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Early Nursing Interventions and Their Effect on Fatigue in Patients Receiving Chemotherapy

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**EARLY NURSING INTERVENTIONS AND THEIR EFFECT
ON FATIGUE IN PATIENTS RECEIVING CHEMOTHERAPY**

BY

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A THESIS

**Submitted to Grand Valley State University
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ABSTRACT

EARLY NURSING INTERVENTIONS AND THEIR EFFECT ON FATIGUE IN PATIENTS RECEIVING CHEMOTHERPY

By

Karla Baker RN

Fatigue is the number one side effect that patients experience when they receive chemotherapy. They do not always expect it or know what to do when it effects their entire life. This study described the affect of early nursing interventions on fatigue caused by chemotherapy. This descriptive, two group comparative study used a convenience sample of patients, receiving chemotherapy for the first time, to determine the degree of fatigue they experienced. A tool by Barbara Piper RN (1997) was used to describe the effect of early intervention on fatigue experienced by cancer patients undergoing chemotherapy. Internal consistency of this tool was previously determined to be .97 per Cronbach's alpha. The fatigue experience of patients was ranked from 0 to 10. A paired t test, independent test, and Person's r were performed, suggesting no significant difference between the two groups in their perception of chemotherapy-induced fatigue was apparent when a fatigue intervention was introduced to one set of patients.

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CHAPTER 1

INTRODUCTION

Patients diagnosed with cancer and undergoing chemotherapy commonly experience fatigue, a complex and disturbing side effect that has a disquieting impact on their quality of life. Many cancer patients expect side effects from chemotherapy, but the severity of the accompanying fatigue is seldom anticipated. Cancer patients are physically, emotionally, and psychologically affected by fatigue and may "prematurely withdraw from potentially curative treatment as a result of chemotherapy side effects" (Winningham, Nail, Burke, Brophy, Cimprich, & Jones, 1994).

Approximately 80% to 96% of all cancer patients experience chemotherapy induced fatigue to a degree that disrupts their ability to perform day to day activities (Irvine, Vincent, Graydon, Bubela, & Thompson, 1994). Patients receiving chemotherapy complain that health care providers do not fully understand their experience (Rhodes, Watson, & Hanson, 1989). Although patients receiving chemotherapy expect fatigue following chemotherapy, health care professionals may not fully explain actions that may help to minimize the impact of fatigue on the ability of patients to perform their daily

activities. There are many approaches that oncology nurses can use in the management of fatigue, including patient education.

Fatigue may be described by patients as tiredness, weakness, and lack of energy, lethargy, or an inability to concentrate. Fatigue, like pain, is a subjective phenomenon. Many cancer-oriented fatigue theories support how fatigue is perceived by different individuals (Winningham et al., 1994).

Nursing is defined as the "diagnosis and treatment of human response to actual or potential health problems" (American Nurse Association [ANA], 1980). Within the discipline of nursing, nurses are often a primary health care resource for oncology patients experiencing fatigue. Nurses, educated in the field of oncology, collaborate with cancer patients to help them manage chemotherapy-induced fatigue. (Potempa, 1989).

Purpose

The purpose of this study was to investigate early nursing interventions that effectively minimize the impact of fatigue for the chemotherapy patient. Patient education is paramount in the control of chemotherapy-induced fatigue. By understanding what to expect and how patients may be affected, the patient and their significant others are emotionally, physically, and psychologically better prepared to manage this challenge. Patients need to understand fatigue and also what actions they can do to control or eliminate chemotherapy induced fatigue.

Research studies have documented that fatigue is a common side effect of chemotherapy. A review of the literature revealed few studies that focus on nursing interventions that may prevent or minimize fatigue. Pickard-Holley (1991) described and

defined fatigue by focusing on the individual experience. Other research compares depression and fatigue, the energy used to cope with these issues, (Beck, 1967) and how the caregiver is affected (Jenson & Given, 1991).

According to Love, Leventhal, Easterling and Nerenz (1989) nausea, hair loss, and tiredness were experienced by at least 80% of patients receiving chemotherapy, and 46% of these patients consider discontinuing therapy by the sixth cycle. The researchers conclude that treatment side effects may be more effectively managed if techniques in controlling them were taught to patients prior to initiation of their treatment.

Providing patients with adequate information may help them establish self-care measures prior to the occurrence of side effects (Shane, 1996). Dood (1983) examined: whether patients practice self-care, whether patients instructed in side effect management techniques (SEMT) adopt them, and whether information on SEMT, given alone or in combination with other information (e.g., medications), "elicits differential self-care behavior" (p.63). Research revealed that patients who received SEMT information practiced more self-care behavior than patients who received no self-care behaviors. The study identified other advantages for patients who were provided with SEMT such as: less burden from depression, difficulty concentration, pain, and less extension of side effects burden (Longman, et al., 1997). Longman further implies the importance for the oncology nurse in providing SEMT which may improve the cancer patient's ability to manage the side effects of chemotherapy.

Problem

Existing research supports the seriousness of fatigue as a side effect of chemotherapy for the oncology patient. Various organizations such as the North American Nursing Diagnosis Association (NANDA) and the Oncology Nursing Society through Fatigue Initiative Research and Education (FIRE), support the need for further research on fatigue in relationship to the effect on patients. The purpose of this study was to examine the level of patient adaptation to chemotherapy-induced fatigue when fatigue management skills are taught by oncology nurses.

CHAPTER 2

REVIEW OF THE LITERATURE AND CONCEPTUAL FRAMEWORK

Literature Review

Oncology nurses are specialists who deal with numerous problems experienced by patients during their battle with cancer and its treatment. Most cancer patients experience chemotherapy-induced fatigue, and many hours of research have been dedicated to discovering methods to help patients combat this debilitating side effect.

Based upon a review of literature, three main categories related to fatigue will be addressed: a) fatigue as a common effect of chemotherapy, b) patient's efforts to counteract chemotherapy related fatigue, and c) nursing interventions for fatigue.

Fatigue as a side effect of chemotherapy. Research suggests that chemotherapy related fatigue is one of the most common and challenging symptom management problems for patients and nurses. According to the Oncology Nursing Society (1997), fatigue experienced by a person with cancer doing chemotherapy is different from the fatigue of everyday life. Cancer treatment fatigue can appear suddenly, be overwhelming, may not always be relieved by rest, and can persist after treatment ends. Fatigue from

chemotherapy is real and cannot be ignored. Helping to relieve chemotherapy-induced fatigue has the potential to preserve and improve the quality of life for cancer patients.

In a descriptive, cross-sectional study on fatigue, Pickard-Holley (1997), compared 12 adults with ovarian cancer to 12 healthy adult women. The relationship between severity of fatigue, age, stage of disease, course of treatment, and CA 125 (tumor marker that may be suggestive to the degree of disease) were measured. The research found no significant relationship between fatigue and age, stage of disease, course of treatment, or depression. Weak to moderate relationships were found between levels of fatigue and CA 125 levels. According to these results, a moderately strong, ($r = .68, p < .01$) relationship was found between ratings on the Rhoten Fatigue Scale (RFS), an ordinal scale that subjectively quantifies present fatigue, and fatigue items on the Beck Depression Inventory (BDI). As the tumor burden increased so did the fatigue that the patient experienced. The researchers recommended additional research to study the relationship of fatigue over the entire treatment plan for the cancer patient, and expanded study of the relationship between fatigue with all types of cancers on both males and females.

A qualitative study conducted by Hilfinger, Messias, Yeager, Dibble, and Dodd (1997) explored the experience of fatigue among patients undergoing chemotherapy. One hundred twenty-seven adult patients who began their first course of chemotherapy were selected to participate from 18 treatment centers in California. Data was collected through individual open-ended interviews using grounded theory techniques.

The analysis revealed several major categories related to chemotherapy induced fatigue: a) being tired, b) effect on well-being, c) attribution of origin, d) awareness and expect, e) emotional reactions, f) activity, g) "biggest" concern, and h) strategies and plans. The results of the study suggested that nurses must consider chemotherapy-induced fatigue within the context of a patient's life and environment when planning care. Furthermore, the findings supported the need for nurses to listen and evaluate subjective experiences of patients when planning therapeutic nursing interventions.

Berger (1998) used a prospective, descriptive design to study 72 women receiving chemotherapy after surgery for breast cancer. The Piper Fatigue Scale (1989) was administered 48 hours after each chemotherapy treatment for three cycles of chemotherapy and at three midpoints between treatments. Significant differences between fatigue scores at the time of treatment and at the midpoint intervals were found ($F = 6.07, p = .016$). Overall, 12 of 14 women in the study reported high fatigue levels at each of the three midpoints compared to fatigue at only one point during the treatment. This study was significant in that it demonstrated the "roller-coaster pattern" of fatigue, and supported the importance of developing and testing nursing interventions to modify such experiences.

Patients methods to counteract fatigue. Patients who experience chemotherapy-induced fatigue may actively attempt to alleviate or manage their fatigue. Richardson and Ream (1997) and Longman, Braden, and Mishel (1997) have described a number of these measures. Patients living with the demands of chemotherapy often develop a new

repertoire of skills and knowledge that assist in the management of chemotherapeutic side effects. These new skills enable patients to adapt to their treatment and to manage other side effects experienced, including fatigue.

In a longitudinal, correlational study conducted by Richardson and Ream (1997), self-care strategies used by patients receiving chemotherapy were examined. The focus of the research was to determine the frequency of self-care actions, evaluate the effectiveness of these actions, and examine the relationship between fatigue and the performance of self-care. A sample of 109 subjects were asked to keep a record of their symptoms in a diary. The results of the study found that 89% of the subjects documented experiencing fatigue at some point. Statistical comparison of the fatigue experienced revealed that patients receiving a 21-day regimen of chemotherapy were significantly more fatigued ($p < .05$) than those receiving a 28-day or a weekly chemotherapy cycle. Despite the incidence of fatigue, the researchers reported that self-care actions were only initiated on one-half of the days (49.0%) that the symptoms were reported.

Findings also revealed that 80% of the time patients only performed one action a day in an attempt to combat fatigue. However, the patients in this study used 31 different self-care action measures to relieve their chemotherapy-induced fatigue. The most commonly used technique was modification of activity and rest patterns. Yet, these self-care activities proved to be largely ineffective, providing only partial relief of chemotherapy induced fatigue only 53.7% of the time. No relief of chemotherapy induced fatigue was reported by over 9% of the subjects.

