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Effects of Alternate Hot-and-Cold Treatment Following Hysterectomy

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EFFECTS OF ALTERNATE HOT-AND-COLD TREATMENT FOLLOWING HYSTERECTOMY

by

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I certify that I have read this thesis and that in my opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

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Teresa Holland

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CHAPTER I

INTRODUCTION TO THE STUDY

I. INTRODUCTION

"Physical medicine or physical therapy may be defined as that science which deals with the management of disease by means of physical agents such as light, heat, cold, water, electricity and mechanical agents."[1] Before the advent of antibiotics it was the most effective treatment for pneumonia and for many other acute conditions. The Sister Kenny treatment for poliomyelitis is widely recognized.

> Physical measures have long played an important part in the after-care of anterior poliomyelitis, but until recently they were used extensively only in the subacute or chronic stages of the disease. Since the widespread publicizing of the teachings of Sister Kenny, physical measures have come to play an increasingly important part in the treatment of the disease in all stages, especially in the acute stage.[2]

Hydrotherapy is one of the many branches of physical therapy. It has been defined by Moor, Dail and McFarland as "the application of water in its various forms to the surface of the body with the intent of so influencing physiological and pathological processes as to combat disease."[3] Abbott further describes it as consisting "chiefly in the application of heat and cold to the body by means of water."[4]

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[1]Frank H. Krusen, Physical Medicine, Philadelphia: W. B. Saunders Company, 1941, p. 1.

[2]William Bierman and Sidney Licht (eds.), Physical Medicine in General Practice (third edition), New York: Paul B. Hoeber, Incorporated, 1952, p. 608.

[3]Fred B. Moor, Clarence W. Dail, and J. Wayne McFarland, Physical Medicine, Loma Linda: College of Medical Evangelists, 1944, p. 32.

[4]George Knapp Abbott, Principles and Properties of Hydrotherapy, Loma Linda: College Press, 1914, p. 17.

With the discovery of effective medication, hydrotherapy is not as frequently prescribed for acute conditions. These medications combat the disease effectively, but they do not provide the systemic stimulant that accompanies hydrotherapy.

This study is an effort to determine if there are benefits that could be received from hydrotherapy treatments following surgery.

II. THE PROBLEM DEFINED

Statement of the Problem and Purpose of Study

The problem of this study was to see if the giving of alternate hot-and-cold treatments to the chest following abdominal hysterectomy would result in any measurable benefit to the patient, thus justifying their use.

Hypothesis

The giving of alternate hot-and-cold treatments postoperatively affects the comfort and the recovery rate of the patient.

Assumption

Patient discomfort can be observed and measured by a nurse using a list of clues recommended by a textbook on medical-surgical nursing and verified by a panel of experts.

Limitations of the Study

1. Women between the ages of thirty and fifty years were chosen for the study. Their condition was not acute at time of surgery nor complicated by other illnesses.

2. The pain threshhold varies so greatly from person to person that it could not be compared.

3. Although emotional trauma of hysterectomy was a factor in all cases, it could not be evaluated.

4. Variations in the handling of the viscera during surgery were not determined.

Justification of the Need

The Loma Linda Sanitarium and Hospital routinely gives alternate hot-and-cold treatments to postsurgery patients. When asked the reason for giving these treatments, it was stated that they resulted in greater relaxation, deeper respiration, less discomfort, reduced need for medication, and quicker recovery.

While studies had been done showing the benefits of alternate hot-and-cold treatments in other conditions, nothing had been reported on their use after surgery.

Another need was to justify the cost of furnishing personnel to give such treatments.

For the above reasons, it seemed important to determine what might actually be considered benefits of post-surgery hydrotherapy treatments.

III. METHODOLOGY

The experimental method was used in conducting this study. "In experimentation the investigator controls (manipulates or changes) certain independent variables and observes the changes that take place in the form of dependent variables."[5]

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[5]Carter V. Good, Introduction to Educational Research, New York: Appleton-Century-Crofts, Incorporated, 1959, p. 353.

A control group was set up at the White Memorial Hospital in Los Angeles and an experimental group at the Loma Linda Sanitarium and Hospital in Loma Linda. The independent variable was the application of alternate hot-and-cold treatments to the experimental group.

Evaluation of patients in both groups was made by a check list of clues indicating patient discomfort. This list was chosen from a 1961 textbook on medical-surgical nursing.[6] It was verified by a panel of experts consisting of two clinical instructors, one head nurse, and two staff nurses. Criteria to evaluate the patient's progress on the fourth postoperative day was determined by the findings of the pilot study.

Patients were seen the night before surgery to determine normal appearance, the evening of surgery, morning and evening of the first postoperative day, morning of the second postoperative day, once on the third postoperative day, and once on the fourth postoperative day. Opportunity to verbalize their state of comfort was provided at each visit. On the fourth postoperative day the patient was encouraged to evaluate his hospital stay in terms of comfort. This was used to verify the daily interview findings.

No effort was made to withhold medication. A careful record was made of all medications given as well as such items as temperature, pulse and respiration; diet tolerance; speed and degree of ambulation; and distention problems.

A pilot study was conducted at each hospital on three patients. These patients were visited twice each day throughout the entire time

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[6]Kathleen Newton Shafer and others, Medical-Surgical Nursing (second edition), St. Louis: C. V. Mosby Company, 1961, p. 72.

of their stay to determine what could be observed and what progress seemed normal.

IV. DEFINITION OF TERMS

The terms defined according to use in this study were:

Fomentation

"Fomentations are made of cloth, part wool and part cotton, and are of proper thickness so as to hold moisture and still not become soggy. These are applied to the patient within layers of dry material. They have to be renewed frequently."[7]

Alternate Hot-and-Cold Treatment

An alternate hot-and-cold treatment was a hot wet foment to the chest for three minutes, followed immediately by rubbing the area briskly with a piece of ice for fifteen to thirty seconds. This combination was repeated two more times to give a total of six alternations in one treatment, ending with the ice. The skin was dried immediately and the patient well covered with blankets. A hot wet foment to the spine and to the feet was applied at the beginning of the treatment and remained there until the end of the treatment.

Operative Day

The operative day was the day on which the surgery was performed.

First Postoperative Day

The first postoperative day was the first day after the day the surgery was performed.

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[7]Fred B. Moor, Clarence W. Dail, and J. Wayne McFarland, Physical Medicine, Loma Linda: College of Medical Evangelists, 1944, p. 35.

SUMMARY

This study was concerned with an observation of two groups of patients having had abdominal hysterectomies. An effort was made to match these groups so that the independent variable would be the application of alternate hot-and-cold treatments.

Criteria and method were determined for use in evaluating the discomfort and progress of each individual.

CHAPTER II

REVIEW OF LITERATURE

Much has been written on pain and its many facets. Only that which is closely related to this study is discussed here.

