Sleep Quality and Its Relationship to Quality of Life in Early Stage Lung Cancer Survivors

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Introduction

- Despite the high mortality rate in advanced lung cancer patients, early stage lung cancer (ESLC) patients have relatively much longer survival time. However, the diagnosis might still bring distress and impacts on patients' sleep. Relatively limited researches have explored the problems.
- Thus, the purposes of the study were to (1) explore the sleep status, and (2) identify the relationship between sleep quality and overall quality of life (QoL), functional domains of quality of life and symptoms in ESLC survivors at 6 months after lung cancer resection surgery.

Methods

- A cross-sectional study with consecutive sampling was conducted to recruit eligible subjects at 6 months post-surgery in a cancer center in Northern Taiwan. Patients were assessed of their sleep quality, functional domains of quality of life and symptoms by the Pittsburgh Sleep Quality Index (PSQI), the European Organization for Research and Treatment of Cancer Core Quality of Life Questionnaire (EORTC QLQ-C30) and QLQ lung cancer specific symptoms (QLQ-LC13), respectively.
- Patients were assessed after IRB approval and having patients' consents. Data were analyzed by descriptive statistics and Spearman's correlation.

Results

- A total of 75 participants were recruited. In general, patients reported to have PSQI mean scores as 7.5 (SD=4.4). More than half of the patients (60%) suffered from having sleep impairments (PSQI scores>5).
- Sleep quality was negatively related to overall QoL and physical, role, emotional, cognitive and social functions (r = -0.45, -0.49, -0.29, -0.53, -0.45, and -0.37, respectively).
- Patients with higher cancer-related symptoms and lung cancer specific symptoms were reported to have poor sleep quality (r =0.60 and 0.56, respectively).

Conclusions

- Sleep impairment is still a problem to ESLC patients at 6 months after surgery.
- Future researches to develop related interventions and test the effects are strongly suggested to improve the sleep quality of ESLC survivors.

Table 1. Demographic and disease characteristics (N=75)

Variable	N (%)	Mean (SD)
Age		55.9 (10.9)
Gender		
Female	49 (65.3)	
Male	26 (34.7)	
Education		
Above bachelor's degree	48 (64.0)	
Junior to senior high school	24 (32.0)	
Under elementary school	3 (4.0)	
Diagnosis		
Adenocarcinoma	73 (97.4)	
Squamous cell carcinoma	1 (1.3)	
Lymphoepithelial carcinoma	1 (1.3)	
Stage		
0-I	66 (88.0)	
II-IIIA	9 (12.0)	
Surgery		
Wedge resection	45 (60.0)	
Segmentectomy	18 (24.0)	
Lobectomy	12 (16.0)	

Table 2. Sleep quality about 6 months after surgery

Variable	N (%)	Mean (SD)
PSQI score[1] (0-21)		7.5 (4.4)
Good sleep quality (PSQI≦5)	30 (40.0)	
Poor sleep quality (PSQI>5)	45 (60.0)	
Seven components (0-3)		
(1) Subjective sleep quality		1.4 (0.6)
(2) Sleep latency		1.2 (1.0)
(3) Daytime dysfunction		1.2 (1.0)
(4) Sleep disturbance		1.1 (0.6)
(5) Sleep efficiency		1.0 (1.2)
(6) Sleep duration		1.0 (0.9)
(7) Use of sleep medication		0.6 (1.1)

Note: [1]PSQI scores are comprised of seven components, including subjective sleep quality, sleep latency, daytime dysfunction, sleep disturbance, sleep efficiency, sleep duration, and use of sleep medication. Higher PSQI scores refer to poor sleep quality.

Table 3. The Spearman's correlation between sleep quality and quality of life

Spearman's correlation	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) PSQI scores[1]	1								
(2) Overall QoL[2]	-0.45**	1							
(3) Cancer-related symptoms[3]	0.60**	-0.53**	1						
(4) Lung cancer specific symptoms[3]	0.56**	-0.48**	0.66**	1					
(5) Physical functioning[4]	-0.49**	0.49**	-0.66**	-0.65**	1				
(6) Role functioning[4]	-0.29*	0.33**	-0.31**	-0.32**	0.54**	1			
(7) Emotional functioning[4]	-0.53**	0.56**	-0.62**	-0.50**	0.45**	0.18	1		
(8) Cognitive functioning[4]	-0.45**	0.37**	-0.63**	-0.57**	0.41**	0.14	0.52**	1	
(9) Social functioning[4]	-0.37**	0.58**	-0.59**	-0.55**	0.67**	0.58**	0.55**	0.51**	1

Note: [1]Higher PSQI scores refer to poor sleep quality. [2]Higher Overall QoL scores refer to better quality of life. [3]Higher Symptoms scores refer to more severe symptoms. [4]Higher functional scores refer to better individual functions on daily life. *P<0.05, **P<0.01

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