Overall, the symptom diary provided an effective approach for data collection in this study (Richardson & Ream, 1997). As chemotherapy programs become more sophisticated and complicated, fatigue continued to be the number one problem for patients. The self-care measures that the oncology nurse offered to these patients can be an effective way to control chemotherapy induced fatigue.

Fifty-three adult women with breast cancer were assessed in a study by Longman, et al. (1997) that described the chemotherapy side effect burden experienced over time. Longman appraised the association of side-effect burden with self-care and self-help. Data obtained for the Self-Help Intervention Project (SHIP) was used to test the effectiveness of interventions for women receiving treatment for breast cancer. The selected intervention was designed to facilitate self-help rather than a dependent response. Interventions included educational classes for the patient and support by the nurse. Researchers gathered data at three designated points in time: a) after the medical treatment, b) 6 weeks later, and c) 3 months later. According to Longman et al., fatigue was the most frequent and problematic side effect over time. "Side-effects burden" was measured and showed a significant improvement in adaptation with self-help over time. A reduction in self-help was associated with symptom extension ($r= 0.42$; $p<. 002$). The insights gained from this analysis support that engaging in more self-care activities causes fewer burdens from chemotherapy-induced side effects including fatigue. The study supports the need to individualize nursing interventions for each patient to reduce chemotherapy induced fatigue

Nursing interventions for fatigue. Nursing is responsible for identifying and using research-based assessment techniques to facilitate effective treatment for chemotherapy-induced fatigue. Providing patient education materials containing specific information can be an effective nursing intervention. Knowledge about side effects such as fatigue may empower patients and encourage them to become an active participant in their own care (Skalla & Lacasse, 1992). Fatigue management strategies are aimed at assisting patients to participate in the life activities that they find most important. According to this researcher nursing intervention is essential in this area and must take a proactive role in assisting the patient to learn measures that may ease their sensation of fatigue. Teaching should reflect the current experience of the patient with the disease and treatment, as well as her understanding of the principles of daily energy expenditure, conservation, and restoration (Skalla & Reiger, 1995).

Many researchers have identified the causes of fatigue, but few have tested nursing intervention measures. Of those studies that have addressed intervention focused on three categories: education, exercise, and attention-restoring activities (Clark & Laces, 1998).

Skalla and Lacasse (1992) studied patient education regarding fatigue. Though fatigue is a frequent complaint of patients undergoing cancer treatment, specific self-care activities are seldom addressed in patient education material. To fill this void, the researchers developed an education tool that nurses should be able to use with a special emphasis on the management of fatigue. Currently this tool is in progress of evaluation with a large population of oncology patients (Oncology Nursing Forum, 1992).

Schwartz (1998) examined the physical activity patterns of cancer survivors who identified themselves as athletes. The purpose was to assess how much exercise athletic patients with cancer engaged in during treatments. In addition, this study sought to determine how cancer-related fatigue affects the ability of the athletic patient to exercise, and determine common problems and patterns associated with fatigue. A cross-sectional, descriptive study was conducted among 219 cancer survivors who responded to a call in four major sports magazines. According to the study, the majority of respondents were physically active during their treatment. Sixty-nine percent of the respondents continued to be active, but modified their exercise programs. However, 52% described their fatigue as affecting their entire body, and 26% expressed fatigue before exercise. According to the respondents, balancing exercise and rest was the most commonly used strategy for managing their symptoms ($p = .041$). Respondents with breast cancer reported less cancer related fatigue (CRF) after exercising ($p = .003$). The implication for nurses regarding patient instruction of CRF is that nursing intervention will support and educate patients on the importance of rest and exercise for the management of fatigue.

Mock et al. (1997) conducted an experimental study in which they compared the levels of physical, functional, and symptom intensity of women in a walking exercise program during radiation treatment. They compared this to women who did not participate in exercise. A pretest and posttest was administered to each group. Findings revealed that the exercise group scored significantly higher than the control group on physical functioning and symptom intensity ($p = .003$), including fatigue, anxiety, and sleep disturbances. Moreover, fatigue was the most frequent and intense subjective

symptom reported. The authors concluded that, nurse-prescribed and monitored exercise is an effective, conventional, and low-cost self-care activity that reduces symptoms and facilitates adaptation to breast cancer treatment.

Graling (1998) examined physical function and symptom intensity in women with breast cancer. The sample consisted of 46 women with stage I and II breast cancer who participated in a walking exercise program during radiation therapy. Using the multiple analysis of covariance (MANCOVA), the results revealed a significant difference between the two groups with physical function and symptom intensity outcome ($p < .001$). The findings demonstrated benefits from walking exercise programs with improved physical and psychological functioning in the experimental group. The "concept of the person achieving adaptation through integrated physical and psychosocial modalities relates adaptive responses illustrated by women who exercise regularly and exhibited higher levels of functioning and decreased fatigue" (Graling, 1998, p.275).

In summary, a review of the literature suggests that the nursing profession can influence patients' perception and management of fatigue. Nurse scientists need to explore the phenomenon of fatigue through increased research. Although much literature has focused on understanding fatigue, few studies have tested nursing interventions designed to combat this prevalent and destructive symptom. Studies designed to evaluate nursing interventions often have small, heterogeneous samples that reduced the generalizability of the findings (Shane, 1996). Though these studies contribute valuable information to the knowledge of fatigue, further research is needed to examine what nursing intervention may have on chemotherapy-induced fatigue, what age group would

best be affected by nursing intervention, and whether regular supervised exercise would create an effect on fatigue.

Conceptual Framework

A number of frameworks or models have been proposed to explain the underlying mechanisms of chemotherapy-induced fatigue, but this researcher feels that Piper's Integrated Fatigue Model is practical for the use with the oncology patient. The Piper Integrated Fatigue Model (1995) suggests that fatigue is multidimensional and is the result of alteration in biochemical, physiological, and behavioral factors. The Piper model helps to delineate objective and subjective indicators of fatigue which guides nursing assessment. It provides a framework for the clinical approach that embodies practical tools (Leum, 1997).

According to Piper (1987, 1989, & 1995) assessing fatigue is the key to establishing management strategies for the patient, family, provider, and health-care system. As a result, Piper developed an instrument to assess the five dimensions of fatigue, including: temporal, sensory, cognitive-mental, affective, and behavioral. The objective dimension of fatigue includes the signs of fatigue that can be validated by physiological, biological, and behavioral means. While the subjective dimensions of fatigue include, a) perception about timing of fatigue (temporal), b) the mental, physical, and emotional symptoms of fatigue (sensory), c) the emotional meaning attributed to fatigue (affective dimension), d) the impact and distress fatigue might have on activities of daily living (intensity) (Piper et al., 1987, 1989).

The temporal dimension of fatigue is linked to a patient's 24-hour circadian patterns. For example, do patients have more energy at the end of the day or any particular time of the day? Understanding answers to this question may give health providers clues in differentiating acute from chronic fatigue. Such findings supply health care providers with interventions that are appropriate to help treat fatigue.

Symptoms a patient describes when defining tiredness are referred to as the sensory dimension of fatigue. Questions that need to be answered in this dimension focus on location and intensity. The fatigue may be localized in a specific muscle group for example, in the eyes, legs, or other areas of the body. This fatigue may also vary in severity.

The cognitive-mental dimension of fatigue is defined as a loss of concentration and a decrease in memory or alertness. The underlying mechanism of this dimension can include neurotransmitters in the central nervous system that are being triggered by the inflammatory response associated with many chemotherapy treatments (Piper, 1997).

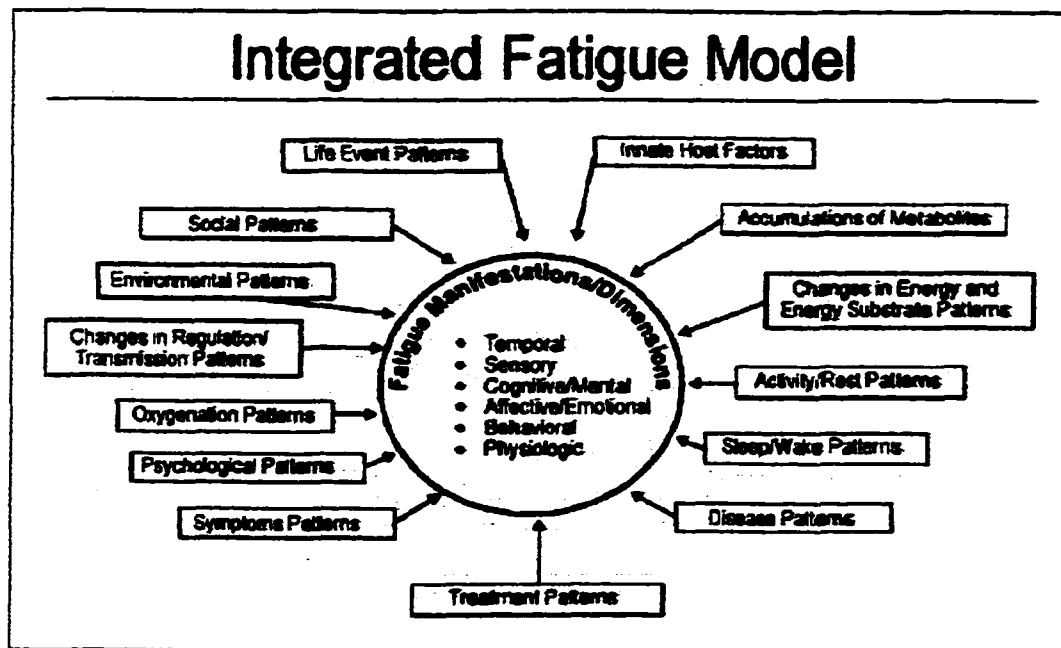
The affective dimension of fatigue includes distress, irritability, impatience, and lack of motivation. Some research has been done to examine the relationship of depression and fatigue. Smet and colleagues (1995) from the Netherlands determined that there was no correlation between depression and fatigue, thereby helping to differentiate the two symptoms.

Finally, the behavioral dimension of fatigue may be described as a diminished activity level. Patients may take longer to perform activities or feel that they are not

capable of performing routine tasks. According to Piper, the documentation of daily living has been used to help researcher capture the essence of this dimension.

The following diagram illustrates Piper's Integrated Fatigue Model (1995) framework for the conceptualization of fatigue in the healthy and clinical population.