I. VALUE OF ALTERNATE HOT-AND-COLD TREATMENT

Circulatory Effect

Many studies have been done which prove that the topical application of heat increases circulation both locally and systemically. Abramson, and others, in May of 1961, published a study documenting the value of topically applied wet heat for increasing tissue temperature, increasing local blood flow, and increasing oxygen uptake in the blood.[1] Macleod, Self, and Taylor experimented with wet heat and charted its effect graphically. It raised the temperature of the muscle considerably and increased the blood flow.[2]

Worster stated that the intrinsic action of heat was a vital stimulant but if applied for too long a period, a sedative or depressive reaction would take place. "If only the stimulative action of heat is desired the depressive reaction is avoided by following the heat with a short cold application."[3] He further stated that:

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[1]David I. Abramson and others, "Changes in Blood Flow, Oxygen Uptake and Tissue Temperatures Produced by the Topical Application of Wet Heat," Archives of Physical Medicine and Rehabilitation, 52:305-317, May, 1961.

[2]J. J. Macleod, A. R. Self, and H. B. Taylor, "Effects of Hot and Cold Applications on Superficial and Deep Temperatures," Lancet, 3:645-647, September 25, 1920.

[3]William W. Worster, Elements of Physical Therapy, San Gabriel, California: College Publishing Company, 1952, p. 152.

> Many times a combination of hot and cold applications is desirable. First apply the heat about three minutes for its tonic effect. Then, before the sedative reaction takes place, apply a short cold application which gives a tonic reaction, and continues the tonic effect of heat already received. As a rule, only three applications of each kind are used, giving a continuous tonic action. If more than three are applied the body may fail to react to the cold, thereby losing the tonic action.[4]

His findings were supported by a study showing that by alternating hot and cold applications, the beneficial properties of both hot and cold could be obtained without the disadvantages of either, resulting in stimulated metabolism, increased oxidation of toxins, increased enzyme action, increased vasomotor tone, and increased circulation.[5]

Joan E. Cash emphasized the need for increased blood circulation for hysterectomy patients to combat the formation of thrombi.[6] Thrombophlebitis of the vessels of the pelvis and upper thighs is rather common in hysterectomy because of interference with circulation.[7] Miller and Avery also supported the contention that, following a hysterectomy, circulation should be stimulated after recovery from the anesthetic.[8]

Respiratory Effect

Another study reported that postoperative respiratory complications were sometimes due to a depression of the respiratory system by the

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[4]Ibid., pp. 132-133.

[5]Fred B. Moor, Clarence W. Dail, and J. Wayne McFarland, Physical Therapy, Loma Linda, California: College of Medical Evangelists, 1944, pp. 19-20.

[6]Joan E. Cash, Physiotherapy in Some Surgical Conditions, London: Faber and Faber Limited, 1955, p. 259.

[7]Kathleen Newton Shafer and others, Medical-Surgical Nursing (first edition), St. Louis: C. V. Mosby Company, 1958, p. 485.

anesthetic, sedative, opiates, or postoperative pain.[9] Sadove and Cross stated that activity and encouraged deeper respiration post-surgically was essential:

> Although postoperative pneumonia is at present a rather rare occurrence in most modern hospitals, atelectasis is found rather frequently. In fact, the more frequently one searches for this complication, the more apt one is to find it.[10]

They further stated that "almost all of the commonly used narcotics depress the cough reflex and the ciliary activity. These are the two clean-up mechanisms of the lungs. When they are depressed, secretions tend to build up, predisposing to atelactasis."[11]

It was found that the application of ice during an alternate hot-and-cold treatment encouraged deeper inspiration. "In the application of cold the respiration is at first irregular and spasmodic. Soon, however, breathing becomes deeper, regular and somewhat slower with an increase in tidal air."[12]

Sedative Effect

The analgesic property of heat application was confirmed in several studies. Moor, Dail, and McFarland stated that the action was

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[8]Norman F. Miller and Hazel Avery, Gynecology and Gynecologic Nursing, Philadelphia: W. B. Saunders Company, 1959, p. 435.

[9]Esther M. McClain and Shirley Hawke Gragg, Scientific Principles of Nursing, St. Louis: C. V. Mosby Company, 1959, p. 470.

[10]Max S. Sadove and James H. Cross, The Recovery Room, Philadelphia: W. B. Saunders Company, 1956, p. 129.

[11]Ibid., p. 127.

[12]Moor, Dail, and McFarland, op. cit., p. 80.

not entirely clear but it was believed that heat stimuli blocked painful ones traveling along the nerves.[13] Another researcher showed that "the close association of heat-conveying and pain-conveying fibres and tracts no doubt explains the efficacy of heat in the treatment of painful conditions."[14] Kimber further showed that:

> Pain arising in the internal organs is often located very inaccurately. . .Pains of this kind are spoken of as REFERRED PAINS. It has been shown that the different visceral organs have a more or less definite relation to certain areas of the skin. Pains arising from stimuli acting upon the intestines are located in the skin of the back, loins, and abdomen, in the area supplied by the ninth, tenth and eleventh thoracic nerves.[15]

It was also established that impulses from an area of referred pain and from a diseased viscus, giving rise to referred pain, entered the same segment of the spinal cord.[16]

II. PAIN TOLERANCE

Perceiving Pain

A report by Shafer and others showed that perception of pain was quite uniform. It took the same amount of pain stimuli given to the majority of persons to produce an awareness of the presence of pain, regardless of the individual's age or emotional makeup. However, reaction to or tolerance of this pain stimuli varied greatly and was based on subjective reaction to pain. Thus they concluded that pain

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[13]Moor, Dail, and McFarland, op. cit., p. 62.

[14]Matthew B. Ray, "Physiologic Principles of Physiotherapy," British Journal of Physical Medicine, 13:202, September, 1950.

[15]Diana Clifford Kimber and others, Anatomy and Physiology (fourteenth edition), New York: Macmillan Company, 1961, p. 641.

[16]Moor, Dail, and McFarland, op. cit., p. 24.

had never been satisfactorily defined or clearly understood and could not be compared.[17]

Ferguson and Scholtis found that Negroes, Chinese and Germanic races bore pain well while Jewish, Italian and other Latin races did not.[18] A study by Chapman and Jones proved the opposite. They showed that Negroes and Southern Europeans perceived pain at a lower level or sooner than did those of Northern European stock. They also found that the Negro reacted to pain much sooner after it had been perceived than did the Northern European.[19] Another comparison was conducted on the perception of pain by Indians, Eskimoes and White subjects. These researchers found no significant difference between the three groups.[20]

In writing of studies which have been done in an attempt to determine factors which influence the pain threshold, Beecher concluded the following: "The disturbing fact is, no studies on pain threshold have controlled even the majority of the possible significant sources of variations."[21]

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[17]Kathleen Newton Shafer and others, Medical-Surgical Nursing (second edition), St. Louis: C. V. Mosby Company, 1961, p. 69.

[18]Kraeer L. Ferguson and Lillian A. Sholtis, Eliason's Surgical Nursing, Philadelphia: J. B. Lippincott Company, 1959, p. 207.

[19]William P. Chapman and Chester M. Jones, "Variations in Cuteneous and Visceral Pain Sensitivity in Normal Subjects," Journal of Clinical Investigation, 23:81-91, January, 1944.

[20]J. P. Meehan, A. M. Stoll and J. D. Hardy, "Cuteneous Pain Threshold in Native Alaskan Indian and Eskimo," Journal of Applied Physiology, 6:397-400, January, 1954.

