

Determination of Factors Associated With Hospitalization in Breast Cancer Survivors

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Purpose/Objectives: To identify factors associated with hospitalization after diagnosis of breast cancer in working-age women.

Design: Descriptive, retrospective survey.

Setting: Caseload of a single medical oncologist affiliated with an urban, not-for-profit, academic medical center.

Sample: 123 consecutively evaluated women aged 21–65 years with breast cancer associated with projected survival greater than three years.

Methods: Data were collected from an electronic clinical file with demographic, diagnostic, and hormone replacement therapy (HRT) information. Four survey forms were mailed to subjects: (a) a form ascertaining personal demographics, health status, and healthcare utilization, (b) menopausal Symptom Rating Scale, (c) a hot flash diary, and (d) the Center for Epidemiologic Studies Depression Scale.

Main Research Variables: Menopausal symptoms, depression symptoms, age, time since diagnosis, and overnight hospitalization.

Findings: An increasing depression score and increasing menopausal symptoms score were found to be independent predictors of hospitalization controlling for age at diagnosis, disease stage, and time since diagnosis. Demographic variables, HRT use at or prior to diagnosis (a proxy measure of health status), current self-reported health status, and hot flashes were not associated with hospitalization.

Conclusions: Psychological factors can be important significant predictors of hospitalization in survivors of breast cancer independent of disease stage. Further study should be undertaken to determine whether support services directed at identifying and treating those at risk for depression or menopausal symptoms may reduce the likelihood of potentially avoidable hospitalization.

Implications for Nursing: The identification of those at high risk for hospitalization because of high levels of depressive or menopausal symptoms and prompt intervention offer the opportunity to improve the quality of life of breast cancer survivors and reduce the cost of health care for themselves, their families, and the healthcare system.

Key Points . . .

- ▶ The hospitalization rate among breast cancer survivors is higher than for the general population of age-comparable women.
- ▶ An increasing menopausal symptoms score is associated with an increased likelihood of hospitalization in breast cancer survivors.
- ▶ Depression is associated with an increased likelihood of hospitalization in breast cancer survivors.
- ▶ Early and effective intervention for menopausal and depressive symptoms among women after treatment for breast cancer may reduce the likelihood of unnecessary hospitalization.

services utilization, and the most costly form of utilization, hospitalization. Healthcare utilization is influenced by a number of factors, including those related to sociodemographics, coexisting clinical conditions, and healthcare system features, and often is categorized in reference to the reason a person seeks care (i.e., primary, secondary, or tertiary prevention) (Andersen, 1995; Andersen, Chen, Aday, & Cornelius, 1987; Mechanic, 1978, 1995; Oleske, 2001). Healthcare utilization rates can be measures of need to which healthcare services should be targeted. High utilization rates could mean unmet needs or problems with the quality of care rendered (e.g., high postmastectomy wound infection rates); low utilization rates could mean lack of adequate health care (e.g., low breast-

With the increasing efficacy of treatment, growing attention has focused on nontumor-related health outcomes for women with breast cancer. Health outcomes represent the end results of interventions and include health status, quality of life, functional ability, and mental status. Service use (e.g., hospitalization, readmission) is another type of health outcome and refers to the type and purpose of healthcare services rendered (Iezzoni, 1994). Categories of healthcare service utilization could include physician or other healthcare provider services, hospitalizations, prescriptions, or even medical devices (e.g., rehabilitation equipment). The study of the impact of cancer survivorship must extend to the understanding of another important outcome, healthcare

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conserving surgery rates, low mammography rates) (Oleske; Wennberg, 1996). Hospitalization is a particularly costly health outcome that represents a type of adverse outcome often related to quality of care (or lack thereof). Although numerous studies have indicated that women with breast cancer are at long-term risk for a wide variety of psychological and physical problems resulting from multimodality therapies, the nature of the link between them and hospitalization or other healthcare utilization in the United States has not been evaluated extensively (Barton et al., 1998; Ganz, Rowland, Desmond, Meyerowitz, & Wyatt, 1998; Hoskins, 1997; Longman, Braden, & Mishel, 1999; Schag et al., 1993; Wyrwich & Wolinsky, 2000). Studies outside the United States of the use of hospital services by patients with breast cancer have shown that hospitalization constitutes the largest portion of all treatment costs (Evans et al., 2000) and have found an association with stage of disease (Kaija, Matti, & Tapani, 1996) and age group (young and old) (Wai et al., 2001). One of the challenges in studying hospital utilization is differentiating incident from subsequent utilization, the latter of which is more of a concern.