Figure Example 1. Piper's Integrated Fatigue Model



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As the integrated model appears, the center of the framework is the subjective (perceptual) and objective (physiological, biological, and behavioral) indicators of fatigue. Surrounding the subjective and objective areas are the metabolic, neurophysiological, situational, and developmental patterns. The model brings into being the signs and symptoms of fatigue experienced by patients receiving chemotherapy. Piper acknowledges the signs and symptoms may also be a result of the accumulation of various metabolic wastes, such as uremia. A change in energy production secondary to

anemia, thrombocytopenia, and the build of waste products creates fatigue. Piper (1997) also describes other factors that result in fatigue that is experienced by patients receiving chemotherapy such as cachexia, anorexia, and various metabolic imbalances.

Alterations in activity and rest patterns can play significant roles in the prevention, cause, and alleviation of fatigue. Unnecessary sedentariness, prolonged bedrest, and immobilization contribute to weakness and fatigue. Oxygenation patterns are affected by fatigue as a result of skeletal muscle loss. More oxygen is required as a result of the lost oxidative capacity of unconditioned muscles. This factor can contribute to the development of fatigue and is one of the reasons why aerobic endurance exercise is often prescribed (Piper 1997).

Sleep-wake patterns can influence fatigue. Lack of restful sleep at night can lead to increased sleepiness and fatigue during the day. Daytime fatigue increases the need for daytime napping and increased nighttime sleep (Piper, 1987). Various disease states, medical therapies, and symptom management may temporarily exacerbate fatigue however, effective symptom management should eventually improve it. Any factor that alters or interferes with the ability to maintain adequate oxygen levels, such as anemia, can produce fatigue. Fluid and electrolyte imbalance and changes in neurohormone levels, such as melatonin and serotonin, can also affect neurotransmission and thereby result in fatigue.

Psychological factors such as responses to stressors, depression, boredom, beliefs, and attitudes can further fatigue. Environmental problems, life events (pregnancy, parenting, and divorce), and innate host factors such as age, sex, race, and genetic make-

up also affect the development of fatigue. Psychological factors and social patterns, such as perceived quality and amount of social support, cultural beliefs, and economic factors, may also influence fatigue.

Piper's Fatigue Scale (PFS) correlates directly with the Piper Fatigue Integrated Conceptual Model. The PFS is composed of 22 numerically scaled "0 to 10" items that measure the four dimensions of subjective fatigue. These dimensions are measured in four categories behavioral (6 items), affective meaning (5 items), sensory (5 items), and cognitive/mood (6 items).

The PFS will be the standard of measurement for this research study. Patients will be given this assessment questionnaire as a pretest (prior to nursing instruction on methods the patient may use to help manage chemotherapy-induced fatigue) and a post test. Piper's integrated model on fatigue gives clear evidence that fatigue is a complex multicausal and multidimensional sensation that requires investigation and intensive research. Oncology nurses must understand the implication that fatigue has for their patients and what measures they can take to assist in managing this complex problem. Piper's Integrated Fatigue Model will be the framework for the study and the PFS will be used to measure fatigue as experienced by patients receiving chemotherapy.

Significance of the study. Further study of the fatigue phenomenon in cancer patients is warranted to improve the quality of life in this cancer population. Patients, when starting chemotherapy, may be unprepared for the severity of fatigue they may experience and often lack the knowledge of the appropriate measures to help alleviate fatigue. From a nursing perspective, it is important to assist patients in the management

of their disease and treatment. Nurses caring for cancer patients, perhaps more than any other profession, have a unique opportunity to study and influence quality of life outcomes related to fatigue. As nurses respond to the challenge, patients will benefit from the effort and fatigue will become manageable. Empirical testing of specific nursing interventions needs to continue. This study strives to add to the body of nursing knowledge regarding fatigue and related nursing interventions.

Research Question

What role does early nursing intervention have in adaptation to chemotherapy induced fatigue?

Research Hypothesis

The experimental group that receives early nursing instruction that will help them to adapt to chemotherapy induced fatigue will score lower on Piper's Fatigue Assessment scale than those patients who receive the standard nursing instruction on chemotherapy.

Key Terms

1. Early nursing interventions is instruction that is provided to the patient/family prior to their initial chemotherapy treatment thus enhancing the patient's knowledge of coping mechanisms and facilitating adaptation.
2. Fatigue is a subjective feeling of tiredness that is influenced by circadian rhythm. Fatigue can vary in unpleasantness, duration, and intensity. When acute, fatigue serves a protective function. When fatigue is excessive or chronic, its function is

unknown" (Piper et al., 1989, p.200). In this study the Piper Fatigue Scale will measure fatigue.

3. First-time chemotherapy patients are recently diagnosed cancer presenting to the outpatient chemotherapy clinic to receive new chemotherapy.

Key Concepts

1. Adaptation is a change in structure, function, or form that produces better adjustment of a person to his/her environment (Guralink, 1980, p.15) as measured by the PFS.

2. Acquired coping mechanisms are learned behaviors that facilitate adaptation.

CHAPTER 3

METHODS

Design

This study examined the effect of early nursing interventions on the ability of a patient to adapt to chemotherapy induced fatigue. The intervention consisted of suggested methods that could assist patients with adaptation to fatigue. Using a convenience sample, subjects were randomly assigned to an experimental or a control group. A pre-test and post-test were given to subjects in the intervention and control groups to evaluate the success of the nursing intervention. Subjects were given the pre-test on the first day of their initial chemotherapy treatment and again during the sixth week of the chemotherapy cycle.

Setting

Subjects were selected from five private oncology and hematology offices that administer chemotherapy to their patients. These offices were located in Southwestern Michigan. Each office had individual rooms where the physician could examine the patients, and this room was available to be used by patients to complete their assessment form. Chemotherapy treatment areas were located in one centrally located area, and patients sat in lounge chairs where they were able to participate in conversation with other patients. This was the area where patients completed their fatigue assessment tool.

If the patient had concerns regarding the privacy of this area, they had the opportunity to be moved to a private exam room.

Sample

A convenience sample of 30 subjects was initially sought for this study. Five months into data collection, limited recruitment of subjects, seriously affected the completion of the study. This resulted in a decision to decrease the desired sample size to 15 subjects.

Subjects for this study met the following criteria: a) recently diagnosed with cancer or having been diagnosed with new cancer or recurrent cancer in the past three months and requiring chemotherapy at the office; b) 18 years or older; c) and able to read or write English. Subjects who received concomitant chemotherapy and radiation for the treatment of their disease were ineligible to participate in this project.

While the desired sample was 15, 16 subjects participated in the study. The intervention group contained twelve subjects, and the control group had four subjects. The difference in the number of subjects entered into the control and intervention group was a result of the inconsistency among the five nurses and among five different offices that distributed the data collection packets. Although a distribution protocol was developed for random assignments, more even numbered (intervention group) packets were given to the subjects involved in the study than odd numbered (control group) packets.

Instrument

The revised Piper Fatigue Self-Report Scale (PFS) was used to measure the phenomenon of fatigue experienced by cancer patients in the study. The original PFS existed in two forms, a baseline form (PFS-B) and the revised PFS-C. The PFS-B was designed to measure usual patterns of fatigue and any changes experienced during the six months prior to a medical diagnosis or the start of treatment (Piper et al., 1989, p.200). The revised PFS determines fatigue patterns "now" or "for that day" and can be self-administered. Fatigue symptoms were measured using a "0-10" numeric scale.

The PFS in its current form was composed of 22 numerically scaled, "0 to 10" items that measured four dimensions of subjective fatigue, behavioral/severity (6 items), affective meaning (5 items), sensory (5 items), and cognitive/mood (6 items). These 22 items were used to calculate the four-subscale/dimensional scores and the overall fatigue scores. Five additional items (#1 and #24-27) were not used to calculate subscale or total fatigue scores, but were recommended to be kept on the scale as these items furnished rich, qualitative data. To calculate the total fatigue score, the 22 items were summed and divided by 22 in order to keep the score in the same numeric "0 to 10" scale. The higher the score, the greater the fatigue experienced by the subjects.

According to Polit and Hungler (1995), reliability is the degree of consistency with which an instrument measures the attribute it is suppose to measure. As such, coefficients greater than .70 are considered acceptable for group comparison (Polit & Hunger, 1995). Previous studies using PFS had established reliability coefficients at .97

for the total scale and ranged between .92 and .95 for the subscales. For this study, reliability for the subscales was between .90 and .94. Similar to previous studies, the total scale reliability was .97 for this investigation (Table 1).

Table 1

Reliability Analysis

Scale	Number of items	Piper (1997)	Baker (1999)
Sensory	5	.95	.91
Affective	5	.95	.93
Cognitive	6	.92	.90
Behavior	6	.92	.94
Total PFS	22	.96	.97

Human Subjects Considerations

Permission was received from Piper to use the PFS (Appendix B). Participating oncologists signed a permission letter, allowing the PFS to be given to their patients (Appendix C). Approval was received from the Grand Valley State University Human Subjects Review Committee to conduct the study (Appendix D).

Procedure

Each office participating in the study had a designated oncology nurse who agreed to explain the procedure and assist with administering the assessment tool. The

designated nurse was trained to administer the tool. Forty patient packets were prepared, the odd numbered packets had the demographic (Appendix E), a cover letter (Appendix F), and the fatigue assessment tools (Appendix G). The even numbered packets had the above listed material as well as the fatigue intervention material (Appendix H). The packets were distributed 1-5, 6-13, 14-25, 26-30, and 31-40 respectively to the offices that were participating in the study. The packets were randomly given to the first 16 patients who met the criteria were entered into the study.

The researcher kept a running master list with four columns that included the study number and assigned group as well as the patient's name and telephone number. At the completion of the study, the master list was destroyed. The following outline identified the specific method in which this was accomplished.

I. The researcher provided an inservice for the designated oncology nurse for the purpose of orienting them on eligibility of patients for the study, demographic forms, and the timing of the Piper Fatigue Scale (PFS) (Appendix G).

II. Manila envelopes, numbered 1-40, were distributed to the offices and located in a convenient area for the oncology nurse. The envelope contained the following:

A. Pre-test PFS with self-addressed envelope for the patient to return the test to the researcher.

B. Demographic form

C. Fatigue Management Education material (in even numbered envelopes)

D. Post-test (PFS) with a self-addressed envelope for the patient to return the assessment tool to the researcher.

Steps A, B, and C were completed after the patients meet eligibility and agreed to enter the study. This was on the first day of their first course of chemotherapy. After completion of these forms, they were placed in a sealed self-addressed envelope and mailed to the researcher.

