

Original Research Article

Disability among lung cancer patients and its predictors: a cross-sectional study in a tertiary care centre at Kolkata, India

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ABSTRACT

Background: Lung cancer is one of the commonest cancer worldwide and also in India. Being a chronic disease, it is expected to result in disability during the course of the illness. Disability in turn results in deterioration of mental health and leads to poor quality of life. The present study intended to assess the degree of disability among lung cancer patients and to find out the covariates of the same.

Methods: An institution based cross-sectional study had been conducted over a period of six months among lung cancer patients attending a tertiary care centre. Exit interview had been conducted with a pretested schedule after taking informed consent. Disability had been assessed by WHO Disability Assessment Schedule 2.0 (WHODAS 2.0). Data were entered and analysed in SPSS 20.0 version.

Results: A total of 210 patients were recruited in this study. Half of the study population were suffering from higher level of disability. Multivariate analysis revealed degree of disability was higher among the patients who were financially dependent to others, had advanced stage of the disease and when time since diagnosis was more than one month.

Conclusions: Holistic approach needs to be taken up to address this alarming issue of disability and its consequences among lung cancer patients. The approach should include various rehabilitative measures, social security schemes by the government and active involvement of non-governmental organisations.

Keywords: Disability, Kolkata, Lung cancer, WHODAS

INTRODUCTION

Lung cancer is currently the topmost cancer worldwide as per incidence and mortality.¹ Despite of its deadliest nature, early diagnosis and treatment can better the survival of the sufferer.² People from socio-economically backward section face the worst situation related to prognosis due to poor awareness, lack of accessibility to health services and costly treatment. They are often diagnosed at late stage resulting in poor survival and increased chance of disability.³ Lung cancer is a common cause of significant functional impairment, depression and poor quality of life as compared to other malignancies.⁴⁻⁷

Disability, specifically “activities of daily living” (ADLs), has been found to be an important predictor of mortality among older patients irrespective of being a significant factor of poor quality of life.⁸ ADLs constitute essential activities to be performed by a person to carry on day to day life independently inside the society, which include basic ADLs (taking food, going to toilet, washing, wearing clothes independently etc.) and instrumental ADLs (preparation of food, use of public transport for travel, able to do shopping of grocery and basic household works etc.).⁹⁻¹³ To achieve a better quality of life, a person should be free from disability to such degree to perform ADLs which are necessary to live independently and respectfully within the society.^{9,14}

Therefore, assessment of degree of disability and understanding the covariates associated with it are of utmost importance for achieving better quality of life of lung cancer patients. Studies are scarce in this regard, specifically in eastern India. With this background, the present study had been taken up to assess the level of disability and the factors associated with it among lung cancer patients attending a tertiary care centre at Kolkata.

METHODS

A cross-sectional study had been conducted in Medical College, Kolkata among all the patients diagnosed with lung cancer attending the outpatient department or admitted in the inpatient department of Pulmonary Medicine from January 2017 to June 2017. The institution was purposively selected for the study. The study subjects were included by complete enumeration method after getting informed consent from each of them. Ethical clearance was obtained from Institutional Ethics Committee. Patients who were in moribund condition, not able to respond properly to the questionnaire, not giving consent to participate were excluded from the study. Thus, a total of 210 lung cancer patients were included for final analysis.

The study tool was a questionnaire which had two parts. The first part consisted of questions regarding different socio-demographic, economic profile, details of the present disease (stage of the disease, cell type of carcinoma, time elapsed since diagnosis etc.). The second part was a standardized questionnaire to assess disability-“WHO Disability Assessment Schedule 2.0” (WHODAS 2.0).¹⁵ It contained 36 items and six domains. Domain scores for each of the domain and an overall disability score were calculated with maximum and minimum attainable scores of 100 and 0 respectively where higher scores representing higher level or degree of disability.

The whole questionnaire was first prepared in English. Then it was translated into Bengali by a linguistic expert keeping semantic equivalence. To check the translation, it was retranslated back into English by two independent researchers who were unaware of the first English version. Pretesting followed by pilot testing was done. Necessary corrections and modifications were made accordingly. Exit interview was conducted for every participant with this schedule. Data thus collected had been entered and analysed in SPSS 20.0 software.

RESULTS

Mean age of the study population was 60.27 years (SD=10.954) where majority (48.6%) belonged to the age group of 60-69 years with the minimum age of 23 years and maximum of 90 years. Most of them were currently married (84.3%), male (74.3%), educated up to middle level (24.3%), residing at rural area (60%), and belonged to joint family (65.7%).

Table 1: Distribution of study population (n=210).

