of the theory to a range of situations.[9] The theory generated from the analytical interaction with the data was that of "The Patients' Passage of Decision in Stroke Prevention." "Passage," as utilized by the researcher, was identified as a course of interrelated phases that patients experience in a progressive manner to have Microvascular Neurosurgical Bypass for the prevention of stroke. These phases are directed toward a definable goal; the patient's perception of "quality of life." A diagrammatic model of the 'Patients' Passage of Decision in Stroke Prevention" will be forthcoming in Chapter VII: "The Decision Components."

The analytical process, as described above, led to a meaningful and comprehensive theory with a functional number of universal categories for continuous collection and coding of data within the boundaries of the theory. After several incidents had been coded for the same category over and over again and no new data were being received, "theoretical saturation" had been attained. Theoretical saturation is a term which refers to the process of coding data several times and noting from the data that no new information is forthcoming.[10] At this point data collection may be terminated. Upon the researcher's decision to cease data collection, as a result of "theoretical saturation," the organization of analyzed materials for writing began. The total data base were perceived by the researcher to support the conceptual model of "The Patients' Passage of Decision in Stroke Prevention."

DATA ANALYSIS OF SPECIFICS

1. Threat

Results of the data analysis suggest "Threat" to be the initial phase of the "Patients' Passage of Decision in Stroke Prevention." The phase of "Threat" refers to a state of self awareness in which the patient perceives "something is amiss," and serves as an entry point to the passage process. Perception by the patient that "something is amiss" may be identified as either a major or minor alteration in the patient's physical and/or mental well being caused by hemodynamic cerebral insufficiency and

resulting in neurological symptomatology. Thus, Mr. M.'s initial symptom was intermittent numbness of the left hand and arm in contrast to Mr. L. who stated, "My whole left side went numb; I lost all the capabilities in my left hand, left leg and left foot." Twelve of the fifteen respondents interviewed characterized the event of "Threat" on a physical basis whereas three of the sample of fifteen described the event of "Threat" as both a physical and mental alteration in their well being. For example Mr. L.R., one of the three whose symptoms reflected both a physical and mental alteration in well being, stated he had felt "run down" for several weeks but he became aware of "something being wrong" while playing cards with friends. According to Mr. L.R. while in the process of shuffling the cards, the cards dropped to the floor and while gathering them from the floor, Mr. L.R. became aware he had difficulty in picking them up as well as placing them in a prescribed order. The perception by the patient that "something is amiss" was subsequently validated by either a family member or significant other.

Consensus by the family member or significant other with the patient results in seeking medical consultation and confirmation for the identified alteration of the patient's physical (physical and mental) well being. Dependent upon the patient's perception of the severity of the presenting neurological symptoms medical consultation is sought immediately or is delayed. Thus Mr. M. whose initial awareness of symptoms consisted of a "numbness of the left hand and arm once in a while" sought medical attention at a

convenient time after the symptoms persisted whereas Mr. L. perceived the event of "Threat" as a serious impediment to a continuance of daily activities and sought medical attention immediately. Minor events of "Threat" are conducive to the generation of "denial or rationalization" as those patients whose symptoms were perceived as minor anticipated the symptoms to disappear with time and delayed seeking medical attention. Medical consultation for the event of "Threat" considered a major alteration in the patient's physical (physical and mental) well being were accompanied by symptoms perceived by the patients as being "significantly real" and inhibited self sufficiency as well as a corresponding impediment to the continuance of every day activities.

Threat, the initial phase of the "Patients' Passage in Stroke Prevention" may be considered either a minor or major alteration of the patient's total well being. Dependent upon the severity of presenting symptoms, the validation of these symptoms by family or significant other and physician, the patient's passage of decision in stroke prevention is activated by the entry point of "Threat."

2. Trust

"Trust" is the second phase of the "Patients' Passage of Decision in Stroke Prevention" and, according to the researcher's analysis of data, the most significant phase of the decision-making process as perceived by patients undergoing Microvascular

Neurosurgical Bypass for the prevention of stroke. The phase of "Trust" refers to that relationship established between the referring physician (physician who refers the patient to the specialist for bypass surgery) and the patient. The existence or the development of trust between the patient and the referring physician provides the basic mechanism by which patients move through the passage of decision and undergo bypass surgery. All of the respondents made some type of comment which suggested that because of the support, advice, or satisfactory relations presently or previously experienced with their referring physician the idea of consenting to have surgery materialized. Trust may be identified as a firm belief or confidence in the honesty, integrity, reliability, and justice of another person.[11] Trust frequently develops from relationships that have been tested by time and according to Erickson is the first stage of human development.[12] Results from the data analysis suggest that the phase of "Trust" existing between the referring physician and the patient is due to: (1) the status ascribed the physician by society, (2) personality characteristics of the referring physician, (3) the result of prior positive experiences over a period of time and (4) dependence upon the physician's expertise as a "healer." According to the aesculapean theory the ascribed status of the physician in society is the result of the physician's expertise, mystical powers, and the patient's faith in the physician.[13] Although these factors contributed to the trust relationship between the referring physician and the patients, the

respondents interviewed frequently referred to their physician as "one of whom would listen to them, took time with them, spoke to them straight and in lay terms." In general, the respondents viewed the existing relationship between themselves and their physicians more on a personal level than on a professional basis. Comments exemplifying the "Trust" relationship between the referring physician and the patients included the following statements by Mrs. A.R., Mr. R.H., and Mrs. A.O. respectively:

> "I have all the confidence in the world in Dr. S. and if he advised me to have the surgery, I know it's the best thing to do."
>
> "I have a lot of confidence in Dr. O.; he talks to you and lets you know what's going on. He's not overbearing and he doesn't zip, boom, bang and then leaves; he asks you if you have any questions."
>
> "My doctor has been with me since he began practice and I know he wouldn't steer me wrong; if he said it wasn't a good idea to have the surgery I would definitely have to think twice about it."

The personal nature of the referring physician's relationship with the patient is frequently characterized by the exchange of comments placed in a familial context. Thus, five of the patients interviewed stated they had asked the referring physician if they were a relative of his would the decision to have bypass surgery still be advised? Examples of the comments placed in a familial context by the patient included the following statements by Mrs. W. F. and Mr. M.A. respectively:

> "I asked Dr. T. if I were your daughter or your wife would you still think I should have this surgery?"
>
> "I said to my doctor, if I were your father would you want me to have this surgery?"

Similarly, according to Mrs. A.R., the referring physician would also utilize a familial strategy by stating, "If you were my Mother (Father) I'd advise the surgery." To an extent the ascribed status of the physician promotes the existence of "blind trust" yet the perceived personal nature of the physician-patient relationship by the patient sustains and supports the component of trust in the "Patients' Passage of Decision in Stroke Prevention." Trust, the second phase of the decision-making process provides the basic framework for the patient's progression in the decision-making passage.

3. Holding

The third phase of the patient's perception of the decision-making process to have Microvascular Neurosurgical Bypass or the "Patients' Passage of Decision in Stroke Prevention" is "Holding." According to Webster's definition, "holding" means to keep in a certain place or position.[14] The phase of "Holding" may be likened to aircraft traffic management where aircraft are held at a specific altitude awaiting satisfactory landing conditions. The phase of "Holding" in the "Patients' Passage in Stroke Prevention" occurs when bypass surgery has been mentioned as an option to the patient by the referring physician yet definitive plans for surgery

have not materialized. Thus, the phase of "Holding" occurs: (1) when the patient has been informed that bypass surgery is a possible option in his therapeutic management, (2) when definitive plans for referral to the surgeon specialist have not been activated or completed. Examples of the phase of "Holding" are illustrated by Mrs. A.O.'s and Mr. R. H.'s comments:

> Mrs. A.O. - "My doctor did mention having surgery was a possibility but he said he'd have to first check with some other doctors. In the meantime he put me on these blood thinning pills."
>
> Mr. R.H. - "My doctor sent me to a neurologist who said he had heard of a type of surgery that would help me. Well, both my doctor and the neurologist asked around, even wrote to a doctor in Seattle who was suppose to be qualified to do the surgery. Finally my doctor got hold of the right doctor and after some telephone calls between my doctor and the surgeon I came here."