High levels of morbidity attributable to breast cancer and its treatment have been observed in survivors, and they may persist as long as three years after diagnosis (Carpenter, Johnson, Wagner, & Andrykowski, 2002; Couzi, Helzlsouer, & Fetting, 1995; Dorval, Maunsell, Deschenes, Brisson, & Masse, 1998; Fallowfield, Leaity, Howell, Benson, & Cella, 1999; Ganz et al., 1998, 2000). The common types of morbidity observed in breast cancer survivors, namely menopausal symptoms and depression, are known to be associated with hospitalization, but this relationship has not been investigated specifically in breast cancer survivors (Avis & McKinlay, 1990; Von Korff, Ormel, Katon, & Lin, 1992). Menopausal symptoms, including depression, can be premature and severe in breast cancer survivors (Bines, Oleske, & Cobleigh, 1996; Carpenter & Andrykowski, 1999; Ganz et al., 1998; Goldberg et al., 1994; Wenzel et al., 1999). Understanding the relationship between menopausal symptoms and healthcare services utilization among breast cancer survivors is important in determining which supportive healthcare services could be most effective in mitigating adverse outcomes and, thereby, improving quality of life.

So why should oncology nurses study hospitalization patterns in patients with breast cancer? Hoerger et al. (1999) found that hospital utilization is responsible for most of the costs for breast cancer care. Individual and societal economic consequences can be profound. Hospitalization (and repeated hospitalization) can be economically devastating to patients because they pay about 20% of their healthcare costs out of pocket, more than those with cardiovascular disease, gynecologic neoplasms, or osteoporosis (Hoerger et al.). Increasing out-of-pocket expenses for potentially avoidable hospitalizations compromise a breast cancer survivor's ability to finance noninstitutional services such as dietary support. Thus, identifying potentially modifiable risk factors for hospitalization is key in developing suitable nursing interventions and more cost-effective alternative health services.

Conceptual Framework

The conceptual framework of this study is based on Mechanic's (1978) General Theory of Help-Seeking Behavior,

also known as the study of illness behavior. One category of illness behavior is help-seeking behavior, which has a subcategory of healthcare services utilization behavior. Mechanic identified two major factors that explain an individual's healthcare services utilization behavior: (a) whether the person's perception of a present situation is considered abnormal and (b) the person's ability to cope with the condition. In this model, the recognition of illness is shaped by prior patterns of health practice, adherence to medical advice, and prior utilization of health care. These factors, in turn, are important predictors of subsequent healthcare utilization. Thus, in the context of the present study, this model suggests that chronic exposure to symptoms that are perceived as abnormal may overwhelm a person's ability to cope and perform self-care, thereby initiating a disablement process. The resulting lack of fit between the capacities of individuals and the environment they must function in could result in hospitalization.

The purpose of this study was to identify potentially modifiable risk factors that are associated with hospitalization. The authors hypothesized that prior use of hormonal replacement therapy (HRT), self-rated health level, depression, hot flashes, and overall menopausal symptoms would be associated with overnight hospitalization. The authors chose to focus on the working-age group because symptoms from the perimenopausal and menopausal periods are known to affect healthcare utilization (Avis & McKinlay, 1990). The identification and control of factors that are associated with hospitalization could lead to improved quality of life in breast cancer survivors and decreased risk of additional economic burden for care.