Variable	Frequency (n)	Percentage
Age (years)		
<40	6	2.9
40-50	27	12.9
50-60	39	18.5
60-70	102	48.6
≥70	36	17.1
Sex		
Male	156	74.3
Female	54	25.7
Religion		
Hindu	153	72.9
Muslim	57	27.1
Marital status		
Married	177	84.3
Unmarried	6	2.9
Widow/widower/separated	27	12.9
Residence		
Rural	126	60.0
Urban	84	40.0
Type of family		
Nuclear	72	34.3
Joint	138	65.7
Education		
Illiterate	27	12.8
Below primary	6	2.9
Primary	48	22.8
Middle	51	24.3
Secondary	39	18.6
Graduate and above	39	18.6
Employment		
Employed	63	30.0
Unemployed	69	32.9
Retired	78	37.1
Socio-economic class* (*As per modified BG Prasad scale (2016))		
Upper	36	17.1
Upper middle	84	40.0
Middle	63	30.0
Lower middle	24	11.4
Lower	3	1.4
Earning at present (includes pension)		
Yes	57	27.1
No	153	72.9
Financial dependence		
Yes	168	80.0
No	42	20.0
Cell type of carcinoma		
Small cell	36	17.1
Non-small cell	174	82.9
Adenocarcinoma	39	22.4
Squamous cell	90	51.7
Sarcomatoid	3	1.7
Unclassified	42	24.1
Stage of carcinoma		
Small cell		
Extensive	27	75.0
Limited	9	25.0
Non-small cell		
I	6	3.4
II	30	17.2
III	54	31.0
IV	84	48.4

Table 2: Factors associated with disability among lung cancer patients: Bi-variate and Multi-variate analyses (n=210).

Variables	Disability		Test of significance	OR (95% CI)	AOR (95%CI)
	High (≤median)	Low (>median)			
Age (years)					
>62	66	48	Chi square=2.353, df=1, p=0.034	1.598 (1.002-1.369)	0.819 (0.371-1.810)
≤ 62 (median)	39	57			
Sex					
Male	78	78	Chi square=0.000, df=1, p=0.563	1.0 (0.539-1.857)	-
Female	27	27			
Religion					
Muslim	33	24	Chi square=5.418, df=1, p=0.214	2.087 (0.837-3.9)	-
Hindu	72	81			
Marital status					
Unmarried/separated/Widow/widower	18	15	Chi square=0.324, df=1, p=0.569	1.241 (0.589-2.617)	-
Married	87	90			
Education					
Up to middle level	60	72	Chi square=2.937, df=1, p=0.087	0.611 (0.347-1.075)	-
Secondary and above	45	33			
Residence					
Rural	63	63	Chi square=0.000, df=1, p=1.000	1.0 (0.576-1.737)	-
Urban	42	42			
Type of family					
Nuclear	39	33	Chi square=0.761, df=1, p=0.383	1.289 (0.728-2.283)	-
Joint	66	72			
Per capita income					
≤4000 (median)	63	57	Chi square=0.700, df=1, p=0.094	1.263 (0.731-2.184)	-
>4000	42	48			
Employment					
Unemployed/retired	72	69	Chi square=0.194, df=1, p=0.659	1.138 (0.640-2.026)	-
Employed	33	36			
Earning at present (includes pension)					
No	90	63	Chi square=17.554, df=1, p=0.000	4 (2.043-7.830)	2.016 (0.544-7.472)
Yes	15	42			
Financial dependence					
Yes	99	69	Chi square=26.786, df=1, p=0.000	8.609 (3.440-21.543)	7.756 (1.783-33.738)
No	6	36			
Cell type of carcinoma					
Small cell	24	11	Chi square=5.794, df=1, p=0.016	2.532 (1.169-5.485)	0.383 (0.146-1.007)
Non-small cell	81	94			
Stage of carcinoma					
Advanced*	96	69	Chi square=20.618, df=1, p=0.000	5.565 (2.518-12.302)	2.918 (1.063-8.011)
Early	9	36			
Time elapsed since diagnosis					
≥1 month	45	15	Chi square=19.623, df=1, p=0.000	4.5 (2.304-8.769)	5.269 (2.291-12.117)
< 1 month (median)	60	90			
Hosmer Lemeshow test: p=0.209, Nagelkerke R ² = 0.489					

*Stage III- IV of non small cell type and extensive small cell carcinoma were considered as advanced stage of carcinoma

Majority were retired from their job (37.1%), currently not earning anything (72.9%), financially dependent on others (80%) with son (78.57%) being the main financial

supporter and belonged to upper-middle socio-economic class as per modified B.G Prasad scale 2016.¹⁶ Most of these patients had non-small cell carcinoma (82.9%) of

which 50% belonged to stage IV. Only 17.1% of study population were suffering from small cell type, with 75% of them were in extensive stage. More than half (71.4%) of the study population were new cases with no delay between diagnosis and start of treatment with a mean delay of 1.04 months (SD=2.863) and a maximum delay of 20 months (1.4%) (Table 1).