[21]Henry K. Beecher, Measurement of Subjective Responses, New York: Oxford University Press, 1959, p. 136.

Evidences of Pain

It was further reported that there were clues that revealed the presence of discomfort even though the individual might not express it verbally. These were pinched facies, profuse sweating, patient curled up in bed, or patient tossing about in bed.[22] Levine supported this contention by stating that if an individual were in pain and could not get up and walk around, he would keep shifting his position to get relief.[23]

The survey of literature indicated that the perceiving of pain and degree of reaction to it varied from individual to individual; however, discomfort could be evaluated by the nurse by making use of the above-mentioned clues.

III. HARMFUL EFFECTS OF NARCOTICS

The harmful effects of narcotics are listed in pharmacology textbooks and in commercial literature accompanying the drug. The review of literature revealed that while the limited use of narcotics was helpful, there is a constant need to discover measures which reduce their necessity.

> The patient should not be given more of a narcotic than is necessary. Larger amounts increase the chance of side reactions and toxicity, and especially tolerance and addiction. . . .Opiates and opiods should be given as infrequently as possible, as this will also prevent the possibility of tolerance, addiction and side reactions. A prescription for a narcotic should not be written in such a manner that the patient is given the drug at regular

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[22]Shafer and others, op. cit., p. 72.

[23]Samuel A. Levine, Clinical Heart Disease (fifth edition), Philadelphia: W. B. Saunders, 1958, p. 133.

> intervals, but rather directions should be given for its administration according to need. . . .The number of doses should be limited, and in general the drug should rarely be ordered for longer than a two-day period.[24]

SUMMARY

The review of literature unanimously supported the contention that topically applied wet heat stimulated circulation and general body metabolism. Further studies showed that the proper combination of heat and cold intensified this effect.

Numerous studies were available on the perception of pain. Many theorized as to why individuals reacted to pain so differently. Such factors as fear, culture, and emotional stability proved to be some of the determinants. The literature stated that much remained to be done experimentally in this field.

The danger of addiction from the overuse of narcotics was recognized long ago. More recent studies showed that addiction is a constantly growing hazard, even within the medical profession. It was further shown that these drugs performed a necessary function, but it was recommended that every effort be made to limit their use to only those times and situations when nothing else would do the job.

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[24]Max S. Sadove and James H. Cross, The Recovery Room, Philadelphia: W. B. Saunders Company, 1956, p. 52.

CHAPTER III

THE METHOD OF STUDY

In this study the experimental method was chosen because "in experimentation the investigator controls (manipulates or changes) certain independent variables and observes the changes that take place in the form of dependent variables."[1] The major circumstance which varied was the giving of alternate hot-and-cold treatments to the subjects at the Loma Linda Sanitarium and Hospital. These were not given to subjects at the White Memorial Hospital.

I. DEVELOPING THE EVALUATION FORM

Selecting Criteria

A method for measuring general well-being in the post-hysterectomy patient was developed. This could only be done accurately if each patient were personally interviewed as well as observed. Therefore a patient-evaluation form was chosen as the tool. All evaluation was done by the investigator. The patient's chart was used to give information about the patient's background and to verify the verbal information supplied by the patient to the interviewer.

A review of literature revealed that while pain could not be accurately observed or described, patient discomfort was a sign which the nurse was expected to identify when judging the need for administering medications. The nursing textbooks refer to observation of

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[1]Carter V. Good, Introduction to Educational Research, New York: Appleton-Century-Crofts, Incorporated, 1959, p. 358.

discomfort in various ways. A check-list of seven clues indicating patient discomfort was chosen from Shafer's 1961 textbook on medical-surgical nursing. These clues were pinched facies, wrinkled brows, clenched teeth, tightened fists, profuse sweating, curled in bed, and tossing about.[2]

The evaluation form (see Appendix) included the clues to discomfort, an area for the recording of patient interviews; and a space for information regarding diet, ambulation and distention throughout the entire hospital stay. Temperature, pulse and respiration were noted on admission and whenever taken through the fourth post-operative day. Postoperative medications were noted throughout the entire hospital stay.

Such factors as the doctor involved, culture, religion, socio-economic status, height and weight were not restricted but information regarding these was noted on the evaluation form for later analysis to find out if it appeared to influence the results.

Evaluating Criteria

After the criteria had been selected they were verified by a panel of experts consisting of two clinical instructors in nursing, one head nurse, and two staff nurses.

II. CONDUCTING THE PILOT STUDY

A pilot study was conducted at each hospital to find out if the criteria were observable and to refine the procedure. Three patients

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[2]Kathleen Newton Shafer, and others, Medical-Surgical Nursing (second edition), St. Louis: C. V. Mosby Company, 1961, p. 72.

were chosen at each hospital and it was decided to observe them twice daily for their entire stay to look for intangibles. They were not included in the twenty at each location used for this study.

At this time it was discovered that the surgery schedule at the White Memorial Hospital was not available until after seven of the evening before surgery. The observer lived a distance of sixty miles from Los Angeles and when observing patients in that area would have to travel this distance and be there to interview patients by no later than eight p.m. In order to eliminate the necessity of having to travel this distance if no abdominal hysterectomy patients were scheduled for surgery, arrangements were made with the admitting department to request this information from them by telephone by no later than five-thirty p.m.

Use of the Form

Each of these three patients was seen the night before surgery so the interviewer could observe her apparently-normal appearance. The patient was introduced to the study at this time. Each was told that the interviewer was a graduate nurse doing a study on her type of condition and that the interviewer would be in to see how she was getting along for a few days after surgery. Introduction after surgery was decided against because of the possibility of confusing or frightening the patient while still anesthetized or narcotized.

The seven clues to patient discomfort were used by the interviewer on the evening of surgery, morning and evening of the first post-operative day and on the morning of the second postoperative day. During that time the patient's evaluation of her own condition needed verification because she was narcotized.

At each interview throughout the study the patient was asked how she felt at the time and also during the preceding day or night. She was also asked what and how much she was eating and her reaction to food, her reaction to and degree of ambulation, and the degree to which she thought she had distention.

Although the clues for discomfort were used only for the days stated previously, all other questions were asked twice daily during the pilot study, throughout the patient's stay in the hospital.

Observation of the patient on the third and fourth post-operative day was found necessary as progress was still variable. Time of interview did not seem to influence the findings so no specific time was set for the third day. The fourth day interview was set for 7:30 p.m.

As the fourth postoperative day interview was the last official interview, it was decided that the interviewer's findings should be checked by the patient's evaluation of her own hospital stay. She was asked to state which day had been the most difficult and to discuss her interest in recovery. Replies were only designated as positive or negative. There was no difficulty in categorizing these replies into one of the two extremes.

At the Loma Linda Sanitarium and Hospital abdominal hysterectomy patients were assigned to both the surgical and the obstetrics units. An alternate hot-and-cold treatment at this hospital consisted of a hot foment to the back and to the feet and an alternation of three hot foments with three rapid ice rubs to the chest.