According to the researcher's analysis of the data, the phase of "Holding" in the "Patients' Passage of Decision in Stroke Prevention," is caused by factors related to the health care delivery system or factors identified with patient control. Thus, the causative factors of the "Holding" phase may be considered "System Induced" or "Patient Controlled."

a. <u>System Induced</u>

"System Induced" factors of the "Holding" phase refer to those factors which impede the patient's passage in stroke prevention and are directly related to the health care delivery system. Examples

of such impediments are: (1) the lack of efficient communication and coordination between the referring physician and the surgeon specialist, (2) insufficient, inadequate or incorrect information of Microvascular Neurosurgical Bypass as a viable alternative for the alleviation of neurological symptoms associated with cerebrovascular insufficiency and stroke prevention. Information received from eleven of the fifteen respondents interviewed suggested delays that occurred between the patient's initial diagnostic "work up" and the contact with the surgeon specialist resulted from "System Induced" factors. Thus, comments such as, "My doctor had heard of bypass surgery but he didn't know who was doing the surgery nor where," relayed by Mr. L.L. and "Dr. M. stated the surgery was available and might be beneficial but only three cases had been done" expressed by Mr. R.H., typified the majority of the respondents' statements relating to "System Induced" factors of the phase "Holding."

b. Patient Controlled

The phase of "Holding" experienced by four of the fifteen respondents interviewed was characterized by the ability of power of the patient to activate his own passage in stroke prevention. Examples of "Patient Controlled" factors of "Holding" were comments expressed by Mrs. A.R. and Mr. P. respectively: "I decided to wait until I was eligible for Medicare;" "My doctor seemed to be taking a long time in providing the names of surgeons doing bypass surgery and where they were located so I went to the medical centers myself

to get the information." These comments represented a minority in the sample of fifteen interviewees and reflected the ability of each of these patients to move through the passage of stroke prevention by his own volition and thus, the "Holding" phase was basically determined by the respondents themselves. Demographic data revealed that three of the four "minority group" respondents were found to be on the higher end of the educational and socio-economic continuum. "Holding", the third phase of the "Patients' Passage of Decision in Stroke Prevention" incorporates either "System Induced" or "Patient Controlled" factors which encourage or hinder the patient's process of decision-making.

4. Contemplation

The phase of "Contemplation" refers to the period of the patient's passage in stroke prevention when bypass surgery takes on a greater dimension of import and becomes a priority course of action. "Contemplation" occurs after the patient has been informed by his/her referring physician that bypass surgery offers a feasible solution toward alleviating the existing or progressively deteriorating neurological symptoms, and prior to the patient's meeting with the surgical specialist. This phase may thus include activities associated with completing the referral to the surgeon, scheduling an appointment for the patient to discuss with the surgeon the surgical procedure, and/or plans activated for the patient's hospitalization in conjunction with the anticipation of possible bypass surgery. Data analysis suggests that the phase of "Contemplation" is characterized by the patient's in-depth assess-

ment of those factors which indicate preparation for the patient's possible surgical experience. Therefore, "Contemplation" reflects a period of time in which the patient views the alternatives to surgery, considers the risks of bypass surgery, seeks support for the option of surgery, and begins to speculate upon his/her post surgical status. For example, Mrs. W.F. stated, "I talked with my family and friends and anyone I knew who was connected with the medical field to see what they'd say about my having the surgery." Similarly, Mr. L.L. relayed, "I discussed plans with my son in case anything happened to me." Expressions such as these including a comment by Mr. M. who explained, "I wanted to feel secure, and resume my previous activities," were representative of the comments made by the respondents in the phase of "Contemplation." This phase possesses those characteristics of the deliberation and judgment phase of decision-making developed by Schaffer where a searching of conditions for action exists and alternatives and their consequences are evaluated in relation to a goal.[15] Basically, the phase of "Contemplation" provides a period of "worry work" for the patient prior to moving into the final phase of "Compliance." Futurizing or thinking of the anticipated improvement resulting from surgery is the predominant theme during "Contemplation" and suggests a period in which the patient "opts" for surgery as the decision to have surgery offers a means of curtailing the present neurological abberations, preventing a possible massive stroke, and affording a degree of well being

previously enjoyed. The patient's "Contemplation" becomes a question of whether he/she wishes to encounter dwindling health, continue living with the present neurological deficit, or undergoing bypass surgery with the hope of an improved state of physical and mental well being. The phase of "Contemplation" may be similarly compared to Festinger's theory of "cognitive dissonance" where by once an alternative gains priority value the person's faith in that alternative is gradually intensified as the most correct and appropriate action.[16] Findings from the research reveal that the alternatives to undergoing bypass surgery for the alleviation of neurological symptoms and/or the prevention of stroke are appreciably limited. This factor is suggested by the following comments made by Mr. H.Y.N., Mr. R.H., Mrs. A.R., and Mr. W.S. respectively:

> "I knew I could not go on this way any longer, having surgery was my last hope."
>
> "Well, from what I can understand if I don't have surgery in a month or two months I'll die, I'd have a massive stroke and that would be it."
>
> "I was told I'd have a stroke without surgery. Having a stroke is worse to me than dying. I mean if you die you die. If you have a stroke, your're paralyzed, your're a vegetable. That's not life for me!"
>
> "I'll tell you the truth, I'd rather have that operation than fall out on the street and have a car hit me."

Effects of "Contemplation" include the patient's movement toward decision resolution associated with an increased level of anxiety, optimism in meeting with the surgeon, and a preoccupation with the

positive results anticipated from undergoing bypass surgery. In summary, "Contemplation," the fourth phase of the "Patients' Passage in Stroke Prevention," is a period of assessment and exploration by the patient of those factors involved with an anticipated surgical experience.

5. Compliance

"Compliance" is the final phase of the "Patients' Passage of Decision in Stroke Prevention." "Compliance" occurs during a period between the patient's initial meeting with the surgeon and the signing of the operative permit. This phase is characterized by identifiable patient behaviors that result in a "going along with" the recommendation to have bypass surgery. Behaviors comprise either a verbal acknowledgment by the patient to the surgeon that the decision to undergo bypass surgery has been determined or demonstrated by the patient's admission to the hospital with the anticipation of surgery. By the patient's verbal acknowledgment or the action associated with the hospital admission the patient has, from his perspective, consented to surgery. For example, Mr. H.Y.N. stated, "I called my doctor to call the surgeon to make plans for my operation." Similarly, both Mr. R.H. and Mr. C.L. explained they had "come to the hospital to have surgery on the head as something had to be done." Conditions under which "Compliance" occurs in the "Patients' Passage of Decision in Stroke Prevention" are: (1) the completion of the patient's passage through the previous stages of the decision-

making process, (2) the development of trust with the surgeon specialist, (3) qualification as a satisfactory candidate for bypass surgery, and (4) the patient's acceptance that bypass surgery is the best available option consistent with a meaningful manner of living. A contributing factor of "Compliance" includes the passive dependent role of the patient in the health care system and the power of expertise and ascribed status of the surgeon. Effects of the phase "Compliance" result in the patient's acceptance of and agreement to undergo bypass surgery as well as the patient's assumption of behaviors characteristic of the "sick role." Compliance is formalized by the signing of "Conditions for Admission" and the "Operative Permit." The "Compliance" phase of the "Patients' Passage of Decision in Stroke Prevention" suggests this phase may be identified with any situational process where ones self integrity and self image is threatened, particularly when "knowns" are provided which predict a deteriorating state of total well being for an individual. Thus, "Going along with" a recommended mode of therapy advocated by a member of the medical profession to alleviate an individual's diminishing health status is comparable with "Compliance." "Compliance" may include any situation involving preventative health care where scientific knowledge substantiates a progressively deteriorating state of "wellness." "Compliance," the final phase of the patient's passage of decision in stroke prevention includes those activities and behaviors consistent with the patient's "going along with" the recommendations to have

bypass surgery.

THE GOAL: QUALITY OF LIFE

The patient's passage of decision in stroke prevention is directed toward the attainment of a specific goal. The phases or activities characteristic of the decision-making process are progressively encountered and experienced by the patient in an effort to maintain or acquire a state of being consistent with "quality of life." According to the respondents interviewed (patients), "quality of life" refers to a state of physical and mental well being associated with a "feeling dimension," and/or an "activity level." The patient's perception of the decision-making process to undergo bypass surgery for the prevention of stroke is directed toward the goal of "quality of life" based upon a "feeling dimension" and/or an "activity level."