III. The PFS was placed in a self-addressed envelope and sent home with the patient with a date for completion and return to the researcher.

IV. The logbook was placed in secured location accessible to the registered nurse and the researcher had access to it. The following information was entered into the log on each patient.

- A. Number assigned to the subject.
- B. Name of the subject.
- C. Telephone numbers of each subject.

V. The odd numbered patients were assigned to the “control group” and the even number subjects to the “intervention group”.

VI. Following the subjects’ acceptance to enter the study, consent to participate was indicated by the subject reading the cover letter and proceeding with the completion of the demographic form and with the pretest PFS.

VII. Upon the completion of the forms, the intervention group subjects reviewed the Fatigue Management Education material. Any questions about the material were answered.

VIII. The post-test PFS was completed during the sixth week of the chemotherapy regimen. It was completed at the patient's home and sent to the researcher in the provided self-addressed envelope.

IX. The log and any subject specific data were destroyed to optimize confidentiality following the completion of the study.

X. The staff at the oncology offices were given a snack and beverage at the time of the inservice and the oncology nurses were given a small gift of appreciation at the completion of the study.

The researcher was available to answer any question that the nurses or patients had regarding the tool or study at any time. After the inservice was given to the oncology nurses, there were no questions directed to the researcher by the subjects who entered into the study.

Fatigue Management Intervention

The intervention presented to the subjects in the study was a combination of a brochure distributed by a pharmaceutical company on "Fatigue" and an assortment of measures that could be utilized by the subjects to help adapt to chemotherapy-induced fatigue developed by Skalla and Lacasse (1992). Specifically, the materials suggested methods that used less energy and could result in more energy for the activities that were of greater importance to them. Many of the ideas came from other patients with cancer that used these interventions to help cope with fatigue (Appendix H).

Ortho Biotech, pharmaceutical company, offered booklets entitled "Dimensions of Caring, Taking Control of Fatigue". These booklets offered a description of fatigue

and how to better understand it. They described why patients felt fatigue while undergoing chemotherapy and suggested keeping a journal of their level of fatigue, as well as making a list of activities and the level of importance to them. Specific suggestions included learning to pace activities, getting plenty of rest without overdoing the length of the rest period were identified strategies within the brochure. Delegating specific activities and responsibilities to others in order to conserve energy were also suggested. Other suggestions included reading, relaxing, or listening to music was helpful in managing fatigue. Eating and drinking a balanced amount was crucial in helping adapt to chemotherapy-induced fatigue.

Chapter 4

DATA ANALYSIS

Technique

The purpose of this study was to examine the fatigue level of patients while undergoing chemotherapy for the treatment of their cancer. The research hypothesis was that the experimental group which received the Fatigue Management Education would experience lower levels of chemotherapy induced fatigue than those patients who receive the standard nursing instruction on chemotherapy.

Data were analyzed using the Statistical Package for Social Sciences. A significance level of $p < 0.05$ was set for all statistical procedures. Descriptive statistics were used to characterize subjects in this study. In order to determine if there was a significant difference in the level of fatigue of the control and intervention group of subjects an independent t-test was performed.

Characteristics of the Subjects

Prior to evaluating the effects of the intervention on fatigue, the demographic characteristics of the subjects were compared. The demographics characteristics included age, gender, type of cancer, and treatment. In addition, the subjects' previous cancer history, type of residence, number of persons living with each subject and how much support persons they could count on was assessed.

The sample was comprised of 16 subjects and 10 females. Gender was equally distributed among subjects in the intervention group. All four subjects in the control group were females. Of the four subjects in the control group, two were less than 40 years old, and one was the age of 61 years. In contrast, the majority of the subjects in the intervention group were between the age of 61 and 90 years (n=8). This age comparison is presented in Table 2.

Table 2

Age Comparison

Ages Categories	Total group n (%)	Control n (%)	Intervention n (%)
22-40	5 (31.4)	2 (50.0)	3 (24.9)
41-50	2 (12.6)	1 (25.0)	1 (8.3)
51-60	1 (6.3)	0 (00.0)	0 (00.0)
61-70	4 (25.1)	1 (25.0)	4 (33.3)
71-80	3 (18.8)	0 (00.0)	3 (25.0)
81-90	1 (6.3)	0 (00.0)	1 (8.3)

All subjects in the study (n=16) lived in a private home (100%). This indicating that all subjects had some degree of responsibility of maintaining their homes. Within the intervention group, 12.5% of subjects lived alone while all members of the control group had at least one person living with them. The mean number of persons living with each of the subjects was 2.12 (SD= 1.58). Most

subjects (87.6%) were able to rely on support from persons living with them for everyday tasks such as, meals, errands, and household needs. Two subjects in the intervention group (16.7%) lived alone and had no one available for support. For the total group the mean value of persons available for support was 1.93 (SD=.25). These results are presented in Table 3.

Table 3

Household Members and Available Support

	Number of people living with the subjects		Number of support with the subjects	
	Mean	SD	Mean	SD
Intervention	1.83	1.52	1.58	1.24
Control	3.00	1.63	2.25	0.95

The intervention group had a mean value of 1.58 (SD= 1.24) for the number of persons that the subjects could count on for support. In contrast the control group described a mean value of 2.25 (SD= 0.95) for support persons that were available to them on a daily basis. Thus the intervention had less persons living with them, also having fewer persons available to assist them with daily chores. In summary, individuals within the intervention group had a fewer number of individuals available to provide emotional, physical, and spiritual support which may have added to the level of fatigue experienced by this group.

Subjects within the study received a variety of chemotherapy regimens for treatment of their cancer. While the control group subjects had four different types of cancer diagnosis, the majority of the intervention group subjects were diagnosed with cancer of the breast, blood, and lymphatic system. These results are presented in Table 4.

Table 4

Cancer Diagnoses

Types of Cancer	Control N (%)	Intervention n (%)
Breast	1 (25.0)	3 (25.0)
Colon	1 (25.0)	1 (8.3)
Lymph	1 (25.0)	2 (16.7)
Blood	0 (00.0)	4 (33.3)
Pancreatic	1 (25.0)	0 (00.0)
Testicular	0 (00.0)	2 (16.7)

All subjects were assessed for the number and types of services received in the home environment. Only one individual in the control group received some type of service in the home, compared to nine (75%) subjects in the intervention. Of the responders in the intervention group, one received meals on wheels, five received some form of home nursing services and two subjects used oxygen.

Data Analyses

Although subjects had been informed of the importance of completing the entire survey, missing data was still apparent. Following recommendations provided by Polit and Hungler (1995) for handling missing data, the missing responses in the study were assessed for random or systematic error. Once it was identified that it was random, the statistical item mean was substituted for the missing values among subjects who answered at least 75% of the remaining items on that particular subscale. The strategy was congruent with Piper's (1997) scoring procedure.

Piper's Fatigue scale composed of 22 numerically scaled items was divided into four dimensions of subjective fatigue: a) behavioral/severity, b) affective/meaning, c) sensory, d) and cognitive/mood. These 22 items were used to calculate the four subscales/dimensions and the total fatigue scores.

Total fatigue scores. The subjects' fatigue level was assessed prior to the initiation of their treatment and again six weeks into their treatment. The control group as a group was less fatigued at the start of their treatment than the intervention group. The pretest fatigue levels of the control group ranged from 2.32 to 4.64, with a mean of 3.82 (SD = 1.05). In comparison, the fatigue level of the intervention group ranged from 0.41 to 7.00 (M= 4.45; SD = 2.13). The intervention group had four subjects that reported fatigue levels at the initiation of the study at 5.23 or higher. While no one in the control group listed a fatigue level above 4.64.

Fatigue levels of the control group at the six-week follow-up ranged from 2.59 to 6.36 (M = 5.01; SD = 1.67). Following the Fatigue Management Education, the level of

fatigue was assessed among the intervention group. According to these subjects, their fatigue ranged from 1.36 to 8.41, with an average fatigue level of 5.39 (SD = 2.26).

An independent t-test was performed to compare the differences in the level of fatigue experienced by the intervention and control groups. The results revealed that there was no significant difference on the degree of fatigue experienced by the subjects prior to the implementation of an intervention or after the intervention was initiated. Therefore, the research hypothesis posed in the study was that the experimental group which received the Fatigue Management Education would experience lower levels of chemotherapy induced fatigue than those patients who receive the standard nursing instruction on chemotherapy was not supported. These results are presented in Table 5.

Table 5

PFS Scores

PFS	Intervention Mean (SD)	Control Mean (SD)	t	d.f.	p
Pretest	4.45 (1.05)	3.81 (2.13)	-.56	11	.58
Posttest	5.39 (2.26)	5.01 (1.05)	-.30	12	.77

Results of the post-fatigue scores for both groups indicated that the intervention (nursing instructions on methods to help patients adapt to fatigue) did not have a significant effect on the level of fatigue six weeks after the start of treatment. A lower score on the post-fatigue test of the intervention group may have been indicative that the nursing intervention affected the level of fatigue.

Fatigue dimension scores. To determine if differences in the level of fatigue existed among the four dimensions paired t-tests were performed. The four dimensions included in the paired t-test were sensory, cognitive, affective, and behavioral. No significant differences were identified over time for either the intervention or control group.

Other findings. Additional analyses using Pearson's r correlation was performed to examine the relationship between levels of fatigue that subjects experienced, their ages, and the amount of support they received from the individuals living with them. Only one significant relationship was identified between age and the number of individuals available for support ($r = -.56$; $p = .02$). According to this finding, as the subjects increased in age less support was available to them.

A t-test for independent samples of sex (male vs. females) in relationship to their pre and post-fatigue scores were analyzed. The fatigue scores indicated that the females were initially more fatigued than the males in this study. Similarly, the posttest assessment revealed that the females continued to experience higher levels of fatigue than the male six weeks into their chemotherapy treatment (Table 6).

Table 6.

Comparison of Males and Females Fatigue Scores (N = 16)

PFS	Males (n = 4) Mean (SD)	Females (n = 12) Mean (SD)	t.	d.f.	p.
Pre-fatigue	2.97 (2.22)	4.82 (1.43)	-1.83	11	.09
Post-fatigue	4.51 (2.23)	5.59 (2.01)	-0.88	12	.39

Subjects self-reported specific causes of fatigue and measures they used to assist in relieving fatigue. Chemotherapy was the most commonly cited cause of fatigue. According to subjects, the primary methods used to help alleviate fatigue were rest, limiting activity, sleeping, and watching nature.