Methods

Setting and Sample

The computerized records of consecutive women who presented for evaluation of a breast tumor to one medical oncologist from 1990–1995 were screened for eligibility. Women selected for study were expected to survive at least three years and aged 21–65 years, representing a working-age population. In addition, women had to be at least one year from therapy to be eligible for study to control by design for any treatment-related conditions that could affect healthcare utilization. Individuals were not screened for preexisting problems related to depression or anxiety for the purpose of exclusion from the study. The study sample was confined to a single oncologist to control for variations in practice style. The physician's practice also was used for selection of the sample because use of HRT by women was ascertained systematically at the initial diagnosis of breast cancer. HRT is known to reduce menopausal symptoms and may be a proxy measure of health status and degree of contact with the healthcare system (Fallowfield et al., 1999; Langenberg, Kjerulff, & Stolley, 1997; Matthews, Kuller, Wing, Meilahn, & Plantinga, 1996). HRT also is associated with high S phase tumors, especially among patients with estrogen receptor-positive tumors, but its use does not appear to be correlated with tumor size or nodal status (Norlock, Cobleigh, Oleske, & Starr, 1999). Holli, Isola, and Cuzick (1998) found that HRT users had lower aggressiveness of the breast cancer tumor, but this was not associated with nodal status.

A total of 212 individuals who met the eligibility criteria from a review of an administrative database were sent a

survey packet. The envelopes were labeled with a note to the postmaster "Address correction requested/do not forward" to locate women who moved. The project manager or research assistant made attempts to recontact all eligible women by telephone to remind them to return the survey forms. This contact presented the opportunity to answer any questions of potential participants and to determine the need for survey materials in the event that a participant did not receive them. Upon follow-up, 29 women were found to be deceased, three were too ill to participate, and 57 could not be located despite extensive efforts. A total of 123 women responded, yielding a study participation rate of 98% (123 of 126) among those who were alive and could be located.

Procedure

The study received institutional review board approval prior to commencing. The computerized administrative database used to obtain the names and addresses of the potential study participants for the mailing of the recruitment letter and survey forms also contained diagnosis pertaining to the breast, date of diagnosis, HRT use at or before diagnosis, and tumor stage. A survey packet consisting of a cover letter explaining the study, four survey forms, a postage-paid return envelope, and a pencil for completing the survey was sent to each eligible woman.

The survey forms were mailed to eligible study participants. Each form was on a different color paper to attract the interest of respondents and increase response rate (Weisberg, 1996). Participants were asked not to record their names unless they wanted the physician to know a specific comment.

Within two weeks of the mailing of the survey materials, all women were sent a postcard reminding them to complete the survey, along with information on how to contact the study director if they had questions about the survey or if the survey materials were not received. No information in reference to the cancer diagnosis was made on the postcard. Survey forms were coded with identification numbers. Patients' names and addresses from the administrative database were replaced with unique identifier numbers prior to merging with the information from returned survey forms.

Measures

The **healthcare utilization and demographics survey** consisted of 27 items to ascertain the use and frequency of use of various healthcare services in the past year and demographic characteristics of respondents. Any type of hospitalization overnight for any reason in the prior 12 months was recorded. Ascertainment of utilization of nonhospital provider services (e.g., counseling, massage therapist) did not attempt to distinguish between cancer and noncancer-related services because of the small size of the sample. Self-reported hospitalization for breast cancer has been reported as 100% accurate (Bergmann, Byers, Freedman, & Mokdad, 1998). In the demographic survey, the respondents also were asked to rate their current health status as poor to excellent and to report the number of days of physical and mental health problems and restricted activity during the past 30 days.

The **Symptom Rating Scale (SRS)** was designed to assess the presence and severity of menopausal symptoms using a self-administered checklist. It originally was developed to investigate whether menopausal women differed from women of other age groups regarding symptomatology and later was

modified for use in the National Breast Cancer Prevention Trials (Neugarten & Kraines, 1965). Participants are asked to recall how much of a problem each of 50 symptoms was in the prior seven days. Each symptom is scored as 0 (not present) to 3 (a serious problem). The scores are summed to compute a symptom score. Only symptoms reported by 40% or more of the sample population were analyzed in bivariate analyses.

Data regarding hot flashes were obtained through the use of a survey form presented in a seven-day diary format. The diary prompted patients to record the total number of hot flashes in a day, the level of severity for each (mild, moderate, severe, or very severe), the average duration of each hot flash episode, the number of times awakened in the night, and how many times the night awakenings were caused by hot flashes. The methods of Goldberg et al. (1994) were followed in determining the presence of hot flashes and a hot flash score.