These alternate hot-and-cold treatments were routine to all post-surgery patients with the exception of those surgeries involving the chest or kidney. The doctors on the staff had adopted this procedure.

The treatments were given the evening of surgery, morning and evening of the first postoperative day and morning of the second postoperative day. Routine explanation of the treatment was made but patients were not especially prepared emotionally for this procedure in any way. As most postsurgical patients received the treatment, they did not know that the alternate hot-and-cold treatments were being evaluated as the experimental item.

It was necessary that these treatments be given accurately so the supervisors were requested to re-emphasize to the staff the proper method of giving these treatments and to encourage the staff to give the second treatment on the first postoperative day before supper. Both did this.

It was decided to set the interview on the first and second postoperative day at a time which would not immediately follow the receiving of the alternate hot-and-cold treatment. Thus the morning interview was conducted before nine a.m. and the evening interview after 7:30 p.m. The afternoon treatment was given before supper so the condition of the patient observed was not the immediate result of the treatment.

Modifications Made

Analysis of the findings of the pilot study showed the importance of noting the starting date of diet and daily progress. The patient was not considered fully recovered as to diet until she could tolerate a general diet. It was necessary to determine the meaning of "to tolerate" a general diet. "To tolerate" meant that the patient had eaten at least half the meal without any resulting nausea, vomiting, distention, or discomfort. Information on the patient's chart regarding

diet, ambulation and distention was often found to be inadequate or incomplete and it was therefore decided to question the patient directly on these items and then verify with chart findings wherever possible. An example of this need was demonstrated by the fact that a patient might be charted as having eaten a soft diet because that was the diet served while in actuality she drank only the liquids from the tray.

In analyzing the evaluation of discomfort it was decided that the patient would be classed as having discomfort during the first two postoperative days if some of the clues were evident and if the patient stated that she was and had been uncomfortable. The patient's statement alone sufficed for the third and fourth postoperative day interviews. If a patient said she was uncomfortable right at the time but had just had medication and advised that the medication had been controlling discomfort well, she was categorized as comfortable. In a few cases patients still appeared to have and verbalized discomfort even after maximum medication had been given. These patients were categorized as uncomfortable also.

It was also found necessary to determine what was considered a fully ambulatory patient. To be "fully ambulatory" a patient had to be walking in the hall without assistance and without a great physical depletion of strength. Ambulation progressed through the stages of sitting on the bed, standing at the bedside, sitting in the chair, walking in the room with help, walking in the hall with help and finally full ambulation (moving about at will). The time spent on any step varied with each patient.

Since it was noted that it was possible for the patient to have moderate distention without discomfort, a definition of distention

discomfort had to be determined. "Distention discomfort" was recorded on the evaluation sheet only if the patient's condition was not easily relieved and if she felt discomfort over a period of time. She was considered as being over this discomfort when she could pass flatus without assistance and when distention was so limited that she did not consider herself uncomfortable.

In analyzing the results of the patient's evaluation of progress on the fourth postoperative day, it was evident that certain terms needed clarification. A "positive" outlook was revealed by an individual who had confidence in her surgery and was looking forward to going home. A "negative" outlook was characterized by an individual who appeared apathetic and uninterested. The patient's appearance was evaluated as "listless," "active" or "vigorous." The "negative" patient usually appeared "listless" and although she might be driven to ambulation, she did so without energy or interest and retreated to bed unless forced to do otherwise. "Active" described patients ambulating with interest but with some physical limitations. "Vigorous" described patients who ambulated constantly without apparent limitation--one patient even danced a jig to prove fitness.

III. CONDUCTING THE STUDY

Location and Number of Patients

Permission to conduct this study at the White Memorial Hospital, Los Angeles, California, and at the Loma Linda Sanitarium and Hospital, Loma Linda, California, was obtained from the Directors of Nursing Service. It was agreed that the floor supervisors and head nurses would be told that a study was being conducted but would not be told its nature.

Twenty patients were selected from each of two hospitals. The groups were matched by limiting the study to post-abdominal hysterectomy patients between the ages of thirty and fifty years whose condition was not considered acute at time of surgery and who did not have complications from another illness that might influence their recovery pattern.

Procedure

After careful evaluation of the data obtained from the pilot study, it was decided to set up a similar procedure at both hospitals, as follows:

Patients would be observed and introduced to the study the night before surgery.

They would then be interviewed at seven-thirty the evening of surgery and the check-list of clues for patient discomfort would be used along with the other areas for evaluation.

On the first postoperative day the patients would be observed before nine in the morning and again at seven-thirty p.m. The clues for patient discomfort would again be used in addition to the other criteria.

The patients would be observed before nine in the morning of the second postoperative day and the clues used for evaluation for the last time.

Observation would also be done once on the third postoperative day at any time and once again on the fourth postoperative day at seven-thirty p.m. As the fourth day interview was the last, the patient would be given an opportunity to evaluate her own progress up to this time.

All remaining information necessary to complete the study would be taken from the patient's chart.

The study then proceeded in this manner at both locations.

Time

The study was begun at the White Memorial Hospital during November and December, 1961. The focus of the study was then changed to the Loma Linda Sanitarium and Hospital because the researcher moved to that location.

During January and February twenty-three patients were observed at the Loma Linda Sanitarium and Hospital. Three of these were excluded from the study because they did not fit within the limitations. One had a nerve involvement in the shoulder as a result of a previous automobile accident that caused paralysis in the arm and side after surgery. Another was excluded because her surgery was not determined as being vaginal until she was taken to the operating room. The third patient was excluded because she was discovered to be acutely anemic.

During the last week in February the study was again moved to the White Memorial Hospital and continued there until the end of March. Twenty-one patients were observed, one of which was excluded because of severe anemia.

SUMMARY

A patient-evaluation form was created as the tool for this study. Criteria regarding discomfort were chosen from a current medical-surgical nursing textbook which was verified by a panel of experts. An evaluation form was prepared and a pilot study conducted.

Two hospitals were selected--the White Memorial Hospital in Los Angeles, California, and the Loma Linda Sanitarium and Hospital, Loma Linda, California. Twenty patients were chosen from each hospital and were matched as far as possible excepting for the one independent variable--the giving of alternate hot-and-cold treatments postsurgically at the Loma Linda area.

After careful analysis of the pilot study the actual study was conducted. It did not include those patients used for the pilot study.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

I. FINDINGS OF THE EVALUATION

This chapter contains a presentation and analysis of the data collected as a result of postoperative evaluation of abdominal hysterectomy patients at two selected hospitals.

Temperature, Pulse and Respiration

Comparison of the temperature, pulse and respiration findings for both groups showed that admitting temperature varied by 1.4 degrees and ranged from 98° to 99.4° for both groups. The pulse on admission for the control group ranged from 68 to 99 beats per minute while that for the experimental group ranged from 72 to 100. Respirations for the control group ranged from 12 to 20 per minute and those of the experimental group from 16 to 22. Since pulse and respiration varied correspondingly with temperature elevation and depression, it was not necessary to state it further in the data analysis.