CHAPTER 5

DISCUSSION AND IMPLICATIONS

Discussion

The purpose of this study was to examine the role of Fatigue Management Education in facilitating adaptation to chemotherapy-induced fatigue. According to the results of this study, the research hypothesis was not supported. The subjects did not experience significant reductions in the level of fatigue following implementation of the intervention. While the results did not support the hypothesis that the intervention would be effective in this study, a larger sample and stronger nursing participation in the presentation of the Fatigue Management Education may strengthen the study and find support for the effectiveness of the intervention.

Interesting and important information for future research did emerge from the data. Although the Fatigue Management intervention did not play a factor in the level of fatigue experienced by the two groups, the age of the subjects and the availability of support persons appeared to influence the degree of fatigue. The mean age for the control group was 45.0 years old (SD = 11.83) and the intervention group mean was 59.9 years old (SD = 19.2). The data revealed that older subjects have less support persons available which may have influenced the fatigue level of the intervention group.

Prior research supports that the availability of support and the age of subjects directly effects the health of the individual receiving chemotherapy (Nail, 1999). Irvine, Vincent, Graydon, and Bubela (1998) reported a correlation between age and fatigue. More specifically, Vincent et al. found that the older the subject, the higher level of fatigue at their final assessment ($r= 0.21, p <0.05$). While there was not a relationship identified between the subjects' age and their levels of fatigue in this study, it is possible that these results may have been influenced by the sample size.

According to Dood (1983), education of fatigue management and adequate information regarding self-help measures were valuable in helping subjects deal with the side effects of chemotherapy. Dood's research indicated that information was not enough to influence fatigue in subjects receiving chemotherapy. Other measures were identified that could offer assistance to subjects in dealing with fatigue. More specifically, these measures were fewer burdens from depression, controlling pain, and less extension of other side effects from the treatment. Although depression was not measured in this study, this could have influenced the perceived degree of fatigue experienced by the subjects.

Richardson and Ream (1997) conducted a study that reviewed self-care strategies used by patients receiving chemotherapy. The results of their research revealed that subjects knew what to do to help their fatigue but only instituted those measures on half of the days that they experienced fatigue. The recommendation offered by these researchers was the idea that if self-care

measures were effective in relieving fatigue partially, then the role of the oncology nurses who care for them should involve routine assessment of cancer-related fatigue. Longman et al. (1997) supports the findings of Richardson and Ream. Suggesting, nursing needs to clinically individualize nursing interventions for each subject in order to impact the degree of fatigue that results from chemotherapy.

This study also did not evaluate if any of the subjects exercised regularly or participated in routine physical activity which may have influenced the degree of fatigue experienced by subjects. According to an experimental study conducted by Mock et al. (1997) levels of physical, functional, and symptom intensity were compared in women receiving concomitant chemotherapy and radiation. Those subjects involved in a walking program experienced less fatigue ($p = .003$) than those who were less active, once again suggesting the idea that there may be more to managing fatigue in subjects than providing education. Nurses may have a role in prescribing and monitoring exercise and self-care activities that may reduce chemotherapy side effects to facilitate adaptation to chemotherapy-induced fatigue.

Relationship of Findings to Conceptual Framework

The findings in this study demonstrate that assessment of fatigue in patients receiving chemotherapy is an important function for oncology nurses. All the subjects in the study demonstrated an increase level of fatigue while receiving chemotherapy. This finding supports that the fatigue level of patients should be

assessed by the oncology nurse and is important in providing quality care. Piper (1997) suggests that fatigue is multidimensional and developed a specific tool measuring fatigue to measure multiple concepts.

Piper's goal is that the PFS will be used in the development of interventions that may provide guidance for adaptation to chemotherapy-induced fatigue or patient related fatigue experience. Nearly every person experiences fatigue, patients with cancer and those having chemotherapy treatments encounter a fatigue that is not dissipated by a good night sleep. Fatigue in relationship to Piper's conceptual framework, involves subjective and objective measurements. In order to best understand the individual perception of fatigue, Piper developed the PFS.

The PFS provides a tool to measure and assess fatigue, as well as an insight into how an individual feels fatigue is interfering with their life. Further testing of the PFS with a particular group of subjects that had one type of cancer, age specific, same gender, and/or all receiving the same chemotherapy protocol would be useful and provide more consistent data.

Piper's Integrated Fatigue Model looks at the physical, behavioral, sensory, affective, and cognitive subscales of fatigue. Just as these evaluate the different degrees of fatigue, so do the interventions that will help the subjects adapt to chemotherapy-induced fatigue. Piper (1997) states that as alterations in activity and rest patterns play a significant role in the prevention, cause, and alleviation of fatigue, as do unnecessary sedentariness, prolonged bedrest, and

immobility. Therefore identifying what subjects are doing on a daily basis to deal with fatigue can lend insight in controlling fatigue in this select population of oncology subjects.

Understanding the mechanisms of fatigue in subjects can help the nurse offer measures that are essential in assisting them to cope with this distressing experience. Using this framework, the nurse can begin to assess possible causes of fatigue in a specific subject and select an appropriate intervention. The subscales may provide insight into an area where the subject may experience a greater level of fatigue. This may be beneficial to the nurse, as she may be able to provide more specific fatigue management measures.

Reviewing Piper's subscales, the researcher gives credence to the idea that nutritional assessment may be overlooked. In this high-risk population of individuals, nutritional assessment, referral, and support is fundamental to fatigue management.

According to Piper (1991), instruction regarding fatigue should be inclusive of the types of symptoms that may be experienced (mental/cognitive, physical, emotional, and behavioral). As these symptoms occur, understanding and being informed of other methods that have been proven to be effective in managing fatigue have been found useful in controlling and alleviating fatigue.

Symptom-specific information may be useful in reducing the level of fatigue experience by subjects receiving chemotherapy (Piper, 1991). Patient and family centered teaching may enhance a sense of control and mastery over the

familiar and reduce anxiety. In summary, educating patients and their families about fatigue symptoms unique to them may be best able to influence fatigue.

This study did not reveal any significant difference between the two groups experience with the level of fatigue. The idea of familiarizing patients and families with methods that may assist them in adapting to fatigue may enhance a sense of control, therefore providing a reduction of fatigue.

Limited research has been conducted to suggest which interventions are the most viable and effective in helping patients adapt to fatigue. Piper et al (1989) states the use of a single intervention strategy for the relief of fatigue can provide only partial relief. Health care professionals need to combine their efforts toward fatigue management strategies. Such various professional include the nurse, physical therapy, occupational therapy, and dietitians to name a few. Along with the patient's passive, common-sense methods, interventions can be tailored made to help each patient adapt to chemotherapy-induced fatigue.

Limitations

Sample size is recognized as a significant limitation of this study. The level of nursing participation from the offices involved in gathering data for the study in retrospect is also a major factor. The study used a small (n=16), convenience sample, and findings can only be generalized to this sample. Moreover, missing data, disparity in size of the group is a concern. The small sample size limits the ability of the results to be generalized to an entire population. Since all of the sites that participated in the study were oncology

offices, it is impossible to generalize these results to a specific group of subjects. The fact that patients were voluntary and had the option of not participating may be another factor in altering the results, as only those patients who had some interest in the topic may have participated.

It may have been beneficial but not practical to have the same registered nurse (researcher) to assist all subjects in the completion of the fatigue assessment forms and instruct on fatigue management methods. The fact that five different offices and different oncologists were involved in the research project may have affected the collecting data process.

Lastly, a pharmaceutical company created the booklet that was given to patients. This attempt to advertise their product to improve blood counts may have turned some patients off from reviewing the information and caused a degree of frustration for some of the subjects if they felt they could not relate to the information.

Recommendations

In evaluating the results of this study, it is evident that fatigue is prevalent in patients receiving chemotherapy. Although this study did not support the fact that instruction on fatigue management lowered the level of fatigue in this group of subjects, it is believed that instruction on fatigue is important and can lower the level of fatigue. However finding an effective teaching tool may be crucial in fatigue management.

Implications for Nursing

Practice. The prevalence of fatigue in cancer patients is common as supported by the results of this study. A holistic approach in managing fatigue including complimentary strategies should be considered to meet patients demands, coping styles, and preferences. The findings of this study point to the need to continue to find ways to help patients deal with fatigue. Teaching patients about the fatigue experience as it relates to their treatment is a combined effort of the health care team. Several strategies in the intervention may be necessary to alleviate or control fatigue related to chemotherapy.

Nurses need to be aware of the various groups within the chemotherapy population. Research has pointed to the fact that various groups require different strategies based upon age, sex, and other factors. Fatigue is just one other important facet that the patient must overcome in their day to day battle with cancer and nurses need to be proactive in the war against it.

Education. Nurse educators need to impress upon nursing students the importance of understanding the power that fatigue can have on our patients. This includes how patients cope mentally, physically, emotional, and spiritually with the effects of fatigue. This holistic assessment must be taught to nursing students so that appropriate interventions can be implemented. Oncology nurses who deal with oncology patients must be taught that timely follow-up and evaluations of fatigue is essential to the care of patients.

Nurse educators should also emphasize the importance of developing good collaboration skills with other health care professionals, since this will be an important part of their practice. This portion of health care may be instrumental in helping patients adapt to fatigue. The involvement of nutritionists, physical therapist, and alternative medicine may be beneficial to patients. Alternative medicine may include imagery, herbal medicine, touch therapy, and various patient directed therapies.

Administration. Nursing and health care administration should also be aware of the affect of fatigue. Allowing nurses to attend conferences and workshops regarding quality of life issues, such as fatigue, and methods to help patients adapt to it may overall benefit future patients. Promoting relationships and collaboration between other disciplines to magnify the attempt to manage fatigue is another way that administrators can be involved.

Arranging opportunities or events in which nurses can teach, present health care topics or research on fatigue, and manage chemotherapy induced toxicity can assist patients. Administrators also need to be on the cutting edge of new opportunities for patients and nurses.

Research. Fatigue has become a leading topic for research studies but evidence-based strategies continue to be prominent problem facing patients receiving chemotherapy. A range of interventions with different groups of patients need to be assessed for comparative value across the spectrum of cancer diagnosis and treatments. Designing and evaluating global interventions that can

be tailored to meet individual needs and preferences are needed. The relationship between fatigue and depression and other psychological status call for further research exploration.