1. Feeling Dimension

The "dimension of feeling" in relation to the patient's goal of "quality of life" refers to an affective or psychological aura of well being and consists of the patient's sense of security, freedom from worry, and a life equated with dignity. For example, Mrs. W.F. stated, "I just don't want to live day by day in fear something serious would happen." Similarly, Mr. W.S. commented, "I don't want to have the worry of walking across the street, passing out, and being hit by a car." Basic to the respondents' sense of security, freedom from worry and a life with dignity is

a projected desire to avoid an altered self image associated with physical impairments accorded the stroke victim. These physical impairments include paralysis of varying degrees resulting in dependency, inadequacy, and sociably unacceptable attributes. Thus, Mrs. A.O. related, "My family and friends are use to seeing me active; I just couldn't face them if I were to have a stroke as stroke means being paralyzed or dependent to me." Additionally, Mr. H.Y.N. commented, "Surgery offers me a few more years of being active and enjoying my friends and family without worrying about being bedridden." Also Mr. D.M. stated, "I'd rather be dead than have a stroke and be half a man." Patient comments, such as these, were typical of the data obtained from the respondents which reflected a sense of security, freedom from worry, and a life with dignity in conjunction with the goal of "quality of life." The patient's goal in the decision-making process to undergo bypass surgery for the prevention of stroke may be equated with quality of life in the context of a "feeling dimension."

2. Activity Level

The patient's goal of "quality of life," as identified in the 'Patients' Passage of Decision in Stroke Prevention," may be viewed in the context of an "activity level" as well as a "feeling dimension." "Activity level" is characterized by the patient's capacity for self control and the ability to manipulate his environment in conjunction with the performance of daily activities. These daily activities are associated with the roles of socialization and/or

economic and occupational endeavors. In this respect, the patient's perception of "quality of life" incorporates the inate capabilities essential to the enactment of social roles associated with every day living as well as those activities which provide a means of livelihood. For example, Mrs. A.R. commented, "I hope with surgery my right eye improves and my memory and speech gets to a point where I can remember names. As I am now I don't feel comfortable with my friends and relatives and I can't continue to train horses to make a living." Similarly, Mr. K.Y., an automobile salesman, said, "With a better flow of blood to my brain from having surgery I can sell more cars. You see my hand does not work so well and making out contracts is difficult." Mrs. A.R.'s and Mr. K.Y.'s comments were representative of those respondents interviewed whose expressions equated the enactment of social roles and/or economic and occupational endeavors with "quality of life."

3. Feeling Dimension and Activity Level

The majority of the respondents emphasized either the "activity level" or the "feeling dimension" in conjunction with "quality of life." However, five of the fifteen respondents interviewed perceived "quality of life" on both an "activity level" and a "feeling dimension." Thus, Mr. H.Y.N. stated, "This surgery offers me a chance to gain good health; I could play golf again and I would not feel pity from my friends and my family." In addition Mr. C.L. commented "I want to get well, I want to get back on my feet so I can get around and do something without nobody watching

me...afraid I'm going to fall or stumble." These comments suggest both an "activity level" and a "feeling dimension" in relation to the patient's goal of "quality of life." Although the majority of the respondents interviewed perceived the goal of "quality of life" in the context of an activity level and/or feeling dimension five of the respondents identified "quality of life" on both an "activity level" and a "feeling dimension."

In conclusion, the decision-making process as perceived by patients undergoing bypass surgery for the prevention of stroke cannot be studied as a separate entity but only in the context of the decision itself. The purpose of this chapter, "The Patients' Passage of Decision in Stroke Prevention" has been to: (1) illustrate the method of data analysis in relation to the research findings, and (2) describe the components of the decision-making process in conjunction with the conceptual model, "The Patients' Passage of Decision in Stroke Prevention." Although the process of decision-making was presented as a static concept for the purpose of written communication, the reader was encouraged to keep in mind the dynamics characteristic of process.

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CHAPTER VII

THE PATIENTS' PASSAGE OF DECISION IN STROKE PREVENTION: THE DECISION COMPONENTS

The purpose of this chapter "The Patients' Passage of Decision in Stroke Prevention: The Decision Components" is to: (1) identify the components of the patient's decision to have Microvascular Neurosurgical Bypass surgery, (2) demonstrate the relationship of the decision components to the decision-making process, (3) illustrate diagrammatically the results of the research data through the presentation of a conceptual model, "The Patients' Passage of Decision in Stroke Prevention," (4) demonstrate the functional use of the conceptual model, "The Patients' Passage of Stroke Prevention" through a selected patient data sketch.

DATA ANALYSIS: THE DECISION COMPONENTS

Findings show there are four major components of the patient's decision to have bypass surgery for the alleviation of existing or progressively deteriorating neurological symptomatology and the prevention of stroke. The four major components of this decision are: (1) Brain Symptomatology, (2) Time Table, (3) Physician Dyad, and (4) Family or Significant Other. Each of the four decision components are inherent factors of the decision-making process and significantly influential in determining the patient's decision to undergo bypass surgery to maintain or acquire a state of well being

consistent with "quality of life." Although the four components of the decision exist as identifiable and separate facets of the decision, they are interrelated and provide the foundation from which the process of decision evolves.

1. Brain Symptomatology

"Brain Symptomatology" refers to those neurological aberrations experienced by the patient which impede or alter the continuance of the patient's daily routine activities. Dependent upon the location of the brain lesion causing hemodynamic insufficiency and resulting in neurological manifestations presenting symptoms may include intermittent paralysis, visual defects or cognitive disturbances. Neurological symptoms, such as these, result in a modification of the patient's present life style by threatening the individual's self integrity and his control of himself and his environment. Whether the presenting symptoms exist as a major or minor alteration in the patient's life style, as previously discussed in Chapter VI, the patient eventually seeks medical assistance. All of the respondents interviewed cited the persistance of the presenting symptoms and the associated perceived deterioration of their present status as a major factor in the decision to undergo Microvascular Neurosurgical Bypass surgery. Thus, the following comments expressed by Mr. M.A., Mr. L.R., Mr. H.Y.N. and Mrs. A.O., respectively, were representative of all the respondents' comments that exemplified "Brain Symtomatology" as being a major factor in the patient's decision to undergo bypass

surgery:

> "I felt this circulatory problem was getting worse, I'm having more trouble walking, my legs are dragging and I'm not thinking straight. Sometimes I can be talking with someone and I forget what I was talking about."
>
> "My speech was getting worse. It's getting so I can't carry on a conversation with anyone."
>
> "I felt psychologically and physically I was going downhill."
>
> "I've had two little strokes already. I had a small second one which apparently did more damage than the first. The first stroke I had a little difficulty in speaking but it came back. During the second stroke I had dizzyness, headaches, tinkling all over and my speech went. I still have headaches once in a while and the feeling and grip in my right hand is not as good as it use to be."

"Brain Symptomatology," one of the four major components of the decision to have bypass surgery, develops as "Threat" in the decision-making process and causes the patient to seek problem solution consistent with "quality of life" through professional medical assistance and subsequent surgical intervention.

2. Time Table

"Time Table" suggest another major factor in the patient's decision to undergo Microvascular Neurosurgical Bypass surgery for the alleviation of existing or progressively deteriorating neurological status and the prevention of stroke. "Time Table" refers to an estimated period of time the patient anticipates will transpire before experiencing a massive stroke. Patients demonstrating symptoms consistent with transient ischemic attacks have

a 13 to 60 per cent chance of incurring a completed stroke within four years.[1,2,3,4] Although the researcher did not witness each verbal transaction between the patient and the surgeon or referring physician describing this time factor, she nevertheless, witnessed the imparting of this information by the surgeon to the patient during two observational periods. (See Chapter IV, "Background and Exploration," page 45). In addition, each potential bypass candidate (patient) received from the surgeon a packet of literature containing three separate articles which identified an approximate time interval that patients could anticipate between being diagnosed as having transient ischemic attacks and the onset of a completed stroke.[5,6,7] The majority of the respondents did not perceive "Time Table" as a definitive period of time transpiring prior to experiencing a stroke but rather a period of time in which they faced a proportionately greater risk of incurring a stroke without surgical intervention. For example, Mr. H.H. stated, "I felt there was less possibility of having a big stroke if I had that brain artery fixed." Similarly Mrs. A.O. commented, "With these little strokes you never know when a big one is going to come and the more you have the worse it gets." In addition, Mr. L.L. stated, "The surgeon said there was no emergency, but after some plans I had made previously fell through I decided it was better to have the surgery done as soon as the surgeon could do it." In contrast, a minority of two patients interviewed identified the time factor more specifically as a major determinant in deciding upon surgery. Thus, Mr. R.H. stated,

"Two doctors told me if I don't have the surgery in a month or two I would die, I'd have a massive stroke and that would be it."

