Stress in Patients With Lung Cancer:
A Human Response to Illness

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This article has been chosen as particularly suitable for reading and discussion in a Journal Club format. The following questions are posed to stimulate thoughtful critique and exchange of opinions, possibly leading to changes on your unit. Formulate your answers as you read the article. Photocopying of this article for group discussion purposes is permitted.

1. What are the biologic and physiologic effects of stress?
2. What are the emotional effects of stress?
3. What are the signs and symptoms of stress in the patients we care for?
4. Is there a specific patient or situation that comes to mind that demonstrates a stress response? What was the outcome? How could the outcome have been different with assessment and intervention?
5. Do we or should we assess for stress systematically in our patients?
6. Is there an evidence base cited in this article to support a change in practice?

At the end of the session, take time to recap the discussion and make plans to follow through with suggested strategies.

Purpose/Objectives: To provide a comprehensive overview of stress in patients diagnosed with lung cancer within the context of the four perspectives (normal physiologic, pathophysiologic, behavioral, and experiential) of the Human Response to Illness Model.

Data Sources: Published research articles, clinical articles, book chapters, and Internet sources on stress and lung cancer. Initial literature searches in CINAHL® and PubMed® focused on data subsequent to 2001; classic research dating back to the 1970s also was included.

Data Synthesis: Patients diagnosed with lung cancer experience psychological and biologic stressors from a delayed cancer diagnosis, symptom management issues, and social stigmatization of their illness. These stressors may cause a physiologic stress response, exacerbate the disease process, and decrease the patient's quality of life.

Conclusions: Acknowledging that the stress response may interact with pathophysiologic disease processes such as lung cancer is important, and stress management in patients with cancer should include all four perspectives of the Human Response to Illness Model.

Implications for Nursing: By examining the four perspectives, interventions may be implemented to prevent or alleviate the detrimental effects of the pathophysiologic stress response. This article establishes the relevance of this nursing model to assess and manage stress among patients with lung cancer and other types of cancers.

Key Points . . .

➤ Patients with lung cancer experience stressors related to diagnosis, symptom management issues, and having an illness with an increasing societal stigma.

➤ The physiologic stress response is a normal adaptive response elicited by social, psychological, physiologic, or biologic stress.

➤ Sufficiently intense and unresolved stress responses may lead to pathophysiologic consequences. Patients with a coexisting illness are at high risk.

➤ Nurses are in an ideal position to assess, intervene, and reduce or alleviate the detrimental effects of stress among patients with lung cancer through the Human Response to Illness Model.

with lung cancer experience many psychological stressors from diagnosis and symptom management issues. Lung cancer often carries an additional stressor from the increasing societal stigmatization of cigarette smokers. The Human Response to Illness Model, proposed by Mitchell, Gallucci, and Fought (1991), provides a comprehensive framework to

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Although great accomplishments have been made toward increasing knowledge of cancer's causes and cures, lung cancer remains the leading cause of cancer deaths (American Cancer Society, 2007a; Canadian Cancer Society, 2007). Psychological stressors may elicit a physiologic stress response in both healthy individuals and those suffering from a coexisting illness (Page & Lindsay, 2003). Patients

expand knowledge of normal physiologic, pathophysiologic, behavioral, and experiential perspectives of the response to illness. The model will be used to examine how psychological stressors may exacerbate the physiologic stress response to illness in patients with lung cancer. Interventions may be implemented to prevent or alleviate the detrimental effects of the pathophysiologic stress response.

Lung Cancer

Incidence and Prevalence

Lung cancer is the leading cause of cancer death in men and women in Canada and the United States (American Cancer Society, 2007a; Canadian Cancer Society, 2007). In 2007, an estimated 23,300 Canadians and 213,380 Americans developed lung cancer and 19,900 Canadians and 160,390 Americans died from the disease (American Cancer Society, 2007a; Canadian Cancer Society). Although the death rates for some cancers, such as breast and skin, continue to decline as a result of improved screening, early detection, and advances in treatment, the death rate for lung cancer remains high. Breast cancer rates have stabilized and the death rate has steadily declined since 1993; however, lung cancer occurrence and mortality increased among Canadian women during that time (Canadian Cancer Society). The statistics portray a very grim picture for patients with lung cancer. Although the survival rate may depend on lung cancer histology, the overall five-year rate for patients is about 16% (American Cancer Society, 2007b).