Summary

For many patients, fatigue is a significant problem. What works for one patient may not work for another. Finding out what works best takes time and effort. The nursing profession must continue to try to find the answer to the question of what nursing interventions help patients adapt to chemotherapy-induced fatigue. Although this study did not demonstrate that education affected the fatigue level of the intervention group, nurses must continue to study what interventions will make a difference to the patients level of fatigue. Working in a collaborative fashion with each and every patient can only be a benefit in the fight against chemotherapy-induced fatigue.

APPENDICES

**APPENDIX
A**

Outline for Nursing Inservice

APPENDIX A

Outline for Nursing Inservice

- I. Introduction to research project
- II. Criteria for patient eligibility
 - A. 18 years old or older
 - B. Able to read English
 - C. Any type of cancer, chemotherapy treatment, but not receiving concomitant chemotherapy and radiation.
 - D. Newly diagnosed or recurrent patient's with cancer that are undergoing their first course of chemotherapy.
- III. Patient consent and Demographic form
 - A. If patient agrees to enter the study proceed with Fatigue Assessment Tool
 - B. If patient dose not wish to enter study reassure them that this will not affect their treatment.
 - C. If patient dose not wish to enter the study but wants to receive the Fatigue Assessment Tool, the RN can give that to them.
 - D. Instruct RN to read through the Fatigue Assessment Tool with the patient.
- IV. Familiarize RN with the logbook
 - A. The designated location will be secured and accessible only to the RN and the researcher.
 - B. The logbook will include the patient's name. Sex, age, telephone number, and their assigned number that distinguish them from the control group and the experimental group.

**APPENDIX
B**

Permission for Use of Assessment Tool and Model

APPENDIX B
APPENDIX B

To: Barbara Piper RN
University of Nebraska, Medical Center
600 South 42 nd Street
Omaha, Nebraska
91598-5330

From: Karla Baker RN, MSNo
4258 131st Ave.
Hamilton, MI 49419
616-751-2169 (H)

Dear Barbara,

I am writing to ask permission to use your PFS as the instrument in my masters thesis proposal. I am also seeking your permission to use the Fatigue framework for the conceptualization of fatigue in my thesis. My source came from the following reference:

Piper, B.F., Lindsey, A. M., & Dood, M. J. (1987). Fatigue mechanisms in cancer patients: Developing nursing theory. Oncology Nursing Forum, 14, p. 19.

Piper, B.F., Dibble, S.L., Dodd, M.J., Weiss, M.C., Slaughter, R.E., & Paul, S.M., (1998). The revised Piper fatigue scale; psychometric evaluation in women with breast cancer. Oncology Nursing Forum, 25, p677-684.

If permission is granted, please sign below and return to the above address. Thank you.

Sincerely

Karla Baker

signature

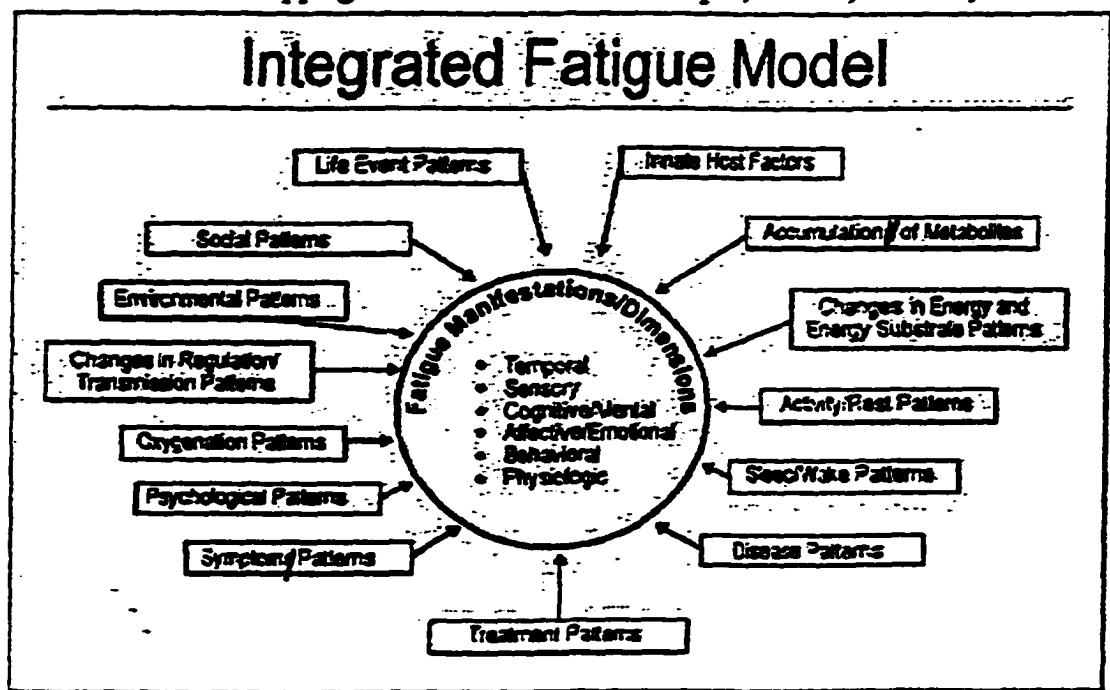
date

To: Barbara Piper RN
 University of Nebraska, Medical Center *College of Nursing*
~~600 South 42nd Street~~ *985330 Nebraska Medical Center*
 Omaha, Nebraska
 68598-5330

From: Karla Baker RN, MSNo
 4258 131st Ave.
 Hamilton, MI 49419
 616-751-2169 (H)

Dear Barbara,

I wrote to you previously regarding the use of your Integrated Fatigue Model Theory and Assessment tool. You approved this use, so now I am requesting permission to include your actual Fatigue Integrated Model figure. I obtained it through the internet from the Oncology Nursing Society, FIRE education material. I down loaded it into my thesis. I will include the copyright to 1995 Barbara F. Piper, DNBC, AOCN, FAAN.



Copyright © 1995 Barbara F. Piper, CNSc, RN, ACCN, FAAN

If permission is granted, please sign below and return to the above address. Thank you.


 Signature _____ date _____

Sincerely, Karla Baker RN


**APPENDIX
C**

Permission for Office Participation

APPENDIX C

Address

Dear Physician,

I am a registered nurse currently working towards a master's degree in Nursing at Grand Valley State University. I am examining how early nursing intervention effects fatigue in-patients receiving chemotherapy.

For the purpose of this study. A questionnaire is being presented to these patients regarding their level of fatigue. The patients will be asked to rank how they feel from a scale of 0-10. A copy of the questionnaire is enclosed for you to see.

I am asking your help, in this project to determine how patients respond to fatigue if they receive additional information regarding measure that they can utilize to help manage their fatigue. The findings will help us provide improved care to our patients and a greater knowledge of fatigue as it relates to chemotherapy.

Your oncology nurses will be determining if patients qualify for the study. They will then provide standard chemotherapy information to a certain set of patients, and to the other set, they will receive an information sheet and booklet on fatigue management. A cover letter will accompany the questionnaire and this will reinforce that this study is voluntary and will not effect the care that they receive from your practice. A total goal of 30 patients are being selected for the study. There are no risks involved in participation. The patient may choose to end participation at any time. In order to assure that patient's questionnaires remain anonymous, they are asked to not put their names on it.

If you have any questions regarding the study, you may contact myself, Karla Baker, at (616) 751-2169. Members of a supervisory committee at Grand Valley State University have approved this study for the Protection of Human Subjects. If you have any questions regarding the approval of this study, or subject's rights, you may contact the chairperson of that committee Paul Huizenga, at (616) 895-2472. Results of this study will be available to you on request.

Thank you for your wiliness in allowing your office to participate.

Sincerely
Karla Baker, BSN

**APPENDIX
D**

Human Subjects Review Permission

APPENDIX D



GRAND VALLEY
STATE UNIVERSITY

1 CAMPUS DRIVE • ALLENDALE, MICHIGAN 49401-9403 • 616/995-6611

April 7, 1999

Karla Baker
4258 131st Ave.
Hamilton, MI 49419

Dear Karla:

Your proposed project entitled "*Early Nursing Interventions and Their Effects on Fatigue on Patients Receiving Chemotherapy*" has been reviewed. It has been approved as a study which is exempt from the regulations by section 46.101 of the Federal Register 46(16):8336, January 26, 1981.

Sincerely,


Paul Huizenga, Chair
Human Research Review Committee

**APPENDIX
E**

Instruction and Script for Oncology Nurse

APPENDIX E

Script of Oncology Nurses

Mr. or Mrs. _____,

Our office is helping a nursing student by the name of Karla Baker, conduct a study on what level of fatigue you are currently experiencing today again in 6 weeks from now. We have a fatigue assessment form that will take about 10 minutes to fill out. You can fill it out while you are waiting, or if you get called into the exam room before you are finished, you can finish the assessment form then. If at any time you feel like you don't want to finish the assessment form, you may stop. There won't be any penalty to if you don't finish. There is also no risk to you in participating in the study. Karla does not want to know who filled out the assessment form. By filling out the form you are giving your permission to be included in the study. When you are done, you can give me the form or put in the envelope provided by Karla and we can mail it or you can mail it yourself. If you have any questions about the study fell free to come and ask me any questions or Karla has provided her name and telephone number and you can call her yourself.

Please thank the patients on my behalf for being willing to participate.

Karla Baker

**APPENDIX
F**

Cover Letter

APPENDIX F

Dear Participant,

Fatigue is one of the most common side effects of cancer treatment. Although little is known about the scientific basis for managing fatigue, there are numerous measures that can help.

I am a graduate student in the nursing program at Grand Valley State University. The study is titled "Early nursing interventions and their effect on patient's receiving chemotherapy".

You are 1 of 30 patients selected to be included in this study. You will be asked to fill out two questionnaires. The first will be filled out today and will take 15 minutes. The questionnaire asks you to rank how you feel on a scale of 0 - 10. The second will be filled out at your home six weeks from now and will be sent directly to the researcher. In order to make sure no one knows who filled out the questionnaire, please do not put your name on it. The fact that you agree to fill out the questionnaire indicates that you understand what this study is about and voluntarily agree to be in it. You may, however stop at any time if you feel you cannot or do not want to continue with the fatigue questionnaire.