"Time Table," in conjunction with the characteristics of the prevailing symptoms being experienced by the patient, acts as a motivational basis from which the decision to have bypass surgery evolves. In this manner, "Time Table" represents one of the four major determinants in the patient's decision to have Microvascular Neurosurgical Bypass. "Time Table," a second decision component in the "Patients' Passage of Decision in Stroke Prevention," is perceived by the patient as a major determining factor in having bypass surgery and requiring action "as soon as possible."

3. Physician Dyad

"Physician Dyad" is a third major decision component and refers to the combined influence of the referring physician and the surgeon specialist in the patient's decision to undergo Microvascular Neurosurgical Bypass. Both the referring physician and the surgeon specialist enjoy the professional status accorded them by society under the auspices of the aesculapian theory which suggest an imputed prestige derived from the physician's expertise, the physician's God-like mystical powers, and the patient's unquestioning faith.[8] In addition, the prevailing interactional relationship of the physician's prestige, the situational authority of the physician, and the situational dependency of the patient provides a "conducive medium" which contributes to the "Physician Dyad" as being a major decision

component.[9]

Although "Physician Dyad" connotes the combined influence of the referring physician and the surgeon specialist in the patient-practitioner relationship, each physician possesses distinguishable characteristics consistent with the role he enacts as a referring physician or a surgeon specialist. Friedson[10] identifies the referring physician and the specialist as "client dependent" and "colleague dependent," respectively, and bases this identification on the existing types of medical practice in conjunction with the medical division of labor. According to Friedson, physicians considered "client dependent" rely completely upon the lay person's choice for their existing practice whereas "colleague dependent" physicians depend solely upon clients obtained through referrals for their practice.[11]

The referring physician, previously discussed in Chapter VI, is that physician in the "Physician Dyad" who, according to the research data, provides the impetus to activate the patient's passage of decision through "Trust." The trust bestowed upon the referring physician by the patient results from a patient-practitioner relationship characterized by longevity, prior success, and personal interest. According to the majority of the respondents interviewed the passage of decision would have been impeded, interrupted, or terminated without the "Trust" relationship engendered by the patient and referring physician. This factor is illustrated by the following comments:

Mrs. A.O.: "If my own doctor hadn't recommended the surgery, I would have had many second thoughts about proceeding with the surgery."

Mr. W.S.: "My doctor is the best in the world, if he had said the surgery isn't a good idea I wouldn't be having it."

Mr. K.Y.: "My doctor, Dr. T., recommended the surgery. He reassured me the surgeon is the very best."

Mr. R.H.: "I have a good relationship with my doctor. Yes he's a wonderful man, he's the one whose been doing all this checking around for the right surgeon. I'm here because of his advice."

Fourteen of the fifteen respondents interviewed were referred directly to the surgeon specialist by the referring physician or the patient's local doctor. Five of the fifteen patients interviewed stated the decision to have surgery was basically determined prior to meeting with the surgeon specialist. Thus, Mr. C.L., one of the five patients who stated the decision to have surgery was determined prior to meeting with the surgeon said, "Well, even before I met the surgeon I had made up my mind something was going to be done. I just didn't want to have another stroke." The remainder of the sample or ten patients stated the decision was "clinched" upon the initial meeting with the surgeon. Comments made by patients infering the decision was "clinched" upon the initial meeting with the surgeon were:

Mrs. W.F.: "I know this probably sounds stupid but after the first five minutes of talking with the surgeon I had all the confidence in the world."

> Mr. L.L.: "I made the decision when I went to discuss this bypass surgery with him (surgeon). I trust him. You see, for the past thirty years I've been in a business where you have to really look at people and determine if you can trust them. The surgeon has a good rapport, he's a doctor you can rely on, he exudes confidence and stability."

Data analysis reveals the primary factor responsible for the patient's compliance to undergo bypass surgery upon the initial meeting with the surgeon specialist was "personal attributes." Thus, comments such as "He exudes confidence and stability;" "He's big and strong;" "He comes to the point and tells it as it is," were voiced by Mr. L.L., Mrs. W.F., and Mr. K.Y. respectively, and were representative of all the comments voiced by the respondents in reference to the surgeon specialist. This finding is in contradiction to Friedson's characterization of the specialist who being completely dependent upon colleague referrals has little need for client oriented techniques such as bedside manner.[12] Two of the respondents interviewed commented that the surgeon had performed the surgical procedure a number of times, however, no additional comments reflected the experience, the expertise, or qualifications of the surgeon specialist. The surgeon specialist, in addition to the referring physician, is a recipient of trust. The trust conferred upon the surgeon specialist by the patient is also a significant factor in the patient's compliance to undergo bypass surgery. This trust, however, is conferred upon the surgeon specialist on the basis of

"Trust by Transference." Findings from the data analysis by the researcher indicate the trusting relationship established between the referring physician and the patient, as previously discussed, provided the foundation by which trust was conferred upon the surgeon. The "Physician Dyad," consisting of the referring physician and the surgeon specialist form the basis for a third major decision factor in the patient's decision to have Microvascular Neurosurgical Bypass for the prevention of stroke.

4. Family or Significant Other

The fourth and final component of decision in the "Patients' Passage of Decision in Stroke Prevention" is the "Family or Significant Other." The value of the family, a family member, or a significant other to an individual confronted with a possible situational crisis, such as a threat to ones health, has been substantially documented in the literature pertaining to Family Centered Practice and Crisis Intervention.[13,14,15,16,17] Findings of this research, validate the essential role assumed by the family or significant other in the patient's illness process and the associated decision to undergo Microvascular Neurosurgical Bypass. Thirteen of the fifteen respondents (patients) interviewed cited the family (family member) or significant other (friend), in addition to one or both of the physicians identified in the "Physician Dyad", as being significantly influential "situational supports" in determining the decision to undergo bypass surgery and during the process of decision-making. Comments reflecting

this factor included:

Mrs. H.H.: "My daughters and their husbands have been very concerned for me since I developed this stroke thing. We've talked about the surgery a lot, in fact I had them all discuss the surgery with my own doctor."

Mrs. W.F.: "The biggest factor in helping me has been my husband and son. They didn't say have the surgery but they didn't say don't have the surgery. They just were around through all this."

Mr. L.R.: "My wife and I, after talking several times with my doctor, decided to go for broke and get an "E" for effort."

The remaining two respondents or patients interviewed identified only the referring physician and/or the surgeon specialist as providing the necessary emotional support in making the decision and during the decision-making process. Findings reveal that the majority of respondents interviewed identified the "situational support" as that individual who was instrumental in helping them through the decision-making process and who was perceived as being influential in solidifying the decision to undergo bypass surgery. This "situational support" was perceived by the patient as an individual who demonstrated, within the interactional situation, those attributes of a helping relationship characterized by "caring, trustworthiness, and strength of character". "Family" (family member) or "Significant Other" is a fourth major decision component that influences the patient to have bypass surgery.

DATA ANALYSIS OF FAMILY/SIGNIFICANT OTHER

To gain a different perspective on the patient's decision to undergo Microvascular Neurosurgical Bypass surgery for the prevention of stroke a sample of convenience numbering seven family members or significant others was obtained. The sample of convenience included either an immediate family member or a close friend. Five of the family members were identified as the patient's spouse. All seven persons of the sample were perceived by the patient as "situational supports" and thus were considered one of the four major decision components influencing the patient's decision to have Microvascular Neurosurgical Bypass surgery for stroke prevention. (See "The Decision Components, Family or Significant Other").