The **Center for Epidemiologic Studies-Depression Scale (CES-D)** is a measure designed to assess for symptoms of depression (Radloff, 1977). The CES-D is a 20-item scale, with each item scaled from 0–3. A score of 16 or higher correlates with clinical depression (Mendes de Leon et al., 1998). The CES-D has been validated in community-based samples (Roberts & Vernon, 1983). Full and shortened versions of the CES-D correlate as well in women with breast cancer as they do with other categories of women without breast cancer (Carpenter et al., 1998). The reliability of the CES-D also has been high in patients newly diagnosed with cancer (Beeber, Shea, & McCorkle, 1998). CES-D scores have been found to parallel quality-of-life scores obtained through the Functional Assessment of Cancer Therapy-Breast (FACT-B) (Wenzel et al., 1999) in women with breast cancer in that women with higher levels of depression have lower levels of reported quality of life.

Statistical Analyses

Analyses were performed using Statistical Analysis System (SAS) (Version 8.02) on a Windows-NT operating system (SAS Institute Inc., Cary, NC). Bivariate analyses were performed using chi-square tests or one-way analysis of variance as appropriate to identify candidate terms for multivariate analyses. Odds ratios (ORs) representing the likelihood of overnight hospitalization (yes = 1 versus no = 0) were computed relative to nonhospitalization for various dichotomous factors. Multivariate logistic regression analysis was used to determine the significance of various factors affecting the likelihood of hospitalization with three confounding variables: age at survey response, time since diagnosis, and stage at diagnosis were a priori specified in the model. Antilogs of the beta coefficients in the model provided multivariate ORs. The final multivariate statistical model used to evaluate relationship between hospitalization and various factors was as follows: $HOSP(1,0) = f \{AGESURV, STAGE, TIMEDX, DEPRES \text{ or } MENS COR\}$.

- HOSP: 1 = hospitalized, 0 = not hospitalized
- AGESURV: age in years at the time of the survey
- STAGE: stage of disease (0 = in situ, I, II versus 1 = III, IV)
- TIMEDX: time since diagnosis in years
- DEPRES: CES-D score
- MENS COR: 0 = (no symptoms) to 150 (all symptoms) present and rated as serious problems related to menopause

Findings

Sample

The mean age of the women at interview was 58.3 years (SD = 4.0), 93% were white, 80% had a high school education or higher, 62% were employed, and 75% were married. The mean time since diagnosis was 3.6 years (SD = 2.6). In terms of clinical characteristics, 37% women had taken HRT sometime at or before the diagnosis of breast cancer. Current health status was reported as “excellent” or “very good” by 55% of the sample population. The mean number of days of poor health in the past 30 days was 3.47 (SD = 7.16).

Table 1 displays the most common symptoms and their severity as reported on the SRS. The most prevalent symptoms were general pain (63%), hot flashes (55%), and fatigue (50%). The severity of symptoms ascertained was largely mild. However, hot flashes had the highest percentage of severe or moderate symptoms. Although 43% reported in the hot flash diary having at least some frequency of problems with hot flashes, 55% reported hot flashes on the SRS. A CES-D score of 16 or higher indicating clinical depression was observed in 18% of the sample.

Healthcare utilization patterns in the past year were examined. The rate of overnight hospitalization for any reason was 25%. Almost all of the sample population (98%) had seen a doctor at least once during the prior year for a routine check-up, and more than half (58%) had seen a doctor at least once during the prior year for an illness or injury episodes. The annual mean number of visits to healthcare providers was as follows: 7.8 physician visits for check-ups, 4.2 physician visits for illness or injury episodes, and 2.3 visits to professionals for psychological or psychiatric care. With respect to supportive care over the prior year, 9% received physical therapy services, 14% received massage therapy, and 7% received nutritionist or dietician services. The use of healthcare services for cancer or other problems was not distinguished.

Table 1. Prevalence and Severity of Symptoms in Breast Cancer Survivors

Symptom	% Who Reported Symptom Level			
	% Reported	Mild	Moderate	Severe
Vasomotor				
Hot flashes	55	24	18	12
Night sweats	48	25	13	10
Gynecologic				
Difficulty in bladder control	44	25	16	4
Genital dryness	40	24	10	6
Neurologic				
Forgetfulness	45	28	15	3
Difficulty concentrating	41	29	6	6
Other				
Fatigue	50	27	12	10
General pain	63	35	20	8
Insomnia	44	24	13	6
Depression	18	–	–	–
(% with CES-D score 16+)				

CES-D—Center for Epidemiologic Studies–Depression Scale

Note. Because of rounding, percentages may not total 100.