Risk Factors

Cigarette smoking, the most common cause of lung cancer, has been causally linked to disease development since the 1950s (Peto et al., 2000). Other risk factors include exposure to secondhand smoke or inhaled pollutants such as benzo-pyrene, radon, asbestos fibers, and diesel exhaust (Brashers, 2006). The National Cancer Institute (2006) reported that researchers at the Genetic Epidemiology of Lung Cancer Consortium found strong evidence of a potentially inherited region of chromosome six that is susceptible to lung cancer. Researchers discovered that the chances of developing lung cancer in those who were noncarriers of the familial gene were related to the amount of cigarettes smoked. But in gene carriers, any amount of cigarette smoking increased lung cancer risk, suggesting that even a very small amount of smoking may lead to lung cancer for those with an inherited susceptibility.

Pathogenesis

The two main types of lung cancer are small cell lung carcinoma (SCLC), which accounts for 14% of lung cancers, and non-small cell lung carcinoma (NSCLC), which accounts for 75%. Other less common cancers make up the remaining lung cases (Brashers, 2006). SCLC has the highest rate of mortality because of its tendency for rapid growth and early metastasis (Brashers). NSCLC includes squamous cell carcinoma, adenocarcinoma, and large cell carcinoma. Treatment and prognosis depend on histology and stage.

Tobacco smoke contains as many as 20 different carcinogens and is responsible for the development of 80%–90% of lung cancers (Peto et al., 2000). Carcinogens, along with the probable genetic predispositions to cancers (i.e.,

chromosome deletion, oncogene activation, inactivation of tumor-suppressing genes), cause abnormalities in bronchial cells. Once the abnormalities appear, epidermal growth and other factors aid tumor cell enlargement. Lung cancer may invade surrounding structures, such as the chest wall, or metastasize via the lymphatics to bones, brain, or the liver (Brashers, 2006).

Many factors contribute to the high mortality rate in patients with lung cancer. Depending on the histologic type of lung cancer, patients may present with shortness of breath, nonproductive cough, fatigue, chest pain, pneumonia, or hemoptysis. But patients may ignore the symptoms, attributing them to other causes (e.g., fatigue caused by overwork, cough from a virus, cigarette smoking). Unfortunately, most patients with lung cancer are diagnosed at a late stage and are asymptomatic. Healthcare professionals often locate a mass in the lung only when treating a patient for an unrelated disorder (Haas, 2003). However, the results of the International Early Lung Cancer Action Program (Henschke, Yip, & Miettinen, 2006) (N = 31,567) suggest that using spiral computed tomography to screen asymptomatic patients at risk for lung cancer (former or current smokers or those exposed to second-hand smoke or occupational carcinogens) can detect the cancer at an early and potentially curable stage.

An additional and often overlooked factor contributing to the high mortality rate may be that patients with lung cancer have a concurrent stress response to their illness that exacerbates the disease progression (Page & Lindsey, 2003).

Stress

All people experience stressors throughout their daily lives with varying degrees of response. Stressors may arise from facing a life-threatening traumatic injury to daily hassles, such as trying to find a parking spot or writing an examination. Stressors are defined as stimuli that may result in a stress response, whether social, psychological, physiologic, or biologic in origin (Page & Lindsay, 2003). The stress response is a normal and adaptive response to perceived or real threats to an individual's state of physiologic homeostasis (Page & Lindsay).