Data obtained from the family members or significant others were derived from a similarly prepared interview format as that utilized with the patient interviews. Data analysis from the seven family members or significant others interviewed suggests their role in the patient's decision to have bypass surgery was supportive but not necessarily a role characterized by encouragement and decision. Thus, three of the six family members (two wives, and one daughter) interviewed stated that although their role in the family unit had been either a joint decision maker or the major decision maker in the past, the decision to undergo bypass surgery was the patient's alone. Thus, Mrs. A.M. (wife of patient) stated, "I feel that it is entirely up to him. I've been making all the decisions till now. This is one time I would

not make the decision, I feel that it is his life." Similarly, Mr. L.R.'s wife, Mrs. L.R. commented, "My husband tried to get my son and I to make the decision but we said it was entirely up to him." Additionally, Mrs. J.D., a daughter of patient Mrs. M.P., stated, "I left the decision up to Mother until she said I think I'll go ahead with surgery and then I encouraged her." These comments were voiced by three of the six family interviewed who perceived the decision of brain surgery on a life and death basis and indicated the decision to undergo bypass surgery was most appropriately the responsibility of the patient. The remaining four family members or significant others stated they openly encouraged the patient's decision to have bypass surgery in accordance with the referring physician's advice or the positive impression they received from the surgeon. Thus, Mrs. K., a significant other, commented; "All of us have encouraged her (patient) to have surgery, none of us wanted to see her (patient) have a stroke." Similarly Mrs. G.F. (wife of patient) stated, "I believe I made my mind up before my husband (patient) did. After talking with the surgeon the operation seemed no more dangerous than an appendectomy. That talk helped. The children and I were all in favor of him (patient) having the surgery. We decided to do everything we could possibly do for him, the mortality risk seems to be so minimal in comparison to what we hope to gain. We discussed the surgery a lot with him (patient). Yes, we told him we're all in favor of it; all seven kids, his (patient's) family and mine." Two family members or significant others stated if they were to change their minds

and not be encouraged with the prospect of surgery they were sure the patient would also change his mind.

All the family members or significant others interviewed stated the patient's decision to have bypass surgery was one of the most difficult decisions the patient had ever experienced. According to the family or significant other the difficulty the patient encountered in decision-making was based upon surgical intervention of the brain which was equated with the seriousness of heart surgery yet possessing an additional risk due to the many "unknowns" associated with brain functioning. The patient's decision to have bypass surgery was viewed by the family or significant other as a necessary step or action to be taken to deter the occurrence of a stroke characterized by "paralysis, helplessness and loss of self esteem." All the respondents of the sample perceived their family member's (patient's) present status as a deteriorating state of well being with the option of having bypass surgery being the "only hope" or "last resort" toward preventing a stroke. Data obtained from seven family members or significant others suggest the patient's decision to have bypass surgery resulted from a perceived deterioration of well being accompanied by a limited number of available options consistent with acquiring or maintaining quality of life. Family members or significant others view their role in the "Patients' Passage of Decision in Stroke Prevention" as supportive, but not necessarily a role characterized by encouragement nor decision maker due to the significance they accord the event "brain surgery."

The Model

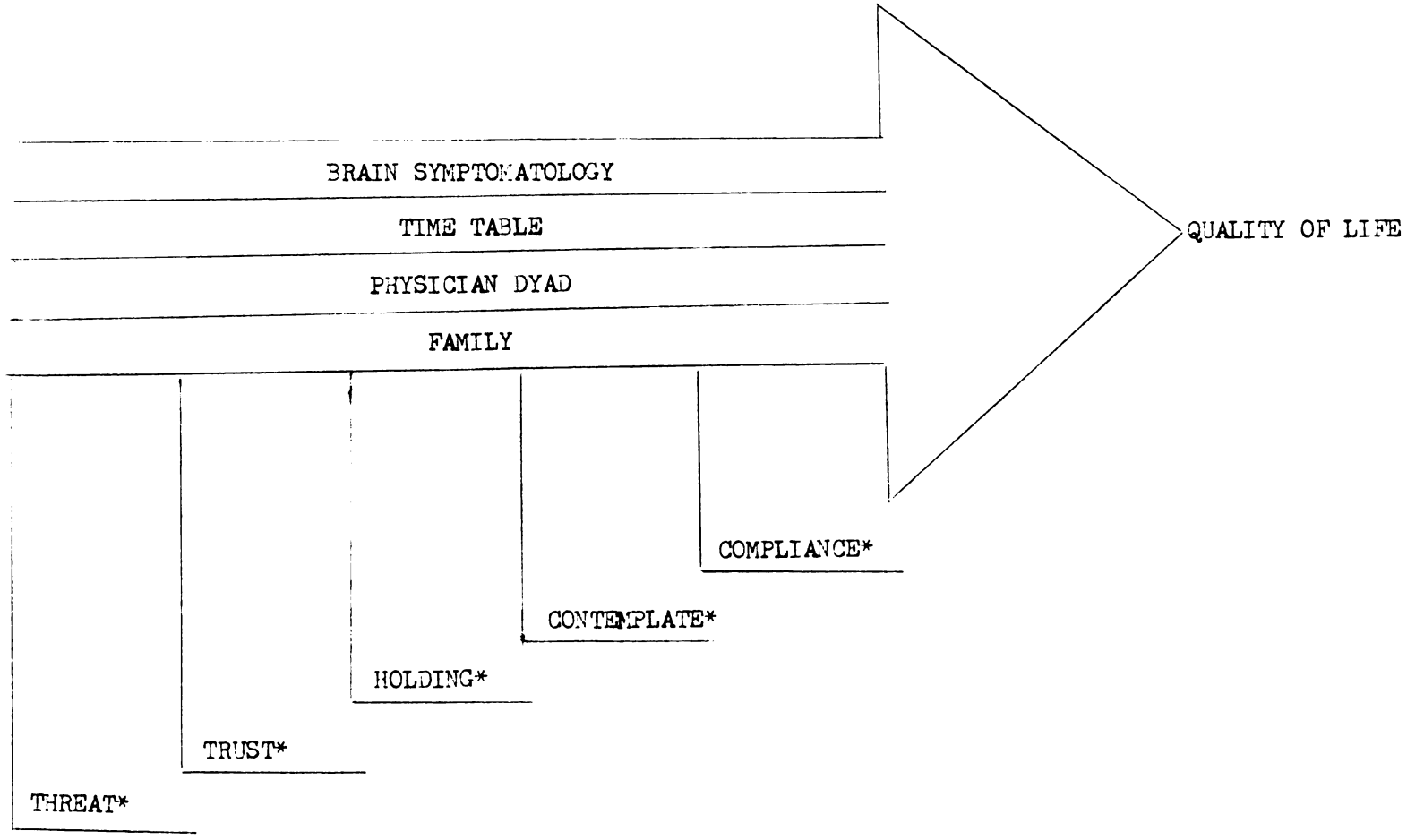
A conceptual model emerged from the data, the purpose of which is to illustrate the conceptualization of the process of decision and the major decision components of the patient's decision to undergo bypass surgery for the prevention of stroke by linking the categories of the decision process to the major decision components utilizing the supportive data. The model (see next page) depicts an arrow aimed in a definitive direction toward an identifiable goal, the quality of life. Along the arrow, indicating direction and progression, are phases or categories of the process of decision. Enclosed in the arrow are the four major decision components represented by horizontal lines. The diagram of the conceptual model, "The Patients' Passage of Decision in Stroke Prevention," may be viewed as "universal," that is, having applicability to all patients confronted with the decision to have bypass surgery for stroke prevention, within the context of three general conditions:

1. Microvascular Neurosurgical Bypass surgery is identified as a preventative health measure.
2. The decision by the patient to undergo bypass surgery does not exist on an emergency basis.
3. The medical division of labor includes a referring physician and a surgeon specialist.

Implications for health care resulting from the conceptualization of this model as well as the model's potential for generalizability

CONCEPTUAL MODEL

The Patients' Passage of Decision in Stroke Prevention



*Empirical Indicators of Passage

is forthcoming in the next chapter, "Concluding Remarks, Implications for Nursing and Decision-Making."