Bivariate Comparisons

Bivariate analysis was performed to determine whether the use of HRT at or before diagnosis could have mitigated symptoms or health outcomes at follow-up. No difference was found between those who had and those who did not have HRT with respect to the prevalence of any symptoms, including hot flashes and depression. Prior HRT use was not associated with any measure of healthcare services utilization.

Bivariate analysis was performed to determine the relationships among various sample demographic characteristics, morbidity, and healthcare utilization. No demographic variables were found to be associated with hospitalization. Neither self-rated health status nor the presence of hot flashes was associated with any measure of healthcare utilization. The mean menopausal symptoms score was higher in those who were hospitalized in the previous year than in those who were not hospitalized (hospitalized mean menopausal symptom score = 26.7, nonhospitalized mean menopausal symptom score = 18.1, $p = 0.015$). An increasing CES-D score was found to be associated positively with hospitalization in the previous year (OR = 1.06; 95% confidence interval [CI] of 1.00–1.12; $p = 0.05$).

Multivariate Analysis

Multivariate logistic regression analysis was performed to determine the OR of hospitalization adjusting for time since diagnosis and age at survey using only the variables found to be associated significantly with hospitalization in bivariate analyses. Because the two time variables were not correlated, the authors believed that including both terms was important in recognition that depression has a different trajectory depending on time since diagnosis and current age. An increasing menopausal symptoms score was associated with an increased likelihood of hospitalization after controlling for the confounding factors of time since diagnosis, age at time of survey response, and stage of disease (OR = 1.03; 95% CI of 1.00–1.05; $p = 0.046$). The terms in this equation indicated a good model of hospitalization by the Hosmer-Lemeshow statistic ($p = 0.394$). An increasing CES-D score also was observed to be associated with hospitalization, even after controlling for the same confounding factors (OR = 1.09; 95% CI of 1.03–1.16; $p = 0.041$). This model likewise was a good fit (Hosmer-Lemeshow statistic, $p = 0.554$).

Discussion

To the authors’ knowledge, rate of hospitalization has not been used as an end point of care (health outcome) in evaluating interventions for depression or menopausal symptoms in breast cancer survivors. The hospitalization rate in the current sample is more than twice the rate in a comparable age group of women from the general population (25% versus 12%) (Graves & Owings, 1996), providing important epidemiologic data on why this is an important outcome to study. The authors have found that the presence of depressive and increasing menopausal symptoms scores each are associated independently with an increased likelihood of hospitalization. The identification of potentially modifiable risk factors for hospitalization among breast cancer survivors will facilitate the development of effective nursing interventions. The more precise the identification of risk factors, the more effective the interventions will be.

Increasing depressive symptoms in these breast cancer survivors were associated with an increased likelihood of hospitalization in the prior year (after the course of treatment), controlling for age, stage at diagnosis, and time since diagnosis. As mentioned in the introduction, healthcare services utilization rates may be a proxy of unmet need and, in the case of women survivors of breast cancer, possibly unmet needs pertaining to lack of timely interventions for depressive menopausal symptoms or, even more simply, lack of identification of the symptoms at diagnosis or follow-up. Depressive symptoms at diagnosis may be dismissed as a result of the diagnosis, but these symptoms may persist.

Depression in other studies has been found to be a significant predictor of healthcare utilization, including hospitalization, in studies of community-dwelling women (Avis, Brambilla, McKinlay, & Vass, 1994; Mechanic, 1995). Depression is one of the most significant persistent psychological burdens in women with breast cancer over time (Longman et al., 1999). Yet nurses have been found to significantly underestimate the potential for depression in patients with cancer (McDonald et al., 1999). The current sample actually may underestimate the risk of hospitalization related to depression in women with breast cancer because the prevalence of depression in the sample was lower than what has been reported in other samples of breast cancer survivors (Couzi et al., 1995; Dorval et al., 1998; Ganz et al., 1998; Wenzel et al., 1999).