At the experimental area temperatures were taken consistently four times a day, at 8 a.m., 12 noon, 4 p.m., and 8 p.m. At the control area temperatures were taken consistently at 8 a.m. and 4 p.m. daily but varied greatly as to when taken at 12 noon and 8 p.m. Thus the evening of the operative day at the control area only eleven of twenty temperatures were taken, at 8 p.m. of the first postoperative day twelve of twenty were taken, at 8 p.m. of the second postoperative day ten of twenty were taken, at 8 p.m. of the third postoperative day eleven of 20 were taken, and at 8 p.m. of the fourth postoperative day

four of 20 were taken.

The highest temperature elevation at the control area was 101.2° taken at 8 p.m. on the first postoperative day. The next highest elevations were 100.8° and under. The highest elevation at the experimental area was 102° taken at 8 p.m. on the first postoperative day. The next highest elevation was 101° and this also was an 8 p.m. reading. The remainder of the readings were 100.8° and under.

At the control area the greatest number of temperatures of 100° or over occurred at 4 p.m. on the first postoperative day when there were six. The greatest number at the experimental area was seven, occurring at 8 p.m. on the first postoperative day. Since only twelve of twenty temperatures were taken at this hour at the control area, a fair comparison could not be made. Readings taken at 4 p.m. of the first postoperative day at the experimental area also showed six temperature elevations of 100° or over.

Although it was noted that the temperature picture at the control area was not sufficiently complete to do an accurate comparison with the experimental area, by excluding the 12 noon and 8 p.m. findings at both areas a reasonable comparison could be made. No significant variation was found between the two areas.

Medications

Patient need for medication to relieve pain after return from the post-anesthesia room could not be determined accurately because at the control area six patients received medication for the first twenty-four hours as a "must" order rather than when they needed it. At the experimental area three patients received medications in this way also.

Table I shows that patients at the control area received 16,250 milligrams of Demerol while those at the experimental area received 15,875 milligrams. A routine dose consisted of the quantity that would customarily be ordered for the patient.

Additional medications given at the control area were thirty-nine doses of Empirin #3 with Codeine, two of Phenaphen #5 with Codeine grains one-half, two of Codeine grains one-half, three of Phenaphen #3, three of Acetylsalycic Acid grains five and ten of Acetylsalycic Acid grains ten.

Additional medications given at the experimental area were eight doses of Empirin #3 with Codeine, sixteen of Dilaudid grains 1/32, twelve of Nisentil forty milligrams, and seven of Numorphan 1.5 milligrams.

A slightly higher amount of pain relieving medication was given at the control area.

Discomfort

At each area each patient was observed a total of six times--thus giving them individually six chances to express comfort or discomfort. There were twenty patients at each location, giving each area a total of 120 chances for discomfort.

Table II shows that at the control area the patients expressed discomfort a total of fifty-one out of 120 times. At the experimental area the patients expressed discomfort a total of twenty-six out of 120 times. Using chi square to verify these findings it was found that the probability of these figures having significance was 999 times out of 1000.

TABLE I

PAIN MEDICATION RECEIVED BY PATIENTS AFTER RETURN
FROM POST-ANESTHESIA ROOM

Patients	Demerol (in mg.)		Empirin #3 with Codeine (tab 1)*		Dilaudid (gr. 1/32)		Phenaphen #5 with Codeine (gr. ½)		Phenaphen #3		Nisentil (40 mg.)		Numorphan (1.5 mg.)		Codeine (gr.½)		A.S.A. (gr. V)		A.S.A. (gr. X)	
	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E
Patient No. 1	900	1,000																		
Patient No. 2	1,425	900																		
Patient No. 3	1,250	900		2		2														
Patient No. 4	1,200	1,225	5	3																
Patient No. 5	1,175	700																		
Patient No. 6	800	1,500					2										1		9	
Patient No. 7	1,575	500																		
Patient No. 8	1,400	1,000	1																	
Patient No. 9	825	600	4																	
Patient No. 10	1,000	1,200																		
Patient No. 11	500	900															1		1	
Patient No. 12	400	1,000	13																	
Patient No. 13	375	125		1		14														
Patient No. 14	200	1,550																	1	
Patient No. 15	200	375	11																	
Patient No. 16	350	300	4																	
Patient No. 17	850	300							1											
Patient No. 18	500											12								
Patient No. 19	975	1,200		2					2					7						
Patient No. 20	350	600	1													1				1
Totals	16,250	15,875	39	8	0	16	2	0	3	0	0	12	0	7	2	0	3	0	10	

*Routine Dose
C - Control Area
E - Experimental Area

TABLE II

NUMBER OF TIMES DISCOMFORT EXPRESSED
BY EACH PATIENT

Patient	Control Area	Experimental Area
Patient No. 1	2	2
Patient No. 2	5	1
Patient No. 3	4	0
Patient No. 4	2	1
Patient No. 5	4	0
Patient No. 6	2	3
Patient No. 7	2	1
Patient No. 8	2	1
Patient No. 9	3	1
Patient No. 10	1	1
Patient No. 11	4	2
Patient No. 12	1	3
Patient No. 13	1	2
Patient No. 14	3	2
Patient No. 15	0	1
Patient No. 16	2	1
Patient No. 17	4	2
Patient No. 18	2	0
Patient No. 19	4	1
Patient No. 20	3	1
Totals	51	26

Diet

At the control area five patients began taking fluids orally on the first postoperative day, thirteen on the second postoperative day and the remaining two on the third postoperative day. At the experimental area two patients began taking fluids orally on the evening of the operative day, fifteen on the first postoperative day and the remaining three on the second postoperative day.