The Human Response to Illness Model

The Human Response to Illness Model provides a comprehensive framework to expand knowledge of how psychosocial factors interact with physiologic processes (see Figure 1). Examining the four interrelated perspectives of the model (normal physiologic, pathophysiologic, behavioral, and experiential) provides insight into how the perspectives interact with each other, as well as with an illness. The information can be used to identify how psychosocial variables may act as stressors and cause a physiologic response, and how this knowledge is applied to facilitate optimal holistic care to patients with lung cancer. Stress may be mediated by various personal and environmental factors, including psychological coping, meaning ascribed to illness, and availability of social support. Sufficiently intense and unresolved stress response may lead to pathophysiologic responses and have a negative effect on the illness. The four perspectives of the Human Response to Illness Model will be examined within the context of lung cancer.
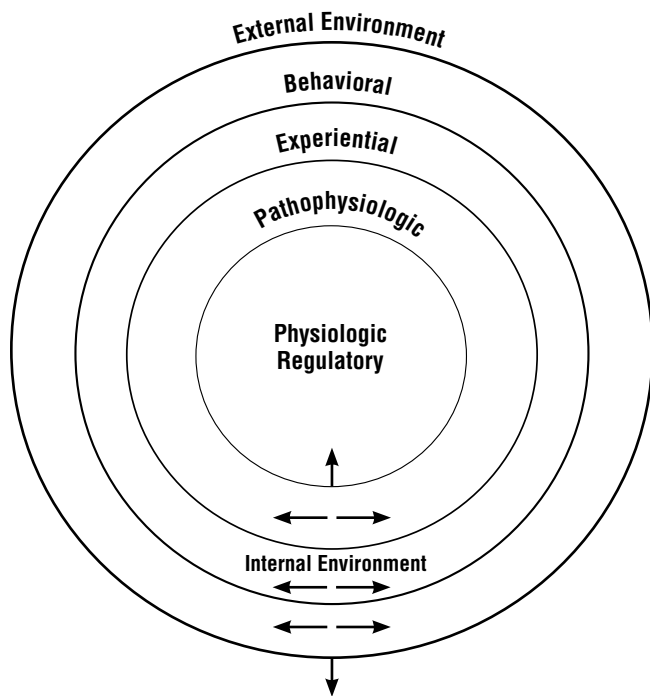
Note. The arrows indicate that responses within each perspective are capable of transmitting and receiving information from other perspectives. The behavioral responses allow people to communicate other responses to the external environment and other people.

Figure 1. Relationships of the Four Perspectives of the Human Response to Illness Model

Note. From "Perspectives on Human Response to Health and Illness," by P.H. Mitchell, B. Gallucci, and S.G. Fought, 1991, *Nursing Outlook, 39*(4), p. 155. Copyright 1991 by Elsevier, Inc. Reprinted with permission.

Physiologic Stress Response

The Human Response to Illness Model proposes that the physiologic perspective is "based on the concept of normative or usual biologic functioning and includes phenomena measured by the instruments of the biologic sciences" (Mitchell et al., 1991, p. 155). The body's response to a stressor is a normal, adaptive effort to return to a homeostatic state. Stress responses involve many complex physiologic mechanisms, including the brain, nervous and endocrine systems, and immune function (McCance, Forshee, & Shelby, 2006).

Humans respond to stress to ready the body for action. The stress response is elicited by real or perceived stressors, whether biologic or psychological in origin. The response is initiated by the endocrine system and the central nervous system to indirectly and directly release catecholamines (i.e., norepinephrine, epinephrine). Epinephrine raises cardiac output, which increases blood flow to the heart, brain, and skeletal muscles, and dilates blood vessels and the airway, increasing available oxygen to the bloodstream. Norephinephrine constricts blood vessels of the viscera and skin and shunts blood to the vessels dilated by epinephrine. Norepinephrine also helps to increase mental alertness (McCance et al., 2006). The hypothalamus secretes corticotropin-releasing hormone and stimulates the pituitary gland to secrete adrenocorticotropic hormone that, in turn, causes the adrenal cortex to release steroid hormones, including

cortisol. Catecholamines prepare the body to act by affecting the sympathetic nervous system and cortisol mobilizes glucose, amino acids, lipids, and fatty acids to the bloodstream (McCance et al.).

The stress response has a direct and indirect impact on immune function. Corticotropin-releasing hormones influence the immune system indirectly by activating glucocorticoids (i.e., cortisol) and catecholamines. Peripheral corticotropin-releasing hormones are proinflammatory, causing vasodilation and vascular permeability, as well as targeting mast cells. Cortisol's impact on the immune system is location and concentration specific and, therefore, may stimulate or inhibit immune function (McCance et al., 2006).