Functional Use of the Conceptual Model

To illustrate the conceptualization of the model, "The Patients' Passage of Decision in Stroke Prevention" in conjunction with the supportive data Mrs. A.O. has been selected. Mrs. A.O. is a fifty one year old Caucasian housewife and mother who has an eleventh grade education and professes a strong faith in Catholicism. Mrs. A. O. was interviewed two days prior to undergoing Microvascular Neurosurgical Bypass surgery and although she expressed a moderate degree of anxiety in relation to the anticipated surgery she appeared in no acute distress and was receptive to being interviewed. To facilitate ease in presentation and reading, the following format is being utilized to illustrate Mrs. A.O.'s passage of decision in stroke prevention.

DATA	PASSAGE OF DECISION-PROCESS
"The first stroke I had a little difficulty in speaking but it came back. The second stroke I got dizzy, I have an upstairs and a downstairs and I was climbing, I mean I was crawling. I knew something was wrong because I was getting that tinkling feeling, headaches, and my speech was going, so	THREAT: (1) "something amiss." (2) serious impediment to daily activities. (3) validated by family and physician.

DATA	PASSAGE OF DECISION-PROCESS
that's when I went back to the hospital. Two weeks later I had an arteriogram, the doctor said I had a blockage in an artery going to the brain."	
"My family doctor said he would think about it even if the chances were ten per cent. He (family doctor) said the chances are very good. I've been with my doctor since he started his practice and he's been with me through everything and I know he wouldn't steer me wrong. If he said it wasn't a good idea to have surgery I would definitely have to think twice about it."	TRUST: (1) satisfactory relationship between referring physician and patient based upon longevity of relationship, prior success and personal nature.
"Dr. E., a vascular surgeon, and my doctor advised me to come and see Dr. C. and have him explain the possibilities. I thought about brain surgery for a while and then I called the surgeon for an appointment."	HOLDING (System Controlled or Patient Induced: (1) informed of possibility of surgery. (2) patient is advised to make appointment with surgeon specialist to activate referral.
"I know there will be pain and a lot of thinking and anticipation and things like that but deep inside I want to do this because surgery might give me a better chance, a better chance will give me some more time. My family and friends are use to seeing me active. I just couldn't face them if I	CONTEMPLATION: (1) considers risks of bypass surgery. (2) seeks support of family/ friends. (3) prepares for untoward results from surgery.

DATA	PASSAGE OF DECISION-PROCESS
were to have a stroke as stroke means being paralyzed or dependent to me. It's hurting my family to see me like this. They helped me with the decision. I know I'm going to feel better because I'm going to have a better chance, I'll have longer to live."	(4) speculates post surgery status.
"Well after I met Dr. C. and we talked for a while, he explained to me about the operation and my chances. I believe I made the final decision (the decision to have surgery) right then and there. The decision had to be made, it had to be one way or the other, but like I said I could not go on this way."	COMPLIANCE: (1) completion of previous stages. (2) development of trust with surgeon. (3) satisfactory surgical candidate. (4) best option.
"I'll feel better inside mentally and psychologically, I'll have a little bit more grasp of hope. You see now I can't stay up too long, I like to walk, I like to bowl and all the different things and maybe by this (surgery) it will give me a chance to do these things that I enjoy doing. To go for a walk and not go alone...I, a fifty one year old woman has to have someone tag along with her. I'm young and I have a lot to live for and I felt another stroke could make it worse and if this is going to help I'm going to take the chance."	QUALITY OF LIFE: (1) physical and mental well being, i.e. feeling dimension and activity level. (2) freedom from fear of a life of dependence.

DATA	PASSAGE OF DECISION-DECISION COMPONENTS
"Something was wrong because I was getting that tinkling feeling, headaches and my speech was going."	BRAIN SYMPTOMATOLOGY: Impediment or alteration in the individual's daily routine activities.
"You really never know when, you know when you hear people have strokes; one minute they have a stroke and the next minute they are gone. With these strokes you never know when one is going to come and the more you get the worse it gets."	TIME TABLE: Greater risk of incurring a stroke with the passage of time.
"If my doctor (referring physician) said it wasn't a good idea to have the surgery, I would definitely have to think twice about it. Well after I met Dr. C. (surgeon specialist) and we talked for a while, he explained about the operation and my chances. I believe I made the final decision right then and there."	PHYSICIAN DYAD: Referring physician and surgeon specialist.
"I have a very close knit family. For them to see me like this I know it's hurting them, they helped me with the decision, a lot of them read the articles the surgeon gave me. They said they'd (family) would think about it even if the chances were ten per cent."	FAMILY OR SIGNIFICANT OTHER: Nuclear family member or close friend.

In conclusion, the purpose of this chapter, "The Patients' Passage of Decision in Stroke Prevention: The Decision Components," was to: (1) identify the components of the patient's decision to have Microvascular Neurosurgical Bypass surgery, (2) demonstrate the relationship of the decision components to the decision-making process, (3) illustrate diagrammatically the results of the research data through the presentation of a conceptual model. To illustrate the conceptualization of the model, "The Patients' Passage of Decision in Stroke Prevention," utilizing supportive data, a case study was presented.

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CHAPTER VIII

CONCLUDING REMARKS, IMPLICATIONS FOR NURSING AND DECISION-MAKING

Findings from the research have led to the identification of several recommendations by the researcher for the delivery of health care services in relation to nursing and decision-making. The purpose of this chapter, "Concluding Remarks, Implications for Nursing and Decision-Making," is to discuss the recommendations for health care delivery in relation to the research findings, and secondly, to identify those findings of the research which suggest areas for further investigation.

USE OF THE CONCEPTUAL MODEL

The conceptual model, "The Patients' Passage of Decision in Stroke Prevention," offers the professional nurse* a guide to developing individualized health care plans for patients considering bypass surgery as a means of alleviating temporary neurological deficits and avoiding the occurrence of a stroke. The patient's decision to undergo bypass surgery is a difficult decision involving a process and based upon specific influential components. Each potential candidate for bypass surgery deserves an individualized health care plan consistent with his particular needs. As a result of this research a similarity among patients in both the process of decision and the major components influenc-

*Use of this model is additionally recommended for the physician, and other allied health professionals.

ing decision have been identified. Use of the "Passage" model by the professional nurse in either ambulatory or in-patient health care settings can serve as a framework for developing individualized health care plans where assessment and intervention are indicated to assist individuals confronted with the decision to have bypass surgery.

1. Assessment

The first meeting between the professional nurse and the patient is crucial for setting the climate for a health caring relationship. During this initial meeting the professional nurse identifies an individualized plan of care consistent with the patient's needs based upon an assessment. Assessment is defined as "the act of reviewing a situation for the purpose of diagnosing a client or patient's problems." This individualized assessment forms the basis for determining the patient's problems and future health care planning.[1]

An in-depth health history is paramount in developing a thorough assessment. Utilizing the "Passage" model as a framework for obtaining a health history, the professional nurse can ascertain which phase of the decision process the patient is experiencing in relation to decision resolution or compliance with the recommended option of bypass surgery. Obtaining this data can facilitate the direction for the remaining history and health care planning. For example, if the possibility of having bypass surgery is identified as a recommended mode of therapy and if the professional nurse's assessment of the patient suggests the trust rela-

tionship with the referring physician has not been developed, compliance to undergo bypass surgery would not be anticipated. Similarly, if patients faced with the decision to have bypass surgery have not had a period of time devoted to the conditions cited under "Contemplation" in the conceptual model the chances of complying with the surgical recommendation of bypass surgery on a preventive basis is likely to be delayed. Realizing that the process of decision is based upon specific components that influence the decision, the professional nurse is also able to identify which component might be impeding or delaying the patient's process toward decision resolution. Thus, if the patient's neurological symptoms are decreasing in severity and frequency, the decision to undergo bypass surgery will be delayed. Clarifying these issues of decision process and decision components permits the professional nurse to begin from a common reference point with the patient. An assessment of this calibre, particularly if the assessment is on-going in nature, can enable the professional nurse to determine the cause of vascillations in decision-making, detect possible problems of decision and provide a means of support. At this point the professional nurse is prepared to formulate an individualized health care plan of actions based on theoretical substance rather than chance as well as to predict problems in the process of decision and possible untoward experiences for the patient.

