



QUALITY OF LIFE ASSESSMENT IN BRONCHIECTASIS PATIENT

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ABSTRACT **Background:** Bronchiectasis is the term used to describe permanent abnormally thick-walled and dilated bronchi. Bronchiectasis is associated with various chronic diseases like Cystic fibrosis, Ciliary dyskinesic syndromes and some immunodeficiency syndromes. Bronchiectasis reduced survival in such patients. The increased survival of such Patients depends upon therapeutic advancement. According to the World Health Organization, quality of life is an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. **Objective:** To assess the quality of life in patients with bronchiectasis. **Methods:** To access the quality of life in bronchiectasis patients we studied 107 patients with the WHO-BREF QoL Questionnaire by focusing on individual's views of their well-being. The WHOQOL-BREF questionnaire is made up of the physical health domain, psychological health domain, social relationships domain and environmental health domain. **Results:** The range of Physical, Psychological, Social, Environment and total scores among the study population was 31-69, 38-81, 31-69, 31-63 and 42.25-65.50 respectively. The mean Physical QOL score is 56.11±6.93 while the Psychological QOL score is 57.45±7.37, the Social QOL score is 52.72±6.89, and the Environment QOL score is 54.23±6.46 and the total QOL score among the study population is 55.12±4.56. **Conclusion:** WHOQoL-BREF scores were significantly impaired in the physical domain, psychological domain, social domain and environmental domain and scores indicate a relatively poor quality of life in patients with bronchiectasis.

KEYWORDS : bronchiectasis, quality of life, QOL, WHOQoL-BREF, WHOQoL-100

INTRODUCTION

Bronchiectasis is an abnormally thick-walled and dilated bronchi in the lungs. (1,2) It is the permanent changes in lung parenchyma resulting from a variety of pathologic processes. The clinical presentation of this disease is chronic cough and excessive mucopurulent expectoration. (3) It significantly reduces the health-related quality of life (HRQL) in suffering individuals. (4)

Bronchiectasis is associated with various chronic diseases like Cystic fibrosis, Ciliary dyskinesic syndromes and some immunodeficiency syndromes. (5) Presence of Bronchiectasis significantly reduces survival in such patients. Increasing the survival of such Patients depends upon early pharmacological and non-pharmacological intervention.

The disease prevalence shows a reducing trend, it could be because of the early start of treatment, better use of antibiotics, effective anti-tuberculosis treatment and childhood vaccination against pertussis and measles disease. (6,7)

HRQL questionnaire is a useful tool to measure the impact of bronchiectasis on patient quality of life and it is also a crucial instrument in bronchiectasis clinical trials. World health organization developed WHO-BREF/100 quality-of-life assessment subjective evaluation tool. This tool shows a person's own view on the quality of life in relation to cultural beliefs, social position and environment. (8) The World Health Organization stated that quality of life is an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. (9,10)

Almost all patients with bronchiectasis suffer from a chronic cough with expectoration. Eventually, patients have poor health quality and associated high morbidity and mortality and also a high economic burden. Less is studied about HRQoL in Indian bronchiectasis patients.

Hence, we conducted an observational study to determine what domain of quality of life in bronchiectasis patients affected and what is the impact of bronchiectasis on quality of life. We are presenting observation data of bronchiectasis patients' from their own existing

health-related perspectives.

MATERIAL AND METHODS

We have done a prospective Single-Centre observation study for a duration of 1 year at Kasturba Chest Hospital, K.G. Medical University, Lucknow. U.P. All the subjects with a known case of bronchiectasis were taken in the study group. Patients who were not given consent, less than 12 Years of age, pregnant females and patients with active pulmonary tuberculosis, chronic obstructive lung diseases, uncontrolled diabetes mellitus and coronary artery disease were excluded from this study.

METHODOLOGY

Ethics committee approval was obtained prior to the study. A total of 107 patients with fully informed and written consent were taken in the study. A complete detailed medical history was taken from each patient including the history of childhood infections like pertussis and measles, history of recurrent pneumonia, past history of tuberculosis, bronchial asthma, chronic obstructive pulmonary disease, connective tissue disorders, immune deficiencies syndrome, diabetes mellitus, systemic hypertension and smoking status. High-Resolution Computed Tomography (HRCT) images were done to confirm the diagnosis and to know the type and severity of bronchiectasis.