To summarize, the endocrine, nervous, and immune systems all exert various influences through direct and indirect pathways in response to a stressor. Other hormones are affected by the stress response, including endorphins, growth hormone, prolactin, antidiuretic hormone, lutenizing hormone, progesterone, and testosterone. The various systems have numerous feedback loops to regulate hormone production as the body returns to a state of homeostasis (McCance et al., 2006).

Pathophysiologic Stress Response

If the body is unable to return to a state of homeostasis following the stress response, or if the individual is faced with chronic stressors, the stress response may have pathophysiologic consequences. "Pathophysiologic responses result from disordered biologic functioning, with phenomena observable by instruments of the biologic sciences" (Mitchell et al., 1991, p. 155). Stress response may help an individual prepare for action, but it also may be responsible for negative health outcomes, such as acute, chronic, major, and minor stress associated with illness development (Deane, 1997).

Evidence supports a causal link between stress and metabolic derangement, immunosuppression, and increased susceptibility to infection. Although the stress response is adaptive and protective, pathologic consequences can occur if the stressors overtax the body and prevent a return to homeostasis (Page & Lindsey, 2003). Individuals with a preexisting illness are most at risk of a serious or pathologic stress response (Page & Lindsay). Glaser (2004) found numerous studies in the field of psychoneuroimmulogy that examined healthy and chronically stressed individuals. Glaser studied how psychosocial stress modifies interactions between the body's major systems and affects health. The findings suggested that psychological distress and loneliness result in lower levels of natural killer cell activity, increased urinary cortisol levels, a decline in percentages of helper or inducer T lymphocytes and helper or suppressor ratios, and delayed wound healing. Glaser also supported the assertion that cellular immunocompetence may be enhanced by psychological interventions. Little is known about the role that stress plays in the initiation or progression of cancer; however, the results of a series of experiments suggest that psychological stress may increase cancer risk by modifying the cell's response to carcinogens, tumor promoters, and oncogenic viruses. Those responses also may interact with the stress-induced decrease in the natural killer cells and T-cell immune responses (Glaser). Other health conditions have been linked to stress, such as migraine headaches, obesity, asthma attacks, and hypertension, but that link has been correlational rather than causal (Page & Lindsey).

Although all patients with a chronic or life-threatening disease may be at risk of a pathologic stress response, patients with lung cancer may be at increased risk as a result of several factors. Lung cancer has a high mortality rate and most patients with lung cancer have a delayed diagnosis, so they may be faced with distressing symptoms such as dyspnea, cough, fatigue, pain, nausea, and constipation. Degner and Sloan (1995) found that, among newly diagnosed patients with cancer, those with lung cancer reported the most symptom distress. Higher symptom distress is predictive of higher patient mortality. A combination of any or all of the symptoms experienced by patients with lung cancer may act as stressors and exacerbate the stress response. Side effects of chemotherapy or radiation, such as pain, nausea, fatigue, and shortness of breath, as well as recovery from surgery all may pose additional challenges for patients with lung cancer. Physiologic stressors may act or interact with the lung cancer to increase the potential for a pathologic stress response.

Behavioral Response to Stress

"Behavioral responses are directly observable and measurable motor and verbal behaviors" (Mitchell et al., 1991, p. 155). Many indirect indicators of the human response of stress have been identified, including an increase in plasma levels of adrenocorticotropic hormones, glucocorticoids (i.e., cortisol), and glucose during stress. Measurable indicators of increased catecholamine levels include increases in blood pressure, respiratory rate, and heart rate. Galvanic skin resistance and palmar sweat also may be used as stress indicators; however, these only are indirect indicators and are not conclusively diagnostic because they can be influenced by other biologic factors, such as pain or side effects of certain pharmaceuticals. Other indirect stress measures include shaking, vomiting, fainting, agitated behavior, voice pitch, increased speed of talk, crying, pacing, excessive smoking, eating, or verbalizations about feeling anxious (Page & Lindsey, 2003).

Numerous self-report tools have been developed in an attempt to capture the psychological measurements of stress. Scales have been developed to measure psychosocial stress and have been used in a variety of psychology-related research, as well as in health and illness studies (see Table 1). Stress measurement has gone in two divergent directions in the health-related literature. Because cancer may be profoundly stressful, it has been conceptualized as a traumatic stressor that may cause post-traumatic stress disorder. Gurevich, Devins, and Rodin (2002) supported that concept by reviewing the most common measure of stress, the Impact of Events Scale (Horowitz, Wilner, & Alvarez, 1979), along with other diagnostic criteria for post-traumatic stress disorder, such as symptoms of reexperiencing the trauma, avoidance, numbing, or hyperarousal (American Psychiatric Association, 1995).

