ORIGINAL ARTICLE

Self-reported depression among patients with non-small cell lung cancer

Yan Shi[1]*, Fen Gu[2]*, Li-li Hou[2] & Yin-qing Hu[2]

1 Department of Nursing, Tenth People's Hospital of Tongji University, Shanghai, China
2 Department of Nursing, Shanghai Pulmonary Hospital of Tongji University, Shanghai, China

Abstract

Background: Lung cancer is a disease with a poor prognosis and psychological impact. Lung cancer causes both physical and psychological burdens on patients, and financial burdens on families and society. The aim of this study was to examine the relationship between depression and influencing factors in non-small-cell lung cancer (NSCLC) patients.

Methods: A quantitative study was applied. Data was obtained from the Shanghai Pulmonary Hospital in China. One hundred and four patients with NSCLC were surveyed. Self-rating depression scale (SDS), social support rating scale (SSRS), and visual analog scale (VAS) were used.

Results: Among the 104 patients, 48 (46.1%) were diagnosed with depression. Gender ($P = 0.000$), disease duration ($P = 0.006$), self-care ability ($P = 0.004$), and pain ($P = 0.003$) were statistically significant predictors of self-reported depression in non-small-cell lung cancer patients.

Conclusions: Self-reported depression is highly prevalent in NSCLC patients. In addition, gender, disease duration, self-care ability, pain and social support may increase self-reported depression.

Introduction

Lung cancer is a disease with a poor prognosis and psychological impact. Lung cancer is the most common cause of cancer-related deaths worldwide.[1] In 2008, 1.6 million new lung cancer cases were diagnosed.[2] Nearly 500 000 people died from lung cancer in China in 2008. According to World Health Organization standardized population data, in China, the Jilin Province had the highest mortality rate, while Tianjin had the lowest.[3] People with lung cancer almost always experience anxiety and depression, which significantly impacts upon quality of life.[4–7]

Approximately one-third of patients with non-small cell lung cancer (NSCLC) have locally advanced disease at the time of diagnosis. Lung cancer causes both physical and psychological burdens on patients, and financial burdens on families and society. Health-related depression may contribute to the burden of illness for both patients and families. This study aimed to examine the relationship between depression and influenced factors in NSCLC patients. It aimed to provide evidence-based nursing intervention for future study to increase the quality of life among patients with NSCLC.

Patients and methods

Sampling

One hundred and four patients with NSCLC from the Shanghai Pulmonary Hospital, China were included in this quantitative study, conducted from October 2012 to January 2013. Patient age ranged from 31 to 76 years old. NSCLC was defined using accepted diagnostic criteria based on clinical assessment, molecular analyses of tumor biopsy specimens, and computed tomography of the chest. Participants with impaired cognitive function, other secondary tumors, heart, cerebral or renal failure, and those who lost follow-up or without sufficient clinical data were excluded from this study. There were 110 individuals sampled and 104 individuals responded, an almost 94.5% response rate. Informed consent was obtained from respondents in the study. The ethics

committee of the Shanghai Pulmonary Hospital, China approved the study protocol for retrospective analysis.

Instruments

Zung's self-rating depression scale (SDS) and the social support rating scale (SSRS) were applied in this study. Cronbach's Alpha for two scales was 0.92 and 0.91, respectively.[8] The visual analogue scale (VAS) measured the amount of pain the patients felt, ranging from no pain to very severe pain.

Statistical analysis

SPSS 17.0 (version 17; SPSS, Chicago, IL, USA) software package was utilized for analysis in this study; the *t* test and *F* tests were also used. Multivariate analysis was performed using multiple linear regression models and multiple regression analysis. Multiple regression analysis was performed to analyze the correlation between predictors and depression among patients with NSCLC. A 95% confidence interval and *P*-value less than 0.05 were considered statistically significant in the analysis.

Results

A total of 104 NSCLC patients from the Shanghai Pulmonary Hospital, China, were approached. Eighty of the included patients were male, and the age of the patients ranged from 31 to 76 years old. Eighty-four patients (80.8%) had suffered NSCLC for one to 12 months. Most participants (84, 80.8%) received chemotherapy. There were 68 patients who did not have family history details available. Half of the patients (52, 50%) reported pain. Eighty-eight (84.6%) participants stated that they were able to provide self-care. Unfortunately, the majority of patients (72, 69.2%) were unemployed, with 48 patients (46.2%) only receiving a low level education, thus, 76 (73.1%) participants covered the medical payment themselves. Only 32 (30.8%) participants had a higher level of social support in this study. As shown in Table 1, there were 48 patients with self-reported depression (46.1% of total).