The authors also observed an association between increasing menopausal symptoms score and hospitalization, controlling for time since diagnosis, disease stage at diagnosis, and age at interview. This suggests that assessment of and intervention for menopausal symptoms in breast cancer survivors must be part of the follow-up, not only with the intent of improving quality of life but also for decreasing the risk of unnecessary hospitalization. Future studies with larger samples could identify with greater precision whether a differential risk of hospitalization exists among specific clusters of menopausal symptoms. Hot flashes were not found to be one of the subgroups associated with hospitalization even though they may be among the most prevalent of the menopausal symptoms (Couzi et al., 1995). A larger sample might elucidate this relationship, but hot flashes may not be a subsymptom category of vasomotor symptoms that promotes the risk of hospitalization.

When interpreting the associations observed in this study relative to the context of Mechanic's (1995) theoretical framework, the inability to cope with depression and menopausal symptoms may trigger a series of abnormal behaviors such as not being able to manage a healthy lifestyle, causing bodily and mental dysfunction that ultimately leads to hospitalization. For example, poor nutritional intake and high CES-D scores are correlated (Tangney, Young, Murtaugh, Cobleigh, & Oleske, 2002). Specifically, those authors found that higher CES-D scores are correlated with lower calcium and grain intake and lower Healthy Eating Index scores. Poor diet, in turn, decreases resistance and renders an already-compromised host susceptible to a variety of diseases, which could lead to further debilitation and eventually hospitalization.

The authors have no reason to believe that those who were hospitalized in this sample had any less access to care or had a differential health status that independently could have accounted for the hospitalization or lack thereof. Access to health care and health status are factors in Mechanic's (1995)

model influencing healthcare utilization. Health status in the current study was not found to predict hospitalization. HRT use also is a proxy measure of health status and access to medical care (Matthews et al., 1996), and it was not found to be associated with hospitalization in the present study.

Limitations

Although the conclusions of this study are limited by the small sample size, the data were collected using survey forms that have been validated in other studies. Hence, the estimates of morbidity patterns in these women should be useful to other researchers attempting to plan studies to improve quality of life by reducing the number of days of disability caused by physical or mental health problems. Also, the design of the study allowed the authors to control for physician practice style, a confounding factor that could affect symptom detection, manifestation, and associated outcomes. Another limitation of this study is that a cross-sectional design was employed for the evaluation of the relationship between current morbidity and hospitalization. For this reason, the determination of causal inter-relationships among depressive and menopausal symptoms and hospitalization was not possible. But because the women studied were, on average, 3.6 years since breast cancer diagnosis, the magnitude and importance of depressive and menopausal symptoms and hospitalization are less likely to be confounded with the psychological and physiologic stresses of the diagnosis and early treatment period. Budget limitations of the grant precluded the authors' ability to follow the sample over time to explore the sequencing of these factors. However, the documentation of HRT use at diagnosis allowed the researchers to examine, from a historical prospective view, the relationship of HRT use to hospitalization subsequent to completion of treatment.

Implications for Nursing

The findings of this study serve as a strong reminder for nurses to be more alert to eliciting the existence of depressive and menopausal symptoms in breast cancer survivors. Numerous approaches can be used besides the CES-D and the hot flash diary. These include the Cancer Rehabilitation Evaluation Systems psychosocial component (Ganz et al., 1993), the mental health domain of the SF-12[®] Health Survey (Ware, Kosinski, & Keller, 1995), the FACT-B (Wenzel et al., 1999), and the Breast Cancer Prevention Trial Symptom Checklist (Ganz et al., 1998). The structured Comprehensive Menopausal Assessment by Zibecchi, Greendale, and Ganz (2003) provides a thorough and efficient scheme for the assessment of these symptoms that may, in turn, lead to the more precise isolation of symptoms for targeted intervention. Mechanic's (1995) model is useful for conceptualizing the potential barriers to conducting adequate assessment to determine the existence of these symptoms. He related that to assess these symptoms, a practitioner must be open to eliciting information not pertaining to the central diagnosis, the patient must perceive that the set of symptoms would be recognized as important to the practitioner, and, most importantly, a sufficient amount of time must be allotted to this process. These are more important than merely probing for physical signs. Unfortunately, time is one of the biggest barriers in healthcare services delivery, with only limited time available for the assessment process as dictated by insurance limitations and higher patient-staff ratios.