The most common measures of psychosocial stress in the current cancer literature, however, are seen within quality-of-life research (Golden-Kreutz, Browne, Frierson, & Andersen, 2004). The concept of quality of life among patients with cancer has been well researched and many instruments have been developed (see Table 2). The Distress Thermometer (akin to the commonly used pain scale) is a very brief assessment in which patients are asked to rate their level of distress from 0 (none) to 10 (extreme) (National Comprehensive Cancer Network, 2003). Similarly, simply asking the patient a question, such as, "How is your distress today?" may open a dialogue for the patient to provide information about their level of stress (Holland, 2003).

Although most research on patients with lung cancer has focused on the physical management of symptoms, several research studies have measured quality of life in this population. Montazeri, Milroy, Hole, McEwen, and Gillis (2003) measured quality of life in patients with lung cancer at diagnosis and at a three-month follow-up and found that, independent of treatment type, quality of life was related to physical function and other symptoms that may result from disease progression or treatment side effects. Montazeri et al. concluded that psychosocial assessment of well-being, as well as physical assessments of symptoms, is important in evaluating quality of life in patients with lung cancer. Fox and Lyon (2006) studied physical and psychological distress and found that patients with lung cancer have distressing physical symptoms, including pain and fatigue, and that fatigue appears to form a symptom cluster with depression. This cluster

Table 1. Selected Psychological Stress Measurement Scales

Scale and Author	Purpose	Number of Items	Reliability
State/Trait Anxiety Inventory (Spielberger, 1983)	Measure situational anxiety (state anxiety) and ongoing anxiety (trait anxiety)	40	State anxiety (coefficient alpha 0.90–0.97); trait anxiety (coefficient alpha 0.81–0.94)
Profile of Mood States (McNair et al., 1971)	Measures six mood dimensions: tension-anxiety, depression-dejection, anger-hostility, vigor-activity, fatigue-inertia, and confusion-bewilderment	65	Internal consistency r > 0.90; test-retest reliability 0.65–0.74
Impact of Events Scale (Horowitz et al., 1979)	Assesses current subjective distress for relationships to any specific life event	15	Cronbach alpha = 0.82
Perceived Stress Scale (Cohen et al., 1983)	Measures individual's perceptions of amount of stress experienced	14	Coefficient alpha = 0.85
Ways of Coping Questionnaire (Folkman & Lazarus, 1985)	Measures coping processes that individuals use in stressful encounters	66	Cronbach alpha on subscales = 0.70–0.88
Daily Hassles and Uplifts Scale-Revised (DeLongis et al., 1988)	Measures daily hassles and uplifting moments to assess perceived stress and mood disturbance	53	Cronbach alpha on subscales = 0.80–0.93

Table 2. Selected Quality-of-Life (QOL) Measurement Scales

Scale and Author	Purpose	Number of Items	Reliability
Quality of Life Index (Ferrans, 1990)	Measures QOL of patients to account for individual values and satisfaction; includes subscales of health and functioning, socioeconomic, psychological or spiritual, and family	70	Overall QOL (Cronbach alpha = 0.95); subscales (Cronbach alphas = 0.90, 0.84, 0.93, 0.66)
European Organization for Research and Treatment of Cancer Quality of Life Core Questionnaire (Aaronson et al., 1993)	Evaluates the QOL of patients; five functional scales (physical, role, cognitive, emotional, and social), three symptom scales (fatigue, pain, and nausea), one global health and QOL scale	30	Cronbach alpha > 0.70
European Organization for Research and Treatment of Cancer Quality of Life Core Questionnaire–Lung Cancer (Bergman et al., 1994)	Evaluates QOL and symptoms of patients with lung cancer; includes multi-item and single-item measures of lung cancer symptoms and side effects of lung cancer symptoms	13	Cronbach alpha > 0.70
Lung Cancer Symptom Scale (Hollen et al., 1993)	Disease- and site-specific instrument with a patient and observer form	9	Repeated inter-rater reliability (r = 0.95–0.98); Test-retest reliability (r > 0.75)

