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Improving Spiritual Well-Being in Patients with Lung Cancers

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Abstract

Patients with lung cancer report more disease burden and lower spiritual well-being (SWB) compared with other cancer patients. Understanding variables that lessen disease burden and improve SWB is essential. The aim of this study was to explore the relationship between motivational level for physical activity and SWB in patients with lung cancer. Linear regression showed increased SWB as stage of change for physical activity increased ($p < 0.0001$), even after adjusting for multiple demographic variables.

Keywords

lung cancer; exercise; spirituality; spiritual well-being; stages of change

Background

The National Cancer Institute estimates that there will be over 200,000 new lung cancer diagnoses in the United States each year (Howlader et al., 2012). This is particularly

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concerning because lung cancer is the most common cause of cancer-related death in the United States (Niederhuber, Armitage, Doroshow, Kastan, & Tepper, 2013). Furthermore, it has been found that those with lung cancer experience greater symptom burden and lower quality of life (QOL) than those with other types of cancer (Schag, Ganz, Wing, Sim, & Lee, 1994).

Lung cancers are classified as small cell lung cancer (SCLC), a very aggressive cancer, and its less virile counter-part, non-small cell lung cancer (NSCLC). Fortunately, 80%-85% of the lung cancers diagnosed are NSCLC (Niederhuber, et al., 2013). However, the majority of patients with NSCLC present with advanced disease, with up to one third having a distant metastasis (D'Addario et al., 2010; Niederhuber, et al., 2013; Ou, Zell, Ziogas, & Anton-Culver, 2007; Pillai & Ramalingam, 2014).

Patients with NSCLC experience a variety of signs and symptoms, including coughing, coughing up blood, shortness of breath, hoarseness, chest pain, and chest wall pain. They can also present with constitutional symptoms such as weakness, anorexia, and weight loss. Metastases to bones, liver, adrenal glands, intra-abdominal lymph nodes, brain, spinal cord, lymph nodes, and skin cause additional debility, disability, and discomfort.

Developments in medical treatment protocols and individualized care are continuing to improve survival for those with NSCLC (Pillai & Ramalingam, 2014). Patients with stage I, II, and IIIA disease may be candidates for surgery to remove the affected area of the lung. Those with stage II and IIIA may also be treated with postoperative chemotherapy. This has a modest survival benefit, but is also associated with numerous side effects including nausea, vomiting, fatigue, infections, swelling of the lower limbs, and harm to the gastrointestinal tract and heart (D'Addario, et al., 2010; Niederhuber, et al., 2013; Pillai & Ramalingam, 2014).

Most patients with advanced cancer, including those with lung cancer, consider themselves to be spiritual (Delgado-Guay et al., 2011), and high scores of spirituality appear to be beneficial to patients with cancer in several ways. For example, a survey of 551 cancer patients found a positive association between greater spirituality and less worry about disease recurrence, development of new cancers, and treatment complications (Cannon, Darrington, Reed, & Loberiza, 2011). In a descriptive study of 60 lung cancer patients, those who reported having greater meaning in life, a variable often associated with spirituality (Peterman, Fitchett, Brady, Hernandez, & Cella, 2002), had better emotional well-being and experienced less distress than those with lower meaning in life (Meraviglia, 2004).

Unfortunately, most cancer patients also report challenges to spiritual well-being (SWB) (Bekelman et al., 2009) and subsequently experience significant spiritual distress (Delgado-Guay, et al., 2011; Winkelman et al., 2011). This may be particularly true for patients with lung cancer. In a sample of 304 newly-diagnosed cancer patients, lung cancer patients had lower SWB compared with other cancer patients (Clay, Talley, & Young, 2010). These results suggest the importance of providing a screening for spiritual distress in this group, as well as considering various approaches to promote SWB.

Spirituality is important to most hospitalized patients. A large multisite survey indicated that 70% of medical and surgical inpatients would like to meet with a chaplain at least once during the hospitalization (Piderman et al., 2010). Given the higher symptom burden and poorer QOL reported by lung cancer patients compared with other medical patients, there may be an important role for chaplains in providing ongoing spiritual care for lung cancer patients beyond the hospital setting. If so, creative ways of responding to their spiritual needs should be identified and explored.

Results of the survey by Piderman and colleagues cited above suggested that a direct approach can be beneficial, as participants reported that interacting with chaplains was helpful to them by reminding them of God's care and presence. Additionally, prayer, spiritual readings, and religious rituals provided by chaplains were rated highly by respondents and may be of comfort to them. Also important were talking with a chaplain and being listened to, experiencing a chaplain's spiritual support during times of anxiety, and knowing that family and friends also have access to spiritual support from a chaplain (Piderman, et al., 2010). It is possible that chaplains or other spiritual care providers could reach out to patients with lung cancer in their homes or through telephone conversations and engage with them in these ways. They could also take the lead in tailoring interventions that have been helpful in mixed cancer populations, such as dignity therapy (Chochinov et al., 2011), spiritual legacy preparation (Piderman et al., 2014), or manualized programs with an emphasis on spirituality (Lo et al., 2014; McCauley, Haaz, Tarpley, Koenig, & Bartlett, 2011).