2. Intervention

After assessing the potential bypass candidate as described above the professional nurse can begin to develop a health care plan with the patient in relation to decision resolution. Two primary roles for intervention are (1) educational and (2) supportive. Although these two roles will be treated separately, they are usually interrelated in actual practice. After assessment of the potential bypass patient the professional nurse is better able to ascertain which of these two roles should be stressed. If through the initial assessment the professional nurse determines the patient's decision process is hampered by the lack of available information or lack of comprehension a teaching plan for the bypass patient may be indicated. Implementation of such a teaching plan would be based upon the readiness of the learner as well as teaching-learning principles consistent with adult education.[2,3,4] Such a teaching program might include a lesson plan based upon characteristics of the learner, the setting, and the goals identified by the professional nurse through assessment.[5]

A supportive role might be utilized in conjunction with the above educational goals or utilized separately by listening to the patient and providing time for the patient to discuss bypass surgery. In this situation the professional nurse could assist the patient in mobilizing his resources required to make the decision to have bypass surgery or simply act as an agent of catharsis by listening while the patient decides which course of action is most appropriate for him. Listening would also provide relief of anxiety found among patients confronted with such a decision.

The "Passage" model developed through the research can serve as a guideline for professional nurses in assessing the patient's decision-making and developing a health care plan. Although the model does not offer a specific means to decision resolution it does provide a framework of viewing decision-making.

GENERALIZABILITY OF THE CONCEPTUAL MODEL

Findings from the research lead to the "Passage" model as a guide toward developing individualized health care plans for patients confronted with the decision to have bypass surgery for stroke prevention. In addition the model suggests the applicability of the "Passage" concept to other types of speciality surgery characterized by the patient's role of decision-making in preventive health care. Thus, any type of speciality surgery identified by the physician to the patient as an alternative to preventing progressive physiological deterioration and requiring decision-making by the patient may involve a similarity in both the process of decision and the major influential components of the decision. The health professional, therefore, may be able to utilize this conceptual model in the assessment and health care planning for persons experiencing decision-making situations involving prevention. Further research to substantiate the application of the "Passage" model to other decision-making situations where patient's decision-making is a critical factor in preventive health care is indicated.

DECISION-MAKING

Basic to any decision-making is the availability of relevant information to the decision maker.[6,7] As illustrated by the data analysis, the major components influencing the patient's decision to undergo bypass surgery were: (1) Brain Symptomatology, (2) Time Table, (3) Physician Dyad, and (4) Family or Significant Other. Absent among these four major components that influenced the patients' passage of decision was "relevant information." Major areas of concern resulting from this research are, therefore, was "relevant information" available to the patient and why, if "relevant information" was available to the patient, did it not play a more influential role in the patient's decision to have bypass surgery?

One significant measure to determine if "relevant information" was available to the patient is the criteria stipulated by "informed consent." "Informed consent" is that consent which is obtained, preferably in writing, after the patient has been given sufficient information so that he understands the nature of the procedure to be performed, the risks and consequences associated with it, and the courses of action open to consideration other than the contemplated procedure.[8,9,10] To determine if sufficient information has been given to the patient two requirements of informed consent must be met. These two requirements of informed consent are: (1) the physician has provided the patient sufficient information concerning a contemplated procedure that is usually provided by

other competent physicians in the community and (2) the information the patient has been provided has met the informational needs of any prudent and reasonable patient enabling the patient to make an intelligent decision as to whether he should undergo the proposed procedure.[11] Findings from this research pertain only to satisfying the second requirement for informed consent.

As previously mentioned in Chapter VII, each patient respondent received a packet of literature pertaining to Microvascular Neurosurgical Bypass surgery and was provided an opportunity to discuss with the surgeon this procedure prior to undergoing surgery. Data obtained from the patient respondents indicated of these two forms of "information giving" the discussion with the surgeon proved to be the most beneficial. All of the patient respondents stated the packet of literature containing articles relating to bypass surgery was of limited value. Patient comments exemplifying their perception of the limited value of the literature were: "it's too medical," it's not in lay terms," "it's too technical to understand." Despite the limited value the patients accorded the literature they were, nevertheless, able to explain to the interviewer that the purpose of bypass surgery was to alleviate their neurological symptoms caused by an inadequate blood supply to the brain and that with bypass surgery the chances of incurring a massive stroke would be appreciably lowered. In addition the majority of the patients stated the risks of bypass surgery were small in relation to the anticipated outcome and that

the option of taking "blood thinning" medications was available to them. In accordance with the second requirement of informed consent, the research data indicates that the patients were provided sufficient and relevant information to meet the informational needs of any prudent or reasonable person as legally required. Since relevant and sufficient information consistent with the requirements stipulated by "informed consent" were met, yet, "relevant information" of bypass surgery was not perceived by the patients as a major influential component of their decision-making, the researcher has concluded that "relevant information" satisfying the requirements of informed consent was not of primary import in decision-making for the fifteen patient respondents of this research. Thus "informed consent" was not perceived by the patients as particularly influential in determining their decision to have bypass surgery. This finding suggests "informed consent" existed primarily for these fifteen patients as a legal protective document. Further research is indicated to determine if information above and beyond the scope of "relevant information" as identified with "informed consent" is viewed by patients as a major factor toward influencing their decision to have bypass surgery for stroke prevention. In addition, further research is indicated to determine if the patient's perception of "relevant information" is similar to "relevant information" identified with "informed consent." For example, would information viewed by the patient as "relevant" be more influential in the patient's decision-

making to have bypass surgery than "relevant information" identified with informed consent?

As previously mentioned, the packet of literature given to each potential bypass patient was perceived by the patients as being "too medical," "not in lay terms," and "too technical to understand." These comments reflect the patient's limited comprehension of written forms of communication provided to patients as a source of information by the health professional. This finding has implications for health education and thus, the researcher suggests an assessment for lay comprehension of all written forms of communication that are provided as informational sources to patients that require their understanding. Further research is indicated to determine if documents requiring consent wuch as "Conditions for Admission" and "Operative Permit" are also viewed by the patient as inconsistent with the lay persons' comprehension. In the interim the following recommendations are suggested:

1. Development of a clinical nurse specialist role within the hospital confines to serve the educational needs of patients and families in relation to written sources of information and written documents requiring patient comprehension.
2. Revision of the above written documents requiring patient comprehension and consent to a written form reflective of layman's terminology.

Implementation of the above recommendations would provide greater meaning to the concept of "informed consent" for the patient. In addition, these recommendations would give greater substance to the

consumer's participation in their health care as advocated by the American Hospital Association and various consumer movements.[12]

ADDITIONAL AREAS FOR FURTHER STUDY

Findings from the research have led to the identification of several areas requiring further study. As previously mentioned, the "Passage" model has implications for further research in other areas of patient decision-making where surgical intervention may be identified by the physician as a mode of preventive health care. For instance, does this model have application for patients confronted with the decision of heart surgery on a preventive health care basis? Do patients confronted with a decision to undergo Coronary Bypass surgery on a preventive basis experience a similarity in the process of decision based upon similar influential components of decision as do patients who decide to undergo Microvascular Neurosurgical Bypass surgery? Additionally, does this conceptual model have application to any type of preventive surgery that requires patient decision-making? Further research is indicated to determine the generalizability of the "Passage" model.

Another area for further investigation is the nature of the decision maker. Are there some identifiable personality characteristics based upon some specific psycho-social parameters that can be related to those persons who undergo bypass surgery in comparison to those persons who do not select the option of surgical intervention for stroke prevention? For example, demographic data from the

research reveals nine of the fifteen patient respondents who decided to undergo bypass surgery were of Catholic faith. Does this finding have any significance to decision-making and preventive health care?

Other identified areas for further research include:

1. The phase of "Holding," system-induced factors. The passage of stroke prevention was delayed by system-induced factors in ten of the fifteen respondents interviewed. Is the phase of "Holding" believed to be caused by system-induced factors a consistent finding in all areas of specialty surgery?
2. The role of family in decision. Three of the seven "Family or Significant Others" interviewed stated the decision to undergo bypass surgery was the patient's responsibility. Is this a consistent finding among family members or significant others of patients undergoing brain surgery? Does this finding include heart patients?

In summary, the research has resulted in a framework that can further the understanding of decision-making from the patient's perspective. Findings of the research have, in addition, led to the identification of several areas for further research and investigation.

In conclusion, the major purpose of this research was to determine the components of the decision-making process as perceived and experienced by patients undergoing Microvascular Neurosurgical Bypass surgery for the prevention of stroke. Findings

from the research suggest the process of decision-making may be studied only in the context of the decision itself. A conceptual model was developed by the researcher to illustrate the phases of the patients' process of decision based upon four major influential components of the decision. The process of the decision to have bypass surgery was found to be directed toward the patient's goal of "quality of life."