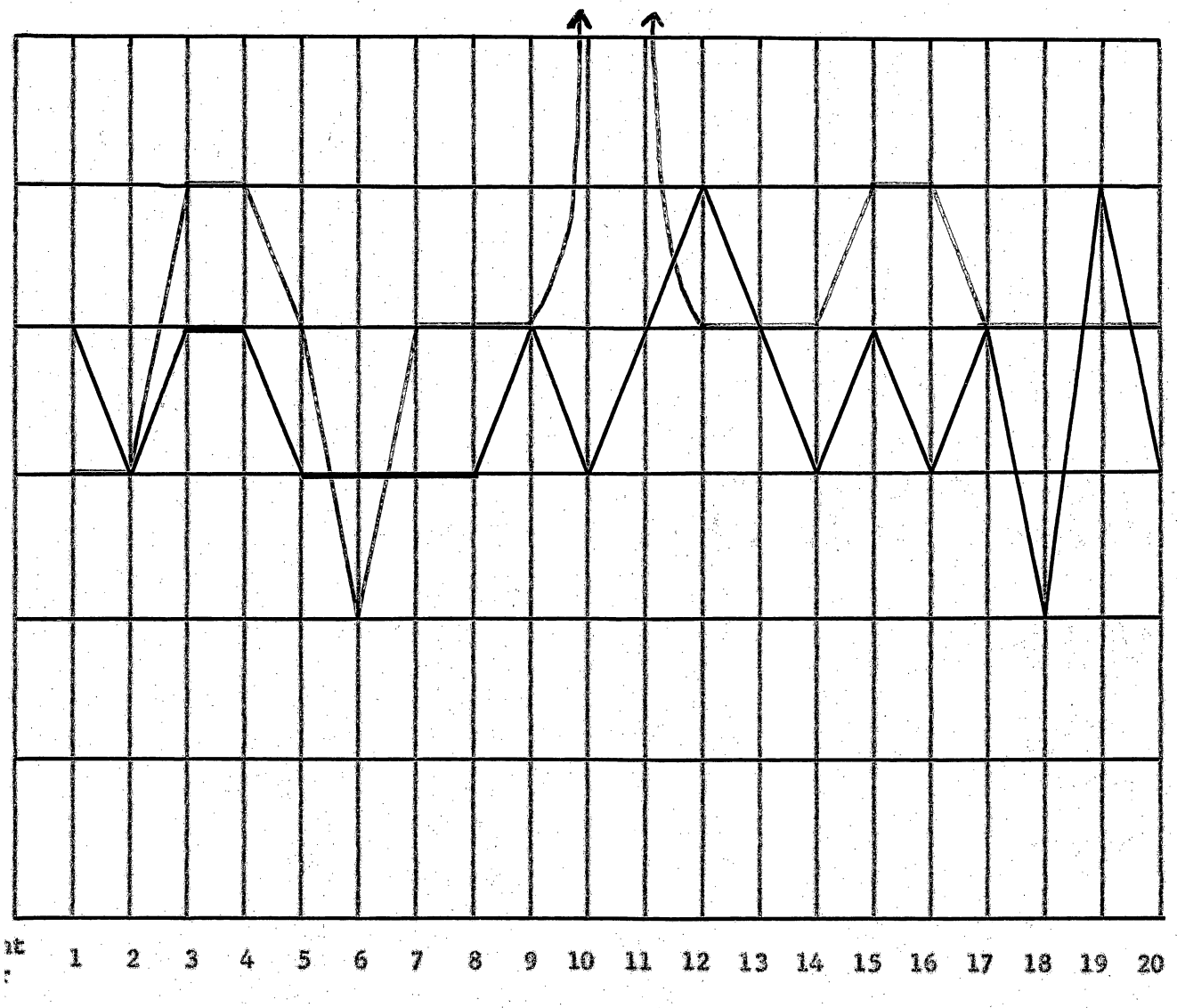
Variations in the time when each patient could tolerate a general diet can be seen graphically in Figure 1. At the control area one patient tolerated a general diet on the second postoperative day, two on the third, eleven on the fourth, four on the fifth and two were discharged on the sixth postoperative day and were still on a soft diet. One of the experimental area patients was tolerating a general diet on the second postoperative day, nine on the third, eight on the fourth and the remaining two on the fifth.

Ambulation

In Table III both beginning ambulation and complete ambulation are shown.

At the control area fifteen patients began ambulation on the first postoperative day and the remaining five on the second. At the experimental area six patients began ambulation on the first post-operative day, eleven on the second, one on the third and two on the fourth.

One patient at the control area was fully ambulatory on the second postoperative day, five on the third, seven on the fourth, and seven on the fifth. One of the experimental area patients was fully



Key: Control Area _____; Experimental Area _____

POD = Postoperative Day

Figure 1

THE FIRST POSTOPERATIVE DAY ON WHICH THE PATIENT FIRST TOLERATED A GENERAL DIET

TABLE III

POSTOPERATIVE DAY WHEN AMBULATION BEGAN
AND WHEN FULLY AMBULATORY

Patient	Ambulation Began		Fully Ambulatory	
	Control	Experimental	Control	Experimental
Patient No. 1	2	2	4	3
Patient No. 2	1	2	5	3
Patient No. 3	2	2	5	4
Patient No. 4	1	2	4	3
Patient No. 5	1	1	3	2
Patient No. 6	1	3	2	4
Patient No. 7	2	1	5	3
Patient No. 8	1	2	4	3
Patient No. 9	1	2	5	4
Patient No. 10	1	2	4	4
Patient No. 11	1	1	5	4
Patient No. 12	2	4	4	5
Patient No. 13	1	2	5	4
Patient No. 14	1	4	3	5
Patient No. 15	1	2	3	4
Patient No. 16	1	2	4	3
Patient No. 17	2	1	5	4
Patient No. 18	1	1	4	3
Patient No. 19	1	1	3	3
Patient No. 20	1	2	3	3

ambulatory on the second postoperative day, nine on the third, eight on the fourth and two on the fifth.

Distention

Seven patients at the control area had no noticeable discomfort from distention. Three others had overcome it by the second postoperative day, seven by the third, one by the fourth, one by the fifth and one by the sixth.

Twelve patients at the experimental area had no noticeable discomfort from distention, two others had overcome it by the second postoperative day, four by the third, and two by the fourth.

Relief from distention was obtained in a similar way at both areas by the use of the Harris Flush, rectal tube, enema and suppository.

Patient Evaluation of Progress

Patient attitude toward recovery in the control group showed seventeen positive and three negative. Five appeared listless, ten active and five vigorous by the fourth postoperative day.

All twenty of the experimental group had a positive attitude toward recovery. None appeared listless, fourteen were active and six were vigorous by the fourth postoperative day.

Patient evaluation of which hospital day they considered the most difficult showed at the control area that one chose the operative day, five the first postoperative day, eleven the second, two the third and one the fourth. At the experimental area two chose the operative day, five the first postoperative day, seven the second, five the third and one the fourth. At each area more chose the second postoperative day than any other.

II. FACTORS WHICH AFFECT THE FINDINGS

Age, Culture, Religion and Socioeconomic Status

All patients at both areas were between the ages of thirty and fifty years.

At the control area five patients were in their thirties and the remaining fifteen in their forties. This was also true of the experimental area. The age distribution of both groups is illustrated in Table IV. The age occurring most often in the control group was forty-two while that for the experimental group was forty-one.

TABLE IV

AGE DISTRIBUTION OF PATIENTS INCLUDED IN THIS STUDY

Age	Number in Control Group	Number in Experimental Group
30	1	
33	1	
35		2
36	1	1
38	2	1
39		1
40	1	2
41		5
42	6	2
43	1	2
44	2	
45		1
46	1	
47	1	
48	2	2
49	1	1

The control group was composed of ten Caucasians, one Oriental, and nine Negroes. The experimental group was composed of seventeen Caucasians and three Negroes. The factor of race did not appear to influence the findings in any way.

The religion of the control group was protestant and included one Seventh-day Adventist, one Assembly of God, one Methodist, nine Baptists and eight others. That of the experimental group was three Catholics and seventeen protestants including three Seventh-day Adventists, one Latter-day Saint, one Lutheran, four Baptists and eight others. No influence from this factor was noted.

Nineteen of the twenty in the control group had hospitalization insurance. Eleven were private patients and nine were clinic patients. All twenty of the experimental group were private patients and had hospitalization insurance. There was no obvious financial need noted in any situation.

Height and Weight

Height ranged from 4 foot 11 inches to 5 foot 9½ inches at the control area and from 5 foot to 5 foot 8 inches at the experimental area. Weight at the control area ranged from 115 to 185 pounds while weight at the experimental area ranged from 107 to 209½ pounds. There was no evidence at either area that overweight or underweight in any way affected patient progress or discomfort.