Note. Entries are Likert-type scales except the Lung Cancer Symptom Scale, which uses a visual analog scale.

negatively affects the patient's quality of life. Other researchers have explored quality of life in patients with lung cancer from the experiential perspective (Downe-Wamboldt, Butler, & Coulter, 2006; Sarna et al., 2005; Zabora, BrintzenhofeSzoc, Curbow, Hooker, & Piantadosi, 2001; Chapple, Ziebland, & McPherson, 2004).

Experiential Response to Stress

Because people do not react the same way to stressors, the experiential nature of the stress response must be captured. "Experiential responses include concepts of introspection, personal experience, and derivation of shared meaning" (Mitchell et al., 1991, p. 155). The stress response is mediated by numerous variables, such as the patient's support system, personality, and situational factors, and includes past experience, knowledge, and usual coping mechanisms. In addition to indirect measures of the behavioral perspective, the experiential perspective often is captured as quality of life in research literature.

According to Lazarus and Folkman (1984), the stress response is believed to be mediated by the primary appraisal of the stressor, whether favorable (i.e., a challenge) or unfavorable (i.e., a threat), and the secondary appraisal of the available coping mechanisms or resources to deal with the threat. Research supports the role of stressor appraisal in patients with lung cancer and suggests that, regardless of the type of coping used, appraisal of the illness as being manageable is predictive of better quality of life for patients and their families (Downe-Wamboldt et al., 2006). On the other hand, Sarna et al. (2005) found that women with lung cancer commonly experience negative appraisals of their illness and, consequently, suffer serious disturbances of social and psychological quality of life such as distress with their diagnosis (76%), fear of metastasis (69%), impact on sexual functioning (77%), and distress with family members (77%). The authors found that patients with lung cancer reported a significant relationship between depressed mood, negative meaning of illness, and younger patients age with lower quality-of-life measures. Research has found that patients with lung cancer report more psychologi-

cal distress compared to those with other types of cancer (Zabora et al., 2001). Zabora et al. used a large database (N = 4,496) to determine the prevalence of psychological distress among patients diagnosed with 1 of 14 different types of cancer. They found that patients with lung cancer face higher levels of psychological distress and that failure to detect and treat elevated levels of distress can jeopardize treatment outcomes, decrease quality of life, and increase healthcare costs.

Patients with lung cancer may face additional stressors as a result of the stigmatization of cigarette smokers. Chapple et al. (2004) confirmed that by using a qualitative research method (N = 45). The authors found that, because of a stigma attached to lung cancer, patients' social interactions with friends and family suffered, and the fear of disclosing a lung cancer diagnosis prevented them from seeking social support or financial assistance (Chapple et al.). The authors concluded that media campaigns regarding cigarette-smoking cessation and prevention have the unintended effect of stigmatizing a vulnerable population. Guilt, shame, and decreased social support act as additional psychological stressors and exacerbate the physiologic stress response and increase the potential for a pathophysiologic stress response. Miller and Kaiser (2001) have argued that stigma itself may act as a stressor that increases the quantity of stressors. Social support has documented benefits for coping with stress (DeLongis & Holtzman, 2005), but stigmatized individuals often are isolated with a decreasing social network of support.

Examining the experiential perspective of the human response to illness reveals myriad personal and environmental factors that may affect stress response, including cultural, familial, and societal influences; personality factors; meaning of illness; prior history; ways of coping; and social support. Lived experiences must be assessed because they may mediate or, conversely, exacerbate the stress response. An appreciation of the inherent individual differences within the experiential perspectives is needed to evaluate and choose appropriate interventions for the prevention of a pathophysiologic stress response in patients with lung cancer.

Implications for Nursing Practice

The four perspectives of the Human Response to Illness Model provide insight into nursing assessment and management of stress in patients with lung cancer. Knowledge of how the normal physiologic response to stress may result in a pathophysiologic response reminds healthcare professionals of the important interaction between psychosocial variables and medical or physiologic outcomes. The behavioral perspective provides the means to indirectly and objectively measure the stress response. Clarifying the patient's lived experience of the stress response is essential because no direct measure of stress exists and no two people have the same set of stressors or coping resources. Using that framework for a comprehensive and holistic assessment will help healthcare providers develop interventions to ameliorate, or even prevent, the stress response among patients with lung cancer.