Table 2 compares the basic characteristics between self-reported depression and non-depression groups of NSCLC patients. A comparison of the two groups regarding age (*P* = 0.003), gender (*P* = 0.007), education (*P* = 0.000), disease duration (*P* = 0.003), medical insurance (P = 0.033), family history (*P* = 0.035), self-care abilities (*P* = 0.001), pain

Table 1 Demographic characteristic of NSCLC patients

Variable		Patients with NSCLC (*n* = 104)					
			Depression				
		Unrepressed	Mild	Moderate	Severe	x^2	*P*
Gender	Male	52	16	11	5	−2.677	0.007†
	Female	4	12	4	0		
Age	30~49	20	4	0	0	13.781	0.003†
	50~59	16	8	8	0		
	60~69	12	12	4	0		
	70+	8	4	4	4		
Disease duration (months)	1~12	52	24	8	0	21.902	0.000†
	13~24	4	0	8	0		
	25~32	0	2	0	6		
Education	Lower education	36	12	0	0	−4.664	0.000†
	Higher education	20	16	12	8		
Working status	Unemployed	40	20	5	7	−0.622	0.534
	Employed	16	8	8	0		
Medical insurance	Out of pocket	44	24	4	4	−2.136	0.033†
	Covered	12	4	12	0		
Family history	Yes	16	8	8	4	4.460	0.035†
	No	40	20	8	0		
Self-care abilities	Good	52	24	12	0	−3.341	0.001†
	Not good	3	4	3	6		
Chemotherapy	Yes	44	24	8	8	−0.510	0.610
	No	12	4	4	0		
Pain	Yes	20	16	12	4	12.264	0.000†
	None	36	12	4	0		
Social support	Lower	32	24	12	4	−2.674	0.007†
	Higher	24	4	4	0		

†Refers to significant results (*P*-value less than 0.05). NSCLC, non-small cell lung cancer.

Table 2 Factors influencing depression among patients with NSCLC in regression model

Variable	B	S.E.	Wald	*P*
Gender	3.983	1.104	13.009	0.000†
Age (year-old)	0.144	0.051	7.927	0.005†
30~49	−2.015	0.713	7.987	0.005†
50~59	−0.405	0.577	0.493	0.483
60~69	−0.118	0.595	0.039	0.843
Education	−0.837	0.747	1.255	0.433
Disease duration (months)	3.855	1.391	7.683	0.006†
Family history	0.505	0.677	0.566	0.897
Self-care ability	−2.422	0.840	8.321	0.004†
Medical insurance	−2.412	1.292	3.486	0.090
Pain	−2.409	0.806	8.942	0.003†
Social support	−10.987	3.543	9.621	0.002†

†Refers to significant results (*P*-value less than 0.05). NSCLC, non-small cell lung cancer.

($P = 0.000$), and social support ($P = 0.007$) showed significant differences. However, there were no significant differences in either of the two groups in terms of working status and chemotherapy treatment. Criteria for a higher rate of self-reported depression included: men; older patients; longer disease duration; higher educated; no medical insurance; without the ability to provide self-care; family history; pain; and lower social support. As a result, these factors were included in multiple linear regression analysis.

Gender ($P = 0.000$), disease duration ($P = 0.006$), self-care ability ($P = 0.004$) and pain ($P = 0.003$) were measured by the VAS for pain and social support ($P = 0.002$), assessed by SSRS as statistically significant predictors of self-reported depression in NSCLC patients.

Discussion

This study demonstrated a prevalence of self-reported depression in NSCLC patients of 46.1%. Depression is an important psychological problem in cancer patients with malignancy.[9,10] A study by Hong and Tian reported that the prevalence of depression in Chinese lung cancer patients was 77.19 %.[10] A previous study stated that the prevalence of self-reported depression in pretreated lung cancer patients was nearly 33%. Moreover, it was reported that over 16% of patients with lung cancer had symptoms of depression at the first hospital visit.[11,12] Hence, an early diagnosis and optimal treatment for depression disorders may be beneficial to these patients. Lung cancer patients in an advanced stage suffer from poor physical condition, such as chest pain, fatigue, and breathlessness, which negatively affects their ability to self-care in daily life.[13] The longer disease duration the patients suffer, the poorer quality of life they have. A poor quality of life may cause various psychiatric disorders, including depression, loneliness, and desperation. Thus, a poor quality of life can cause psychological stressors, which may precipitate depression.[14]

Patients with NSCLC usually experience psychological distress because of physical symptoms, such as coughing, pain, and insomnia.[15] Pain is one of the most common symptoms among people with lung cancer. Findings from previous studies have revealed that from 45–59% of lung cancer patients and survivors report pain.[16] The prevalence of depression in the pain group was significantly higher than that of the pain-free group.[17] Furthermore, a study from Chengdu, China stated that body pain was associated with depression at the Cancer Center at the West China Hospital of Sichuan University.[18]

Although Chinese patients with lung cancer and their families have been reported to suffer depression at the same time, support from family members can be helpful to cope with the distress resulting from the disease and treatment, which effectively influences coping skills in daily life.[18] Some studies have verified that a higher level of social support was significantly related to lower depression rates; there was a statistically significant relationship between depression and perceived social support from family.[19]

It is common for families to share housing in China. Accommodation passes through generations and families share the cost of housing, which in turn lowers the cost of living. Chinese patients with lung cancer living with their families are more likely to suffer poverty. Hence, the lung cancer people who lived with others could have high rates to report incoming poverty in China.[20] It is recommended that the government support poor families who find it financially difficult to take care of cancer patients. Because of limited insurance coverage, lung cancer patients in rural areas cannot afford the high payment of medical care, and thus, are socially and economically disadvantaged. Policymakers need to ensure sufficient funding and rational allocation of health centers to sustain the Rural New Cooperative Medical Scheme in developing provinces, which will assist in reducing the health inequality between developing and developed provinces.