Previous Surgery

Nine of the twenty patients at the experimental area had had previous surgery experience while eleven of the twenty at the control area had had previous surgery.

Day of Discharge

The date of discharge varied greatly at each hospital and was found to be controlled more by the policy of the doctor and the hospital than by the condition of the patient--two patients went home on the

sixth postoperative day who had not yet tolerated a general diet.

At the control area the greatest number of patients went home on the sixth postoperative day and at the experimental area on the seventh postoperative day.

III. OTHER FACTORS WHICH MAY HAVE INFLUENCED FINDINGS

When the study was begun at the White Memorial Hospital, all abdominal hysterectomy patients were being cared for on the fourth floor surgical unit. Fomentations were not routinely ordered post-operatively for clinic patients for relief of pain and only two of the first seven patients received them.

When the study was again taken up at the control area, a new resident had been assigned to the unit. He began to assign abdominal hysterectomy patients to the third floor surgical unit and to order fomentations three times daily or when necessary for relief of pain for the clinic patients. This meant that the last thirteen patients at the control area had a different physical setting than did the first seven and that nine of the last thirteen patients received fomentations for relief of pain.

There was a noticeable decrease in the amount of pain-relieving medication given to the last ten of the patients at the control area compared to that given to the first ten. However, this could not be contributed to the addition of these fomentations because patients at the experimental area also received a little less pain-relieving medications during the last half of the study.

The significance of this item was further challenged by the fact that while three of the patients at the control area were given

only 100 milligrams of Demerol plus fomentations for control of pain during the twenty-four hours of the first postoperative day, two of them stated discomfort and appeared uncomfortable at both interviews on that day. Thus it seemed successful relief of pain was presumed, therefore no follow-up medication was given even though the patient still claimed discomfort.

Another item which challenged the significance of the findings of the study was that in at least three instances at the control area, patients stated discomfort for several hours without receiving pain-relieving medication. These patients did not realize that they could have medication to relieve discomfort and thought they must tolerate the condition until the nurse in charge initiated the giving of the medication.

Distress from abdominal distention at the control area was less for the last half of the study than for the first but distention distress was less frequent at the experimental area than at the control area. This pointed toward the possibility that the giving of fomentations and of alternate hot-and-cold treatments aid indirectly in minimizing discomfort from distention.

SUMMARY

Temperature findings were essentially the same for both areas.

Medication ordered in the post-anesthesia room at both locations was Nisentil 20 milligrams. Patients received one dose.

Tabulation of medications for the relief of pain at both areas showed slightly more medications were given at the control area than at the experimental. This could have been influenced by the fact that six of the patients there had "every four hour" medication ordered for

the first twenty-four hours while only three had this type of medication order at the experimental area. However, it might then be assumed that those patients at the control area who received a greater quantity of medication should have less discomfort. The opposite was shown to be true.

Of the patients at the control area, fourteen were on a general diet by the fourth postoperative day while eighteen were on a general diet by the fourth postoperative day at the experimental area.

Patients at the control area began to ambulate sooner than those at the experimental area but only thirteen were fully ambulatory by the fourth postoperative day while at the experimental area eighteen were fully ambulatory by the fourth postoperative day.

Distention was not a great problem at either area but twelve patients at the experimental area did not have any, whereas seven of those at the control area avoided it.

Age did not appear to affect patient discomfort. The oldest patient in each group did not experience the greatest discomfort nor progress more slowly.

Although it is believed by many that the Negro race is less affected by pain, the nine Negro patients at the experimental area required the average amount of medication and they were neither highest or lowest in their claim of discomfort. Of the three included in the experimental group, two required an average amount of pain medication and one required the maximum amount of medication used for any one patient at that area. Discomfort expressed for these three was average for the group.

Some concern had been expressed that religious beliefs might influence the expression of discomfort and consequent need for pain medication. Of the faiths represented in these two groups, the Seventh-day Adventist might logically hold prejudice against the taking of pain medication. Only one of the control group was a Seventh-day Adventist and she required the average amount of pain medication. Three of the experimental group were Seventh-day Adventists. One required minimum medication, one the average amount, and one the maximum.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to see if the giving of alternate hot-and-cold treatments to the chest following abdominal hysterectomy would result in any measurable benefit to the patient, thus justifying their use.

I. SUMMARY

It was hypothesized that the giving of alternate hot-and-cold treatments postoperatively affects the comfort and the recovery rate of the patient.

Review of literature revealed studies supporting the claim that topically applied wet heat increased tissue temperature, local blood flow, and oxygen uptake in the blood. Other researchers further showed that a depressive reaction followed the stimulative action of heat and that this could be avoided with a short cold application, preferably for not more than three changes per treatment. In this way the beneficial properties of both heat and cold could be obtained without the disadvantages of either.

The possibility of thrombophlebitis in the pelvis was found to be common in hysterectomy. It was also noted that anesthetics and narcotics depressed the respiratory system and atelectasis often resulted. The application of ice as a part of the alternate hot-and-cold treatment encouraged deeper respiration.

The literature pointed out that wet heat had an analgesic action and thus contributed to comfort. The studies concerning the effect of

cultural factors on tolerance of pain showed conflicting conclusions. This was noted by one researcher as being the result of the inability to control the vast amount of significant sources of variation. Researchers stated that the use of narcotics was helpful but that they should be limited as much as possible.

The experimental method was used in this study. Twenty patients were chosen from each of two hospitals. The patients selected for this study were those who had abdominal hysterectomies, without complication or acute condition, and were between the ages of thirty or fifty years. The constant variable was the application of alternate hot-and-cold treatments postoperatively at the experimental area.

Data were gathered on an evaluation form created for the purpose. On this the observer noted pertinent facts of identification about the patient from the chart. She also made an initial visit to the patient for the purpose of introducing the patient to the study. Thereafter the observer interviewed the patient on the evening of surgery, morning and evening of the first postoperative day, morning of the second postoperative day and on the third and fourth postoperative days. Observations were noted at each interview regarding patient comfort, progress in diet and ambulation, and involvement with distention.

On the fourth postoperative day the patient was encouraged to evaluate her progress.

Variables which might influence the study such as culture, religion, socioeconomic status, height, and weight, were noted on each patient and kept for further analysis. In addition the patient's temperature, pulse and respiration were recorded through the fourth postoperative day, and all pain-relieving medications given postoperatively were noted.

A check list of seven clues by which a nurse may observe patient discomfort was also filled out during the first four visits following surgery. It was necessary to use these clues for verification since the anesthetic and narcotics administered might decrease the patient's ability to evaluate her condition.

The evaluation procedure and form used were first tested in a pilot study on three patients at each area. These patients were not included in the final study.

II. CONCLUSIONS

The hypothesis that the giving of alternate hot-and-cold treatments to the chest postoperatively affects the comfort and recovery rate of the patient may probably be accepted in many areas.

Temperature, pulse, and respiration were not taken routinely as often at the control area as they were at the experimental area. Results obtained showed these items were not influenced by the application of the hot-and-cold treatments.