Spiritual care providers must also be knowledgeable of multidisciplinary approaches that may benefit patients with lung cancer. Two randomized controlled multidisciplinary interventions that included an exercise component improved SWB in a mixed group of patients with advanced cancer receiving radiation therapy (Clark et al., 2013; Johnson et al., 2007; Piderman, et al., 2014; Rummans et al., 2006). Additionally, a qualitative study of patients with advanced rectal cancer indicated that exercise positively impacted spiritually-related quality of life issues such as vitality, connections, and purpose in life (Burke et al., 2013). Because the relationship between exercise or its predisposing factors and SWB has not been established in lung cancer patients, the primary aim of this study was to explore the relationship between the motivational level for physical activity and SWB in a large sample of patients with lung cancer (94% with NSCLC).

Methods

Participants

Participants in this study had all been diagnosed or confirmed with lung cancer at Mayo Clinic, a large academic medical center in the Midwestern United States, and enrolled in a prospective follow-up study in the Epidemiology and Genetics of Lung Cancer from January 1, 1997, to April 30, 2013 (Yang et al., 2005). All participants completed baseline study surveys related to their health around the time of their first visit to the institution and were subsequently mailed similar study surveys annually. Trained study personnel reviewed each patient's medical records upon enrollment and during the follow-up period, abstracting information related to demographics, previous or concurrent illnesses, tobacco usage and

exposure, tumor staging, nutritional habits, and cancer therapies. Clinical care, including cancer treatment, was not influenced in any way by enrollment in the study.

Instruments

Spiritual Well-Being—The Functional Assessment of Chronic Illness Therapy: Spiritual Well-Being Scale (FACIT-Sp) is a 12-item measure that includes assessment of an individual's sense of meaning, sense of peace, and the role of faith in their illness (Peterman, et al., 2002). The FACIT-Sp was used to assess participants' level of overall SWB (total score) and levels of meaning, peace, and faith (using the three subscales) (Bredle, Salsman, Debb, Arnold, & Cella, 2011). All of the subscales were transformed to a 0-100 scale with higher values being higher levels of spirituality.

Stages of Change for Physical Activity Level—A four-item measure was used to assess participants' current level of physical activity and their intention to become more physically active in the future (Marcus, Rakowski, & Rossi, 1992). Respondents were classified in one of four categories, according to their readiness for physical activity: (1) Pre-contemplation: no current structured physical activity and no intention to increase their physical activity level in the next 6 months; (2) Contemplation: not currently physically active, but having a plan to start becoming physically active in the next 6 months; (3) Preparation: some participation in structured physical activity, but not currently meeting recommended level of physical activity; and (4) Action and Maintenance: physically active (30 minutes or more, at least five days of the week) for at least the past 30 days. This measure has been used with patients with breast cancer (Pinto et al., 2002) and lung cancer (Clark et al., 2008; Solberg Nes et al., 2012).

Statistical Methods

This project used the first study survey that participants completed. Distributions of the spirituality questionnaire subscales were compared between the Stages of Change for Physical Activity survey using non parametric Kruskal-Wallis tests. All tests were two-sided at 5% levels of significance. Linear regression models were fit to determine the relationship between motivational level for physical activity and spirituality subscales after adjusting for age, gender, race, marital status, education, smoking status, and stage of disease.

Results

A total of 1,917 patients with lung cancer completed both FACIT-Sp and Stages of Change for Physical Activity questionnaire. They were mostly white (93%), married (78%), and had NSCLC (94%). Cancer treatments received included surgery (71.4%), chemotherapy (47.6%), and radiation therapy (29.4%). Gender ratio was about even, with 51% men and 49% women in the participant group. In examining tobacco usage at the time of lung cancer diagnosis, 28.4% were current smokers, 53.3% were former smokers, and 18.3% were never smokers (defined as those who had not used 100 cigarettes all their lives), (See Table 1).

Higher motivational levels for physical activity were strongly associated with higher levels of spirituality on the total FACIT-Sp score and for all three subscales, (all p values

<0.0001). The Meaning, Peace, and Faith subscales and overall SWB scores were lowest in the participants at the Pre-contemplation Stage for physical activity and highest at the Action and Maintenance Stage for physical activity (See Table 2).

Linear regression analysis showed an increase in overall SWB as stage of change for physical activity increased, even after adjusting for age, gender, race, marital status, education, smoking status, and stage of disease. In this model, overall SWB was significantly lower for males compared with females on a 0-100 point scale (estimate of 6.3 points lower, $p<0.0001$) and for those with an education beyond high school (2.5 points lower, $p<0.05$).