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APPENDIX

PATIENT
DEMOGRAPHIC DATA

NAME	AGE	SEX	MARITAL STATUS	OCCUPATION	EDUCATION	CULTURE	RELIGION	INCOME
Mr. D.M.	57	M	M	Industrial Plumber	H.S.	Cau.	Cath.	Disability
Mr. M.A.	65	M	M	Retired Banker	Coll.	Spanish	Cath.	Social Security & Retirement
Mrs. A.R.	66	M	W	Horse Trainer	H.S. & 2 yrs. Coll.	Cau.	No Pref.	Social Security
Mr. W.S.	71	M	S	Retired Cook	1st Grade	Black	Cath.	Social Security
Mr. H.Y.N.	60	M	M	Retired Claims Adjuster	H.S. & 3 yrs. Coll.	Cau.	Prot.	Disability& Retirement
Mr. L.R.	64	M	M	Retired PG & E Worker	7th Grade	Cau.	Cath.	Disability
Mr. A.H.	55	M	M	Retired Union Bus.Agent	H.S. & Jr. Coll.	Cau.	Cath.	Disability
Mr. R.H.	50	M	M	Retired Military	H.S.	Cau.	Cath.	Disability & Navy Retirement

PATIENT
DEMOGRAPHIC DATA, cont.

NAME	AGE	SEX	MARITAL STATUS	OCCUPATION	EDUCATION	CULTURE	RELIGION	INCOME
Mrs. A.O.	51	F	M	Housewife	11th Grade	Cau.	Cath.	$16,000 (husband)
Mrs. W.F.	49	F	M	Medical Secretary	H.S.	Cau.	Cath.	$10,000
Mrs. H.H.	61	F	W	Clerk Typist	H.S. & 2 yrs. Bus.Coll.	Cau.	Athiest	$10,000
Mr. K.Y.	59	M	M	Car Salesman	H.S. plus night course	Japanese	Buddist	$20,000
Mr. L.L.	69	M	M	Retired Gov't. Investigator	B.S. Bus.Admin.	Cau.	Prot.	Social Security & Retirement
Mr. C.L.	67	M	M	Retired Operations Engineer	8th Grade	Cau.	Prot.	Disability
Mrs. M.P.	65	F	W	Housewife	H.S. & 2 yrs. Coll.	Cau.	Prot.	Social Security

DEMOGRAPHIC DATA
FAMILY AND
SIGNIFICANT OTHER

NAME	AGE	SEX	MARITAL STATUS	OCCUPATION	EDUCATION	CULTURE	RELIGION	FAMILY INCOME
Mrs. M.A.	59	F	M	Office Manager	Coll.	Japanese	Cath.	$13,000
Mrs. J.K.	48	F	M	Mother & Housewife	Coll.	Cau.	Prot.	$23,000
Mrs. L.R.	62	F	M	Housewife	H.S.	Cau.	Cath.	Disability
Mrs. A.H.	52	F	M	Housewife	H.S.	Cau.	Cath.	Disability
Mrs. R.H.	48	F	M	Housewife	H.S.	Cau.	Cath.	Disability & Navy Retirement
Mrs. G.F.	61	F	M	Housewife	H.S.	Cau.	Prot.	Social Security & Retirement
Mrs. J.D.	37	F	M	Housewife	H.S.	Cau.	Prot.	$20,000

INTERVIEW FORMAT*

Decision-Making Process

Identification** _____Age_____Sex_____Marital Status_____

Educational Level_____Occupation_____

Culture_____Religious Preference_____

Tell me about your decision to have surgery (or not to have surgery).

When did you become aware a decision to have surgery was indicated?

How did you arrive at the decision to have the recommended surgery (or not to have surgery)?

For what reason or reasons did you decide to have the recommended surgery (or not to have the recommended surgery)?

What factors were considered in your decision to have the surgery (or not to have the surgery)?

Where was the final decision made?

Tell me in your own words what the purpose of the surgery is?

What do you expect to gain from the surgery?

*Modified for Family/Significant Other

**Identification code: Initials

University of California, San Francisco

Consent to Act as a Participant

in the

Study of the Decision Making Components as Perceived by the Patient

I agree to have Ms. Nancy Sayner, a candidate for the Doctorate of Nursing Science degree, ask me a series of questions relating to my decision to have surgery for the prevention of further deterioration of my physical status or the development of a stroke. These questions, in the form of an interview with the use of a tape recorder, will take place before surgery within the medical center complex at a mutually agreed upon time. I have been informed that the purpose of these questions is to determine the various factors that were responsible for my decision to have surgery. I understand the interview will be approximately one hour to one and one-half hours in duration and that additional interviews may be necessary. I understand that as a participant in this study there are no foreseeable risks. The discussion of the decision may, however, evoke some additional worry. I understand that at any time before or during the interview I may select to terminate the interview without jeopardy to my further care.

I understand that my responses will be kept confidential and that every precaution will be taken to safeguard the anonymity and trust of those persons who consent to participate. In addition, Ms. Sayner has informed me that I will be in control of the tape recorder and that I may turn it off at any point during the interview.

I understand that I will not be compensated for my participation in this study.

In addition to the above, I give my permission to Ms. Sayner to conduct a similar interview with a family member or a close friend if this request meets with their approval and consent.

If I have any questions regarding the study before or after the interview, I may contact Ms. Sayner by calling either 666-1106 or 964-9685.

Date_____ Signature_____

*Approved and supported by Professor Norman Chater, M.D._____

University of California

Consent to Act as a Participant

in the

Study of the Decision Making Components as Perceived by the Patient

(Family Member or Significant Other)

I agree to have Ms. Nancy Sayner, a candidate for the Doctorate of Nursing Science degree, ask me a series of questions relating to my family member's or close friend's decision to have surgery for the prevention of stroke. These questions, in the form of an interview with the use of a tape recorder, will take place before the scheduled surgery within the medical care complex at a mutually agreed upon time. I have been informed that the purpose of these questions is to determine the various factors responsible for my family member's (close friend's) decision to have surgery. I understand the interview will be approximately one hour to one and one-half hours in duration and that additional interviews may be necessary.

I understand that as a participant in this study there are no foreseeable risks. My responses, according to Ms. Sayner, will be kept confidential and that every precaution will be taken to safeguard the anonymity and trust of those persons who consent to participate. In addition, I understand that I will be in control of the tape recorder and that I may turn it off at any point during the interview. I understand that at any time before or during the interview I may select to terminate the interview without jeopardy.

I understand that I will not be compensated for my participation in the study.

If I have questions regarding my participation in the study before or after the interview I may contact Ms. Sayner by calling either 666-1106 or 964-9685.

Date_____ Signature_____

*Approved by Professor Norman Chater, M.D._____

INTERVIEW STRATEGIES AND TECHNIQUES

Consistent with field methodology and the utilization of interviewing as conversation the following interviewing strategies and techniques were identified and were used in securing the data.

I. Hearing and Listening

a. Silence, avoidance of interruption.
b. Facial expression, alert, eagerness and interest demonstrated.
c. Attentive body position and movements.
d. Nodding of head to encourage further communication and understanding.

II. Verbal Techniques

a. Asking for clarification.
b. Reinforcement.
c. Focusing.
d. Redirecting.
e. Avoiding questions requiring a yes or no answer, double-barrelled questions.
f. Use of reportorial type questions initially, i.e. how, when, what, why and where.
g. Techniques of information getting, i.e. tell me, please elaborate, I'm not sure I understand.
h. Technique of the interval comments, i.e. yes, please go on, ah-ha.
i. Probing questions:

chronology-and then, when was that?
detail-tell me more about that, that's very interesting, but you said earlier. . .
clarification-I don't quite understand.
explanation-why, how come? (probing by questions reflecting on the informant's last or preceding remark.

INTERVIEW STRATEGIES AND TECHNIQUES, cont.

As the interview commenced and rapport had been established, more sophisticated questions were used. These questions then reflected a more aggressive approach and sought to elicit new kinds of information. Examples included: (a) devil's advocate, (b) hypothetical questions, (c) posing an ideal, (d) offering interpretation or testing propositions on informants.