Patients at both areas varied greatly from each other in their receipt of pain-relieving medication following surgery. A slightly smaller total amount was given at the experimental area but the significance of this finding was modified by the fact that six patients at the control area received pain-relieving medication every three-to-four hours for the first twenty-four hours, rather than as needed. Only three patients at the experimental area received pain-relieving medication in this way. These findings could not be considered positive.

At the control area three patients tolerated a general diet by the third postoperative day and fourteen by the fourth. At the

experimental area ten tolerated a general diet by the third postoperative day and eighteen by the fourth.

Rate of ambulation showed the same slight margin in favor of the patients at the experimental area. Ten were fully ambulatory by the third postoperative day and eighteen by the fourth. At the control area six were fully ambulatory by the third postoperative day and twelve by the fourth.

Involvement with distention showed that seven patients at the control area had no noticeable discomfort from distention while twelve of the experimental patients did not have discomfort.

Since progress in diet, ambulation and distention at the experimental area was positive, there seems to be a trend in favor of giving hydrotherapy postoperatively. However, considering that only twenty patients were studied at each location, these results should not be considered conclusive.

Discomfort was the one area which showed significant findings. Patients in each category had 120 opportunities to show discomfort. Those at the control area showed discomfort 51 times while those at the experimental area showed discomfort 26 times. This was found to be significant at the one per cent level of confidence using the chi square formula.

A significant difference was noted in discomfort; there seemed to be a trend toward greater benefits in the areas of diet, ambulation and distention; and there was no observable difference in temperature, pulse and respiration, and in the use of pain-relieving medications.

The other factors such as culture, religion, socioeconomic

status, height, weight, and previous surgery did not appear to influence the findings at either area.

These findings suggest that the giving of alternate hot-and-cold treatments can be justified.

III. RECOMMENDATIONS

On the basis of the findings of this study it is recommended that:

1. Consideration be given for repeating this study with a larger number of patients in each group.

2. The application of heat to the wound area for relief of pain be studied.

3. A study be done to determine the actual amount of medication necessary for relief of pain as contrasted with the amount routinely ordered.

4. Atelectasis be studied postoperatively to find out the influence of hydrotherapy on respiration.

5. Nursing service at the experimental hospital make an effort to determine the costs involved in giving these treatments as a criteria to weigh against the advantages they bring.

6. Hospital procedure governing the giving of pain medications include the designation that the individual responsible for their administration be qualified to evaluate patient discomfort and that the patient be visited at least every three to four hours postoperatively so that actual discomfort needs can be observed. The giving of medications or fomentations should be followed up to determine if the patient's need has been met.

7. Hospital procedure emphasize the necessity for appointing a responsible person to inform postsurgical patients how to make their discomfort needs known and to assure them that medications are available if needed.

8. Fomentations be used to relieve discomfort before pain-relieving medication is given.

9. Alternate hot-and-cold treatments to the chest be given postoperatively to abdominal hysterectomy patients.

10. A study be done to find out if hydrotherapy postsurgically would affect wound healing.

11. The type of anesthetic used be studied to see if this factor influenced patient discomfort after surgery.

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APPENDIX

PATIENT EVALUATION FORM

NAME_____ Age_____ Date_____ Room No._____

Address_____ Case Number_____

Race_____ Religion_____ Height_____ Weight_____

Clinic_____ Private_____ Doctor's Name_____

White Memorial Hosp._____ Loma Linda San.___ No. of Children___

Previous Surgeries_____ Reason for Surgery_____

Type of Surgery_____ Date_____ Hour_____

Appearance before Surgery

Medications Given in Surgery

Blood Given

Medications Given in Recovery Room

CLUES DENOTING PAIN AND DISCOMFORT	Date_____ 8 a.m. Yes	No	8 p.m. Yes	No	Date_____ 8 a.m. Yes	No	8 p.m. Yes	No	Date_____ 8 a.m. Yes	No	8 p.m. Yes	No
Pinched Facies												
Wrinkled Brows												
Clenched Teeth												
Tightened Fists												
Profuse Sweating												
Curled in Bed												
Tossing About												

VERBAL QUESTION AND REPLY (Quote)

O.D. 1.
1st P.O.D. 1.
2.
2nd P.O.D. 1.
3rd P.O.D. 1.

4th P.O.D.
1. Pt. Comfort:
2. Pt. Eval. Hospital Stay:
3. Attitude Toward Recovery:
4. Appearance (listless, active, vigorous)

Fomentations Given and Why (Pain or Distention)

Diet

Ambulate

Distention (Discomfort, bowel sounds noted, flatus passed, bowel movement)

How Distention Combatted (Harris Fl., rectal tube, fos., enema, lax., supp.)

Temperature, Pulse and Respiration

	8:00 a.m.	12:00 noon	4:00 p.m.	8:00 p.m.
Admitting				
O.D.				
1st P.O.D.				
2nd P.O.D.				
3rd P.O.D.				
4th P.O.D.				

Wordage of Orders for Postoperative Pain Medication

Medications Given (what, how much, when and why)
Pre-Operative Medication

Post-Operative Medication

Date	Hour	Legend

Date of Discharge

LOMA LINDA UNIVERSITY

Graduate School

EFFECTS OF ALTERNATE HOT-AND-COLD TREATMENT FOLLOWING HYSTERECTOMY

by

Teresa Eileen Holland

An Abstract of a Thesis

In Partial Fulfillment of the Requirements

for the Degree Master of Science

in the Field of Nursing

June, 1962

ABSTRACT

This study was conducted to find out if the giving of alternate hot-and-cold treatments to the chest following abdominal hysterectomy would result in measurable benefits in improved patient comfort and rate of recovery. The White Memorial Hospital was selected as the control area and the Loma Linda Sanitarium and Hospital as the experimental area.

Literature was reviewed to determine the value of wet heat and cold on the circulatory and respiratory system and whether or not their effects would be useful postoperatively.

Studies were further searched to find individual differences in the perception of pain. The influence of age, race, and socio-economic factors was also considered.

The experimental method was used for this study. Twenty patients at each of two hospitals were included and the giving of alternate hot-and-cold treatments to those at the experimental area was the major variable.

Analysis and classification of data were made under the categories of patient comfort; effect on diet, ambulation, distention and temperature; and the amount of pain-relieving medication given. These were presented in tables. Interpretation was made regarding each classification.

Patient comfort was the one category which showed a significant benefit. This was found to be significant at the one per cent level of confidence using the chi square formula.

Progress in diet, ambulation, and distention showed positive findings after the application of the treatments but since the number of patients included in the study was so small, the variation was not considered conclusive. The use of pain-relieving medication did not vary appreciably at either area nor did the elevation or reduction of temperature seem to be affected. Culture, religion, socioeconomic status, height, weight, and previous surgery, appeared to have no bearing on the findings.

Findings of the study were not conclusive but a definite trend was evident pointing to advantages as the result of alternate hot-and-cold treatments. Recommendations were made that the study be repeated with a larger number of patients in each group to validate the results, and that studies be done to find out if the amount of pain medication routinely ordered is the actual amount required, if hydrotherapy postoperatively affects respiration, and if heat applied to the wound site has value in relief of pain.