Overall SWB was higher in those who were married (4.6 points higher, $p<0.001$) and older (mean increase of 0.14 for each increase of 1 year of age, $p<0.05$). There were no significant differences in SWB by race or disease stage. Participants in the Contemplation Stage for physical activity level were about 7 points higher in overall SWB than those in the Pre-contemplation Stage for physical activity level ($p=0.0001$). Those in the Preparation Stage were about 10 points higher in overall SWB than those in the Contemplation Stage ($p<0.0001$), and those in the Maintenance Stage were over 13 points higher ($p<0.0001$).

Discussion

The findings of this large cross-sectional study of almost 2,000 patients with lung cancer provide important information for those committed to encouraging and augmenting well-being in those with lung cancer. The results demonstrate a significant association between motivational readiness for physical activity level and SWB. As participants' report of motivational level for physical activity increased from "Pre-Contemplation" to "Contemplation" to "Preparation" to "Action and Maintenance," they reported having higher overall SWB, as well as higher meaning, peace, and faith. This should not be interpreted as evidence that physical activity increases SWB or that SWB increases physical activity. However, these results do indicate that well-being in both areas are related and support a holistic theory of well-being.

Chaplains and others committed to enhancing SWB of those with lung cancer could use these findings in two ways. First, they could inform those with lung cancer about these results. This information may provide encouragement for them to move toward a more physically active lifestyle, despite their symptom burden, which may in turn improve their SWB. Whereas chaplains and other spiritual care providers do not usually see themselves in the role as advocates of exercise, there may be benefit in realizing that those in their care who move toward well-being in one area of life (in this case, exercise) may also move toward well-being in several other domains, including spirituality. In turn, an increase in various aspects of spirituality has implications for other aspects of well-being, i.e., meaning has been associated with decreased psychological distress from cancer diagnosis and treatment, and enhanced QOL (Lethborg, Aranda, Cox, & Kissane, 2007; Lin & Bauer-Wu, 2003), while faith-related spiritual beliefs often serve as a resource for coping and treatment decision making (Silvestri, Knittig, Zoller, & Nietert, 2003; Tarakeshwar et al., 2006).

Chaplains and spiritual care providers could also advocate for the inclusion of physical activity in multidimensional interventions for those with lung cancer who are experiencing spiritual distress. Longitudinal studies including such interventions may provide valuable benefit to patients and also make an important contribution to the literature, as little has been published related to spirituality and health behavior change strategies for those with lung cancer.

Conclusion

High scores of SWB have been shown to be beneficial to patients with cancer in numerous ways. Patients with lung cancer, particularly those with NSCLC, may live several years after their diagnosis, and it is important that they have every opportunity to improve their SWB. Findings in this study suggest that they may benefit from boosting their level of physical activity, as it appears to be associated with improved SWB. Though physical activity may be challenging for this group due to various symptoms, it is important that they be informed and encouraged to try. Improved SWB may help lung cancer patients in their day to day adjustment, and in the many other challenges that lie ahead.

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Table 1
Demographics of 1,917 Lung Cancer Survivors

Demographic	n (%)
Age at Diagnosis: Mean (Standard Deviation)	68.0 (10.6)
Sex	
Female	942 (49.1)
Male	975 (50.9)
Race	
Caucasian	92.6
Alaskan Native / Native American	5.2
Hispanic	1.3
Asian / Pacific Islander	0.5
Black	0.4
Marital Status	
Married	78.4
Widowed	9.9
Divorced	7.7
Single	3.9
Life Partner	0.1
Cigarette Smoking Status	
Current	28.4
Former	53.3
Never	18.3
Histology	
Small Cell Lung Cancer	6.3
Non-Small Cell Lung Cancer	93.7
Treatment	
Surgery	71.4
Chemotherapy	47.6
Radiation Therapy	29.4

Table 2
Spiritual Well-Being Score and Motivational Level for Physical Activity

	Pre-Contemplation (n=366)	Contemplation (n=562)	Preparation (n=382)	Maintenance (n=607)	p-value
FACIT-Sp (Meaning)	76.4 (21.2)	82.8 (17.7)	86.1 (16.1)	89.3 (13.6)	<0.0001
FACIT-Sp (Peace)	64.5(22.2)	69.8 (20.7)	72.8 (19.5)	79.2 (17.2)	<0.0001
FACIT-Sp (Faith)	68.9 (28.1)	75.9 (24.2)	75.5 (24.9)	79.0 (23.6)	<0.0001
FACIT-Sp (Total)	70.0 (20.0)	76.3 (17.3)	78.2 (16.4)	82.6 (14.2)	<0.0001

FACIT-Sp: Functional Assessment of Chronic Illness Therapy: Spiritual Well-Being Scale