Psychosocial stressors should be determined during an initial patient assessment to determine whether an individual is particularly vulnerable for a pathologic stress response. Baum (2004) argued that because patients who are diagnosed with cancer may be in shock and facing their own mortality for the first time, patients' psychosocial and moral support needs should be considered even prior to medical needs. Madden (2006) believed that distress in patients with cancer is underassessed, underdiagnosed, and undertreated, and recommended that healthcare professionals screen all patients for distress. To that end, physiologic stress measurements, along with the developed psychological stress measures or quality-of-life questionnaires, should be completed on admission to oncology or palliative care programs. According to Cohen (2000), the most accurate assessments include measures of environmental stressors, patient cognitive and affective psychological factors, as well as biologic indices to plan appropriate nursing interventions and evaluate their effectiveness.

The meaning that patients ascribe to their illness, consequent stressors, and prior ways of coping may be useful to examine. Dialogue may elicit insight into the experiential perspective of the stress response, including how patients' meaning of the illness provides a window from which they can view their illness. This insight may help healthcare professionals tailor interventions to suit a particular patient's needs. Available coping resources and the patient's support systems also should be assessed to determine whether the patient has the resources needed to effectively deal with stressors or whether any referrals or interventions may be needed.

Appropriate strategies should be implemented for patients suffering from or at risk for psychological distress, including education about potential symptoms of excessive stress and ways to alleviate or moderate stress through interventions, such as cognitive behavioral therapy or relaxation training. Stress reduction support may be provided through social workers, pastoral care programs, psychosocial oncology departments, organized support groups, reading materials, and family.

Levi's (2005) three broad types of stress management strategies are (a) modifying or eliminating the stress-producing situation or removing the person from the situation, (b) changing the social situation to suit the individual, and (c) strengthening resilience to stress through exercise, mediation, relaxation, and social support. Gurevich et al. (2002) found that studies related to decreasing the stress response in patients with cancer largely focused on the prevention and treatment of psychological distress. Interventions such as education, behavioral or coping skills training, emotional or social support, and psychotherapy were effective in alleviating psychological distress. Osborn, Demoncada, and Feuerstein (2006) conducted a meta-analysis of research on cancer survivors and found that cognitive behavioral therapy reduced anxiety and depression and improved quality of life.

Efforts to prevent stigma specific to patients with lung cancer may be made if health promotion efforts and media campaigns use nonjudgmental and nonblaming material for antismoking campaigns. The need for smoking cessation education, which is extremely important because lung cancer is preventable, must be balanced with supportive health care that assists patients with all aspects of health, including psychosocial stress.

Although literature about health-related stress is abundant, little research examines the personal and environmental factors that contribute to stress in patients with lung cancer. Studies that combine the physiologic and psychosocial measures of the stress response and the experiential perspectives of stress as a human response to illness are needed. The four interrelated perspectives of the human response to illness—physiologic, pathophysiologic, behavioral, and experiential—may be examined to determine the effects of stress on lung cancer as well as the patient's quality of life. Evaluations of efforts to reduce psychological distress should be conducted to determine which interventions are effective at ameliorating the stress response.

Conclusion

Lung cancer is the leading cause of cancer death in Canada and the United States. Patients with lung cancer may be particularly vulnerable to excessive stressors as patients not only face a diagnosis of a potentially fatal illness with symptom management issues, but additionally, stigmatization of their illness. Psychological stressors may cause a physiologic stress response and exacerbate the disease process. Examining how the stress response interacts with other pathophysiologic disease processes, such as lung cancer, is beneficial. The Human Response to Illness Model provides a comprehensive framework to nurses for assessment and management of stress in patients with lung cancer. The insight gained from knowing the physiologic, pathophysiologic, behavioral, and experiential perspectives of the model also may be applicable to patients with other cancers and should drive nurses to alleviate the detrimental effects of stress. Doing so will strengthen stress management in patients and ultimately bring them back to a holistic state.

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