Regarding assessment of disability, total six domains of disability had been assessed by WHODAS 2.0 schedule. The median score was 45.83 (IQR 29.17-79.83) for understanding and communicating, 65 (IQR 35-90) for getting around, 37.5 (IQR 12.5-75) for self-care, 65 (IQR 35-80) for getting along with people, 90.63 (59.38-100.0) for life activities, 75 (IQR 50-87.5) for participation in society. The median for overall disability score was found to be 65 (IQR 37.33-80.97). Half of the study population suffered from higher level or degree of disability (overall score > median i.e. 65) (Figure 1).

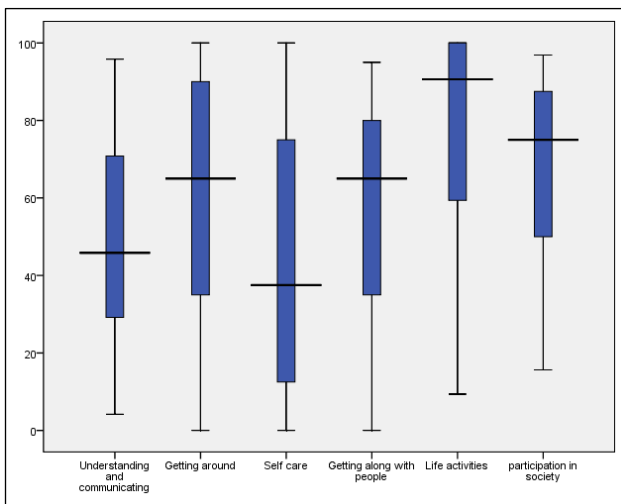


Figure 1: Box and Whisker plot showing different domains of disability among the study population as measured by WHODAS 2.0 (n=210).

Bi-variate analysis revealed that disability was found to be higher in patients of older age group (>62 years), persons who were not earning at present, financially dependent to others, suffering from small cell carcinoma, advanced stage of the disease and if time elapsed since diagnosis was more than one month. Multivariate analysis was done with the factors found significant in bi-variate analysis. It revealed that degree of disability was higher among patients who were financially dependent to others, had advanced stage of the disease, and if time since diagnosis was more than one month (Table 2).

DISCUSSION

The present study revealed that half of the study population were suffering from higher degree of disability. Stage of the disease, time since diagnosis and financial dependence to others were found to be the

major predictors of disability. A study by Taylor JC et al among patients with head and neck cancer demonstrated consistent results with the current study that half of their study population were disabled; while time since diagnosis was found to be one of the major contributors of disability.¹⁷ Another study by Short PF et al revealed that disability was higher even among cancer free survivors than those having no chronic disease.¹⁸ Neo J et al found in their study that about one-third and half of patients with cancer had difficulty or required assistance to perform basic and instrumental ADLs respectively maintaining similarity with current study results.¹⁴

The current study and the previous researches among cancer patients established the fact that disability is a matter of concern nowadays considering epidemiological transition in disease profile from communicable to chronic diseases even in developing countries like India with cancer being one of the major contributors. Regression analysis revealed in different researches that time since diagnosis and stage of the disease were major factors deciding the degree of disability. Therefore, early diagnosis and prompt therapy in these patients can slow down the disease progression and thereby prevent disability. The patients who were suffering from disability should be provided with vigorous rehabilitative measures with initiatives from Government and other non-governmental organisations to promote social security schemes, financial assistance to fight against economic hardship arising out of the enormous cost of treatment of such disease. Local self help groups and peripheral health providers are in unique position to be involved in dedicated care for these patients providing social and psychological support other than medical rehabilitation. More emphasis is to be placed on holistic approach catering different dimensions of disability. Disability can lead to various mental problems which in turn results in a poor quality of life. Therefore, this issue is to be addressed properly if better quality of life is aspired.

Considering the limitation of conducting an institution based study with small number of study subjects, further multicentric studies with larger sample size and advanced study design should be done to enlighten this issue. Qualitative study like in-depth interview can also bring out hidden facts and factors related to disability among lung cancer patients.

CONCLUSION

To the best of our knowledge, this institution based cross-sectional study is the first of its kind in eastern India related to the issue like disability among lung cancer patients. The study demonstrated that half of the study population suffered from higher degree of disability with stage of the disease, financial dependence to others and time since diagnosis being major contributors. The issue is of utmost importance in public health considering the epidemiological transition leading to increased disease

burden due to chronic diseases of which cancer constitutes a major part. Therefore, efforts should be focussed on early diagnosis and prompt treatment to prevent disability; while focussed interventions with various rehabilitative measures, introduction and implementation of social security schemes to fight against financial constraint arising out of disabilities are of utmost importance.

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