Risk associated with participation in this study includes time loss and additional stress by having to participate in a study on your first day of chemotherapy. Your participation in this study may benefit you and others undergoing chemotherapy treatments through the improvement of fatigue management.

**APPENDIX
G**

Fatigue Assessment Tool and Demographic Form

APPENDIX G

Directions: For each of the following questions, circle the number that best describes the fatigue you are experiencing now. Please make every effort to answer each question to the best of your ability. Thank you very much.

1. How long have you been feeling fatigued? (*check one response only*)
 - a. Minutes _____
 - b. Hours _____
 - c. Days _____
 - d. Weeks _____
 - e. Months _____
 - f. Other (*please describe*): _____

2. To what degree is the fatigue you are feeling now causing you distress?

	No distress										A great deal of distress
	0	1	2	3	4	5	6	7	8	9	10

3. To what degree is the fatigue you are feeling now interfering with your ability to complete your work or school activities?

	None										A great deal
	0	1	2	3	4	5	6	7	8	9	10

4. To what degree is the fatigue you are feeling now interfering with your ability to visit or socialize with your friends?

	None										A great deal
	0	1	2	3	4	5	6	7	8	9	10

5. To what degree is the fatigue you are feeling now interfering with your ability to engage in sexual activity?

	None										A great deal
	0	1	2	3	4	5	6	7	8	9	10

6. Overall how much is the fatigue, which you are experiencing now, interfering with your ability to engage in the kind of activities you enjoy doing?

	None										A great deal
	0	1	2	3	4	5	6	7	8	9	10

7. How would you describe the degree of intensity or severity of the fatigue which you are experiencing now?

	Mild										Severe
	0	1	2	3	4	5	6	7	8	9	10

- To what degree would you describe the fatigue which you are experiencing now as being:

	Pleasant										Unpleasant
8.	0	1	2	3	4	5	6	7	8	9	10
	Agreeable										Disagreeable
9.	0	1	2	3	4	5	6	7	8	9	10
	Protective										Destructive
10.	0	1	2	3	4	5	6	7	8	9	10
	Positive										Negative
11.	0	1	2	3	4	5	6	7	8	9	10
	Normal										Abnormal
12.	0	1	2	3	4	5	6	7	8	9	10

13. To what degree are you now feeling:

	Strong										Weak
	0	1	2	3	4	5	6	7	8	9	10

14. To what degree are you now feeling:

	Awake										Sleepy
	0	1	2	3	4	5	6	7	8	9	10

15. To what degree are you now feeling:

	Lively										Listless
	0	1	2	3	4	5	6	7	8	9	10

16. To what degree are you now feeling:
 Refreshed 0 1 2 3 4 5 6 7 8 9 Tired 10
17. To what degree are you now feeling:
 Energetic 0 1 2 3 4 5 6 7 8 9 Unenergetic 10
18. To what degree are you now feeling:
 Patient 0 1 2 3 4 5 6 7 8 9 Impatient 10
19. To what degree are you now feeling:
 Relaxed 0 1 2 3 4 5 6 7 8 9 Tense 10
20. To what degree are you now feeling:
 Exhilarated 0 1 2 3 4 5 6 7 8 9 Depressed 10
21. To what degree are you now feeling:
 Able to concentrate 0 1 2 3 4 5 6 7 8 9 Unable to concentrate 10
22. To what degree are you now feeling:
 Able to remember 0 1 2 3 4 5 6 7 8 9 Unable to remember 10
23. To what degree are you now feeling:
 Able to think clearly 0 1 2 3 4 5 6 7 8 9 Unable to think clearly 10
24. Overall, what do you believe is most directly contributing to or causing your fatigue? _____
25. Overall, the best thing you have found to relieve your fatigue is: _____
26. Is there anything else you would like to add that would describe your fatigue better to us? _____
27. Are you experiencing any other symptoms right now?
 No
 Yes Please describe _____

This survey is divided into 2 sections. The first is the information section that asks you some basic questions about yourself, your diagnosis, and your treatment. The second section is the main part of this survey. Please follow the directions provided and answer all of the questions to the best of your ability. Thank you for your time.

SECTION 1 - Information

1. Age: _____
2. Sex: M _____ F _____
3. Type of cancer: _____
4. Chemotherapy regimen (name of chemotherapy drugs you are receiving): _____
_____ (if you are unsure, please ask a nurse to fill in this information for you)
5. Previous history of cancer? Yes _____ No _____
If yes, were you treated with (circle all that apply):
a. chemotherapy b. radiation c. surgery
6. Where do you live? in a house _____ in an apartment _____ in a nursing home _____
other (please specify) _____
7. How many people live with you? _____ (please include all adults and children)
8. Of those living with you, how many can you rely on for some type of support? _____
(for example, help you with housekeeping, meals, errands, etc.)
9. Do you have any type of home care? Meals on wheels _____ Nursing services _____
Hospice _____ Oxygen _____ Other _____
10. Do you have any other medical condition? If so, please specify _____

**APPENDIX
H**

Patient Fatigue Education Material

APPENDIX H

Fatigue Education

Specific Suggestions

Sit or lie down often: short periods of rest are better than long ones. This is because the heart rate slows down very quickly at the beginning of a rest period, but more slowly at the end of the rest period. Many short rests, then, give the heart more chances to beat slower and then tire less.



Take naps: Naps can be helpful as long as they don't keep you from falling asleep at night.

Plan activities: Limit the energy used on planning activities. Do the important activities first, and decrease the number of less important activities. Most people have energy for the things that they enjoy and feel best doing. Let others help you by telling them what they can do for you. Try to keep your daily life simple.

Read: many people find that reading helps them to keep their mind off their fatigue.



Walk/exercise: regular, light exercise such as walking has been shown to decrease fatigue, as well as nausea and vomiting.



Use distraction: People use many routines to keep their minds off of how tired they are. This might include: going to work, taking car rides, listening to soft music or relaxation tapes, doing yoga, or anything else that helps you to relax after a hard Day.



Sleep: Start or follow a normal sleeping routine.



Eat a balanced diet: eating the right foods help give you energy. The National Cancer Institute publishes a free booklet called "Eating Hints".

Make sure you are comfortable: When you are too cold or too hot this may make you tire more quickly. Avoid

temperature greater than 75F and humidity greater than 60%.

Maintain you social life: To lessen fatigue, many people limit their social life and fun activities first. Try to balance between the activities you must do and those that make you happy in your daily life.



Taken from: Skalla, K., and Lacasse, C., (1992), Patient Education for Fatigue, Oncology Nursing Forum.19, p 1537-1541.

Physician

Phone number

Emergency number

Nurse

Phone number

Pharmacist

Phone number

Social worker

Phone number

Dietitian

Phone number



Fatigue. The Better You Understand It, the Better You Can Manage It

Most cancer patients not only have to cope with their disease but with other symptoms as well, such as nausea, vomiting, tiredness, or fatigue. Fatigue is often a side effect of many cancer treatments.

Sometimes, just changing your routine causes you to feel tired, weary, wiped out, weak, and fatigued. Changes in your sleep, daily activity, or eating patterns also can cause fatigue, as can anxiety, depression, stress, and anemia (a decrease in the number of your red blood cells).

This booklet is designed to help you better understand your fatigue and to let you know that there are healthcare professionals who understand what you are going through. It includes helpful hints on how to manage your fatigue so that you can help yourself feel better and make your life easier. This booklet also includes a section that answers some of the more common questions that most cancer patients have about fatigue. Hopefully, you will learn about treatments and ways of coping with fatigue that can enable you to perform the activities you want and need to do.

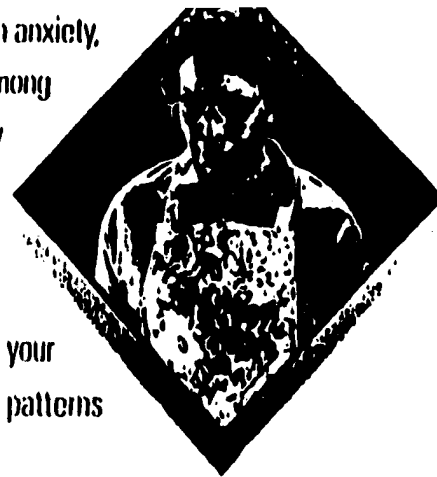
you feel more tired than usual or tire more quickly after completing usual activities. It may also occur when you are not doing anything.

Listen to music, watch television, or read rather than focusing on your disease, symptoms, or how you feel.

Fatigue can be more than just a feeling of being constantly tired. You may also experience difficulty performing everyday activities such as housework, showering, and cooking. Difficulty in walking, talking, concentrating, and making decisions may all be symptoms of fatigue. Sometimes, you just do not feel like yourself. Often, it is

difficult trying to deal with family members or other people who may be trying to help you.

Emotional stress, coping with anxiety, conflict, sadness, even tension among loved ones, require extra energy and can cause fatigue. Changes in your daily routine also contribute to fatigue. As a result of your cancer treatment, your sleeping, eating, and working patterns may change.



The fact is, your entire life is being turned upside down and yet so much is still expected of you. You still have to travel to and from treatments. You still have to function. You still have to cope. You have to call upon your body to do so much more than it may want to do or be able to do.

Another common cause of fatigue associated with cancer is chemotherapy. The treatment itself is a factor, along with its side

effects. Patients who experience nausea or vomiting may not eat enough to keep up their energy levels. Another common side effect of cancer treatment is anemia. Anemia is also known to cause fatigue.

It is important to become more selective in the type of activities you choose to pursue, when, and for how long you do them.

Suggestions To Help You Control Fatigue

Here are some things you can do to help you fight and manage fatigue instead of giving in to it.

Reassess your goals. Examine your goals, both long- and short-term. Reassess these goals to make them realistic and reachable. Also, be selective in what you choose to

accomplish; this will help you to lessen any feelings of guilt, stress, and anxiety—and the fatigue that accompanies these emotional feelings—when you cannot achieve certain goals.

Make an activities list. Actually, make two. On the first one, list all of the activities you *must perform* that day. On the second, list those activities

that you *should perform* but that can wait until some other time. Do this on a daily basis, only attending to activities from your *should perform* list when you feel like doing them.

Keep an activities journal. Write down what you do during the day and note your energy and fatigue levels. After a few days, review your entries to see if you can identify any patterns. For example, what has caused you to feel more exhausted? What have you been doing prior to the times when you have felt your best? Try to minimize those activities that are the most tiring and keep doing the ones that make you feel good. Work on your most challenging activities during the time of day you feel you have the most energy.