Conclusion

Self-reported depression is highly prevalent in NSCLC patients. Gender, disease duration, self-care ability, pain, and social support are associated factors that may increase self-reported depression.

References

1 Buchanan D, Milroy R, Baker L, Thompson AM, Levack PA. Perceptions of anxiety in lung cancer patients and their support network. *Support Care Cancer* 2010; **18**: 29 –36.

2 Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM *et al.* eds. *GLOBOCAN 2008: Cancer Incidence and Mortality Worldwide. IARC Cancer Base No. 10.* IARC, Lyon, France,

2010. [Cited 9 Oct 2014.] Available from URL: http://globocan.iarc.fr

3 Parkin D. Global cancer statistics in the year 2000. (Published erratum appears in Lancet Oncol 2001; 2: 596) *Lancet Oncol* 2001; **2**: 533–43.

4 Campbell J, Wallace WHB, Bhatti LA, Stockton DL, Rapson T, Brewster DH. *Childhood Cancer in Scotland: Trends in Incidence, Mortality, and Survival, 1975-1999.* NHS Scotland Information & Statistics Division, Edinburgh, 2004.

5 Olsen AH, Parkin DM, Sasieni P. Cancer mortality in the United Kingdom: projections to the year 2025. *British Journal of Cancer* 2008; **99**: 1549–54.

6 Carlsen K, Jensen AB, Jacobsen E, Krasnik M, Johansen C. Psychosocial aspects of lung cancer. *Lung Cancer* 2005; **47**: 293–300.

7 Li J, Girgis A. Supportive care needs: are patients with lung cancer a neglected population? *Psychooncology* 2006; **15**: 509–16.

8 Cao J, Wang Y, Zhang L, Ma L. [Investigation of the change of quality of life and depression in lung cancer patients before and after chemotherapy.] *Zhongguo Fei Ai Za Zhi* 2011; **14**: 358–61. (In Chinese.)

9 Krebber AM, Buffart LM, Kleijn G *et al.* Prevalence of depression in cancer patients: a meta-analysis of diagnostic interviews and self-report instruments. *Psychooncology* 2014; **23**: 121–30.

10 Hong JS, Tian J. Prevalence of anxiety and depression and their risk factors in Chinese cancer patients. *Support Care Cancer* 2014; **22**: 453–9.

11 Hughes JE. Depressive illness and lung cancer. I. Depression before diagnosis. *Eur J Surg Oncol* 1985; **11**: 15–20.

12 Hamann HA, Lee JW, Schiller JH *et al.* Clinician perceptions of care difficulty, quality of life, and symptom reports for lung cancer patients: an analysis from the Symptom Outcomes and Practice Patterns (SOAPP) study. *J Thorac Oncol* 2013; **8**: 1474–83.

13 Iyer S, Taylor-Stokes G, Roughley A. Symptom burden and quality of life in advanced non-small cell lung cancer patients in France and Germany. *Lung Cancer* 2013; **81**: 288–93.

14 Chouaid C, Agulnik J, Goker E *et al.* Health-related quality of life and utility in patients with advanced non-small-cell lung cancer: a prospective cross-sectional patient survey in a real-world setting. *J Thorac Oncol.* 2013; **8**: 997–1003.

15 Maneeton B, Maneeton N, Reungyos J, Intaprasert S, Leelarphat S, Thongprasert S. Prevalence and relationship between major depressive disorder and lung cancer: a cross-sectional study. *Onco Targets Ther* 2014; **7**: 815–21.

16 Arrieta O, Angulo LP, Núñez-Valencia C *et al.* Association of depression and anxiety on quality of life, treatment adherence, and prognosis in patients with advanced non-small cell lung cancer. *Ann Surg Oncol* 2013; **20**: 1941–8.

17 Zümrüt AS, Mehtap T, Hatice P. Hopelessness, depression and social support in terminal cancer patients. *Asian Pac J Cancer Prev* 2013; **14**: 2823–8.

18 Wu XN, Su D, Li HP *et al.* Relationship between the depression status of patients with resectable non-small cell lung cancer and their family members in China. *Eur J Oncol Nurs* 2013; **17**: 668–72.

19 Graves KD, Arnold SM, Love CL, Kirsh KL, Moore PG, Passik SD. Distress screening in a multidisciplinary lung cancer clinic: prevalence and predictors of clinically significant distress. *Lung Cancer* 2007; **55**: 215–24.

20 Saunders P, Sun LJ. Poverty and hardship among the aged in urban China. *Soc Policy Adm* 2006; **40**: 138–57.