As part of the assessment process, factors that trigger symptoms also should be ascertained carefully. Carpenter et al. (2002) attempted to identify a number of triggers for hot flashes such as sleep disturbance. Thus, triggers may be considered for targeted interventions, too.

With respect to interventions for depression or depressive symptoms, the positive benefits of a multidisciplinary team on psychosocial adjustment in the outpatient setting have been reported (Frost et al., 1999). Self-help interventions aimed at improving problem solving, cognitive reframing of aversive events, and support management of uncertainty appear to have some benefit, but only in women with breast cancer who also have fatigue burden and not among those with concomitant nausea or pain (Badger, Braden, & Mishel, 2001). This work is seminal to nursing theory because it suggests that depression may be part of a cluster of symptoms similar to some medical conditions (e.g., the diabetes-obesity-hypertension triad). Physical inactivity has been suggested as a risk factor for depression in a large epidemiologic study (Penninx, Leveille, Ferrucci, van Eijk, & Guralnik, 1999). Thus, taking the time to recommend physical activity for all patients with cancer may be a simple, cost-effective measure for depressive symptomatology that oncology nurses could institute as part of their practice. Recently, Internet support groups have been suggested as an intervention strategy for managing depression in patients with cancer, but the efficacy of this method has not been established (Klemm & Hardie, 2002). Other support for interventions for depression, such as increasing and strengthening the informal social support system, can be found in reviews by Aapro and Cull (1999) and Lovejoy, Tabor, and Deloney (2000).

The identification of an appropriate intervention for the management of the most common and severe of menopausal symptoms, hot flashes, is more challenging. Physical activity not only is beneficial for decreasing the risk of depression but also shares a benefit for decreasing vasomotor symptoms related to menopause. A study by Ivarsson, Spetz, and Hammar (1998) supports two earlier studies (Collins, & Landgren, 1995; Hammar, Berg, & Lindgren, 1990) that found that women who participated in physical activity on a regular basis had a lower prevalence of hot flash symptoms. High physical activity in older women also has been shown to have the side benefit of reducing the risk of hospitalization for breast cancer (Wyrwich & Wolinsky, 2000). HRT is contraindicated in breast cancer and has fallen out of favor in general. Vitamin E has mixed ef-

ficacy, and no studies have reported success of herbal therapy (e.g., black cohosh) in controlling hot flashes (Jacobson et al., 2001). Dietary estrogen in the form of soy phytoestrogen also has been observed to have no effect on hot flash symptoms in breast cancer survivors when compared to placebo (Quella et al., 2000). The newer antidepressants (venlafaxine, fluoxetine, and paroxetine hydrochloride) have demonstrated efficacy for alleviating hot flashes (Loprinzi et al., 2000, 2002; Stearns, Beebe, Iyengar, & Dube, 2003). The benefit of these agents is greater than other nonhormonal agents, and they decrease hot flashes by 19%–75% (Kockler & McCarthy, 2004). Most patients tolerate associated side effects of these antidepressants relatively well (Barton & Loprinzi, 2004). Researchers are continuing to study these newer agents to determine the most efficacious and least toxic therapy.

Conclusions


With the use of and reimbursement for resources in patient care being challenged through managed care arrangements and other cost-control measures in payer contracts, efforts must be increased to rapidly identify and provide supportive care in ambulatory settings to patients with cancer at highest risk of potentially avoidable hospitalization. For women with breast cancer, the careful and early identification of depression and menopausal symptoms and their triggers may decrease the risk of hospitalization and significantly improve their quality of life. Greater precision in identifying such high-risk patients early will improve the efficacy of early interventions for depressive and menopausal symptoms. This argues for the necessity of a high level of expertise such as that provided by an oncology nurse as part of the team involved in the ongoing care of a woman with cancer. Lastly, this article has provided some information about the prevalence of selected epidemiologic health status indicators in breast cancer survivors. The data presented herein can be used as benchmarks in assessing the impact of oncology nursing interventions for menopausal and depressive symptoms and for future studies of other risk factors for hospitalization in breast cancer survivors.

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