Learn to pace yourself. Try to find a comfortable pace for performing the activities you want to pursue. Don't overdo it, as it is easier to accomplish the activities you want to accomplish if you avoid doing too much too soon.

Adhere to an exercise program. Ask your healthcare provider to design a program for you.

Get plenty of rest, but don't overdo it. If you are like most people, you associate feelings of fatigue with the need for more rest. However, studies show that too much rest can cause a drop in

your body's ability to produce energy. In other words, the more you rest, the more tired you feel. One thing you might try to do when you feel fatigued is to spend less time lying down and more time sitting or standing, even walking or performing other activities

Several short rest periods may be more beneficial than one long rest period.

whenever possible. Many people find that light exercise, such as walking, actually decreases their fatigue. Consult with your health-care provider about the best form and type of exercise for you.

Short periods of rest are best. When you need rest, sit or lie down more often, but only for short periods of time rather than long periods of time. Your heart rate slows down more quickly at the start of a rest period and more slowly as you continue to rest. Thus, several short rests give your heart more opportunities to beat slower and to help you to conserve your energy.

If you want to nap, take after a cat. Cat naps are short naps that may well help you conserve your energy. But be cautious: don't nap so much that it

interferes with falling asleep at night. A full night's sleep, or an uninterrupted sleep from which you awaken feeling refreshed, is also important and helps you to conserve energy.

Don't be afraid to ask for assistance. The fact is, if you plan your activities, you are going to have more energy for pursuing the activities you enjoy and feel best doing. What about everything else? Ask for assistance with such tasks as housekeeping, laundry, shopping, and carpooling. Friends and family should be happy to help you, and it makes them feel good knowing that they are doing something to help or please you. If you do not feel like socializing when people are assisting you, simply tell them you do not feel like talking. They will understand.

Keep your mind busy. Think about things other than your fatigue, illness, or treatment. Work, go for car rides, go to a movie, or meet friends. Many people have found that reading, relaxing, or listening to music is helpful in managing their fatigue. The important thing is to keep your mind busy.

Delegate specific activities and responsibilities to others in order to conserve your energy.

Eat well and drink plenty. Maintain a well-balanced diet with plenty of fluids. Eating grains, green vegetables, legumes (beans), and foods high in iron (spinach and kale) can help you maintain your energy level, as can eating more frequent, smaller meals or snacks throughout the day. Consult with your healthcare provider about the best diet for you.

talk to your doctor. If you are fatigued, talk to your doctor.

Anemia may be the cause of your fatigue. Anemia can be treated. Blood transfusions are used to treat severe anemia, but may cause allergic reactions, fevers, chills, infections, and headaches. In addition, blood transfusions may be inconvenient, costly, and time-consuming.

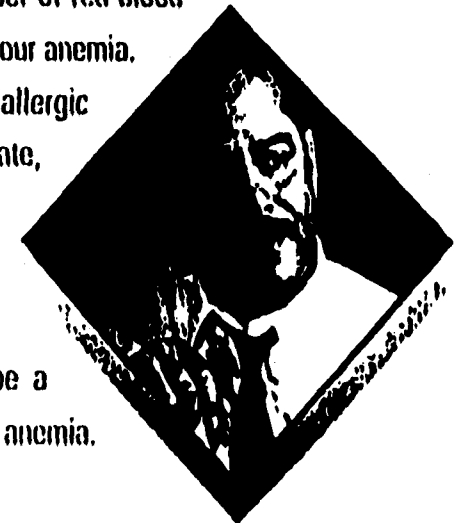
Another way to treat anemia due to chemotherapy is with Epoetin alfa (recombinant human erythropoietin). Epoetin alfa increases the number of red blood cells in your body.

How does it work? Epoetin alfa is a hormone produced by DNA technology that is identical to the natural erythropoietin produced by your body.

Erythropoietin stimulates your bone marrow to produce red blood cells. Red blood cells carry oxygen from your lungs throughout your body. The oxygen is necessary to convert calories from the foods you eat into energy. The fewer the number of red blood cells, the less oxygen gets to your body, and the less energy you will have. Consequently, you feel more tired or fatigued.

Your body may not produce enough erythropoietin when you have cancer or are receiving cancer treatment, particularly chemotherapy. Therefore, your body may not produce enough red blood cells. As a result, anemia occurs. Epoetin alfa can stimulate your bone marrow to increase its production of red blood cells, just like your natural erythropoietin. Epoetin alfa is administered by an injection under the skin and takes about 4 to 8 weeks to increase the number of red blood cells in your body and correct your anemia.

Epoetin alfa may cause allergic reactions, an increase in heart rate, and an increase or decrease in blood pressure. Epoetin alfa may not work for everybody. Ask your doctor if it would be a suitable treatment to help your anemia.



How Linda Copes

Four years ago, Linda went to her doctor for a routine visit. After her examination, her doctor said that he wanted to perform additional tests, and Linda and her husband immediately agreed. Their worst fears were realized when they found out she had cancer. Her prognosis was not promising: her disease was considered extensive and doctors gave Linda just 1 year to live.

It's been a long haul for Linda. Before receiving chemotherapy, she was a "fireball," one of those people who seemed to have "boundless energy." But along with chemotherapy came fatigue.

Linda's fatigue became so intense that she no longer felt she was the same person.

Her husband, though supportive, was quiet and reluctant to share his feelings. Her son saw her simply as someone who was always sick. Consequently, Linda had a lot of stress in her life. She couldn't sleep through the night. Fatigue had a negative impact on her self-esteem and her self-

image. She had some good days, but they did not come easily—she had to constantly work at them.

Yet the more Linda worked to overcome the fatigue, the more fatigue she had to deal with, as a result of the cumulative side effect of her chemotherapy.

Eventually, Linda could no longer cope with her fatigue and asked her doctor if there was anything he could do to help her. Her doctor prescribed PROCHIT™ (Epoetin alfa). It took a few weeks, but soon Linda started to feel a little more like her "old self."

How Woody Copes

At 34 years of age, Woody considered himself pretty successful. He worked hard and was looking forward to buying a house in the near future. 75

But a short time ago, Woody noticed he did not feel well. It was nothing that happened overnight. He first noticed a loss of energy, and then a gradual loss of strength. On his first visit to his doctor, he was found to be very anemic and fatigued.

This initial visit led to more visits and numerous tests and, within a few weeks, Woody was diagnosed with acquired immunodeficiency syndrome (AIDS)-related lymphoma.

The news seemed to defeat Woody. He became even more fatigued, grouchy, and moody. Before long, Woody could do very little for himself and needed help to go everywhere, even to the bathroom.

Because Woody and his oncologist have an open relationship, his doctor has been very helpful. He has made Woody feel like a person, not just a patient. His doctor, like many others, feels this level of patient involvement and interest is important in caring for people dealing with cancer.

Because anemia and fatigue have plagued Woody since his first visit, his doctor prescribed Epoetin alfa. He receives injections of Epoetin alfa three times a week. Woody now feels less tired and has more determination to pursue the goals he wants to achieve.

Woody views Epoetin alfa as his second chance to perform the activities he wants to perform while he still is physically able. Woody understands that most activities he wants to accomplish will still be challenging, but he wants to take on those

challenges. Woody is determined to take things as they come and to live his life as fully as possible.

Answers to Commonly Asked Questions About Fatigue

I've always been a private person, but I've recently been diagnosed with cancer. Do you think a support group would be helpful for me?

Many patients with cancer and their caregivers find support groups to be very comforting. They gain answers to many questions and support for what they're going through. Ask your healthcare professional how to contact a support group in your area.

Are there foods I should eat to maintain my energy level?

A diet high in protein, vitamins, and iron is necessary to provide the nutrients needed to produce red blood cells. Ask your doctor about your diet and whether you should be taking vitamin supplements.

Eat a balanced, nutritionally complete diet that provides plenty of complex carbohydrates (eg, grains, legumes, vegetables) to give your body constant energy.

I've always been an avid reader, rarely without a book in my hands during my free time. Lately, I can hardly read a page. . . . I can't seem to concentrate on anything. Is this related to fatigue?

The inability to concentrate is a common symptom of fatigue. Many fatigued patients have trouble concentrating when reading, talking, or even watching a favorite TV show.

Maintain a daily/weekly journal to identify changes in energy levels and factors that increase or decrease fatigue.

I'm in a support group, and most others in the group can identify with my constant feeling of fatigue. I've tried their suggestions to overcome my fatigue, but they don't seem to do any good. Why do they feel better when I don't?

There are no standardized medical treatments for fatigue. What works for one person may not work for another. Finding out what works and what doesn't work for you may take some time. Talk to your healthcare provider.

Since being diagnosed with cancer, I feel more tired with every passing day. Yet, I don't want to bother my doctor with something so insignificant. Whom else should I ask about this?

First of all, fatigue is not insignificant. When something has such a negative effect on your life, it's important and significant. Ask your doctor about your fatigue. He or she can determine what is causing your fatigue and can suggest treatments to help you feel less tired. If your fatigue is caused by anemia, there may be treatment options available to help you overcome your fatigue. One option is Epoetin alfa, while another option is the administration of a red blood cell transfusion. However, as with any medical condition, not every patient's fatigue will respond to these treatments. Sometimes fatigue is caused by other factors that may require different medical care. Your doctor can discuss the benefits and limitations associated with each treatment.

Treatments That May Help You Feel Better

Fatigue can be one of the most depressing, destructive, and distressing complications associated with cancer and chemotherapy. Although there are no standardized medical treatments for combating fatigue, there are ways to cope with it. Patients who have anemia, and the associated fatigue, may often benefit from medical treatment.

Talk to Your Healthcare Provider

Communicate immediately with your healthcare provider if your fatigue becomes:

- Unusually severe or not consistent with the type of activity undertaken
- Disruptive to social activities or activities of daily living
- Unrelieved by rest or sleep
- Constant or recurrent

Ask Your Healthcare Provider for Additional Information

If you would like additional information about fatigue or anemia, ask your doctor or nurse. He or she can provide you with the information you need. In addition, your doctor or nurse can put you in touch with local support groups and provide you with suggestions for other booklets that may be helpful to you in dealing with your illness and treatment. It is important to keep all scheduled medical appointments. If you are unable to attend an appointment, contact your healthcare provider immediately.

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