To know the quality of life of the patients we used the World health organization Brief Quality of Life (WHO-BREF QoL) Questionnaire. This subjective questionnaire is a tool that has been developed for Quality-of-life assessment in subjects belonging to different cultures and this tool is digitally available in different languages. This tool subjectively shows their own views of their well-being. This Questionnaire has four domains representing different aspects of life. It has a 26-item instrument. Out of 26 items, 7 items are related to physical health, 6 items are related to psychological health, 3 items are related to social relationships, 8 items are related to environmental health, 1 item is related to the overall quality of life and 1 item is related to general health.

Each item of the World health organization Brief Quality of Life-100 (WHOQOL-BREF/100) is a five-point ordinal response scale that's transformed into a 0-100 scale. Individual Mobility, day-to-day activities, functional working capacity, energy perception status, pain

apprehension and sleep quality items are included in the physical health domain. Perception of self-image, negative upcoming thoughts and positive attitudes toward life, perception of self-esteem, mentality, learning ability, memory concentration, religion and mental status items include in the psychological domain. personal relationships, social support, and sexual life items are included in the social relationship domain. financial issue resources, safety, health and social services, living physical environment, opportunities to acquire new skills and knowledge, recreation, general environment and transportation items included in the environmental health domain. (9,10)The entire data was recorded in individual patient's proforma.

Statistical analysis

Data was analyzed with the help of a statistical package for social sciences, version 21.0 (IBM SPSS Statistics for Windows, Version 21.0. Armonk, NY: IBM Corp). Data has been represented in a frequency table, percentages data, mean and standard deviation. Interquartile range and medial value have been shown for QoL scores.

RESULTS

All the diagnosed cases of bronchiectasis fulfilling the inclusion criteria during the period of study were invited to participate. Of these 107 patients giving their consent for inclusion were enrolled in the study. (Table No 1) All the patients were interviewed for demographic details, and personal and family clinical history and were subjected to necessary investigations, they were also administered a validated tool to assess various domains.

The age of patients in our study ranged from 13 to 86 years. The mean age of subjects was 38.85±14.34 years. The majority 61(57.0%) were females and the rest 46(43.0%) were males. Male: Female ratio was 0.75 and 18 patients were smokers.

The range of Physical, Psychological, Social, Environment and Total scores among the study population was 31-69, 38-81, 31-69, 31-63 and 42.25-65.50 respectively.(Table no 1) Mean Physical QOL scores were 56.11±6.93 while Psychological QOL score was 57.45±7.37, Social QOL score was 52.72±6.89, Environment QOL score was 54.23±6.46 and total QOL score was 55.12±4.56 among the study population. (Table no 2/Box plot)

DISCUSSION

The diagnosis of Bronchiectasis was established on high-resolution chest computed tomography scans.(11,12) For the establishment of diagnosis, specific radiological criteria were the larger internal diameter of the bronchus than that of its accompanying vessel or the bronchus that is not narrowed down in the periphery of the chest.(13,14) Sir Reid defined the pathologic phenotypes of bronchiectasis on the basis of high-resolution chest computed tomography morphological finding that is cylindrical, varicose and sacular.(15)

The vicious cycle model given by Cole generally gives us an explanation for the evolution of bronchiectasis. The circular loop of mucus stasis, infection, inflammation and airway destruction is the culprit for bronchiectasis. This circular feedback loop step starting point depends upon causative disease. So, the initiation point may differ in different diseases. Treatment must target these steps of the vicious cycle loop. (16) Many immune-compromised patients with symptomatic respiratory disease have bronchiectasis. Bronchiectasis is a well-known complication of organ transplantation related to recurrent infection. (17) Previous tuberculosis is the most founded underlying cause of bronchiectasis. *Pseudomonas aeruginosa* was the most common bacterial organism isolated from sputum.(18)

Bronchiectasis patients previously did not have an assessment tool for quality of life. In the year 1991, The World Health Organization develop a project to develop a quality-of-life assessment instrument that must be international cross-culturally comparable that is WHOQOL-BREF/100.

The present study has been conducted in the Kasturba Chest Hospital, King George's Medical University. All the patients were eligible for final analysis. The purpose of our study is to determine the quality of life in diagnosed patients with bronchiectasis.

For the study, bronchiectasis was observed in the age group of 13 to 86 years, which is in accordance with the Indian bronchiectasis registry and Redondo M et al.(3,18) In our study, the majority of patients

(57.0%) were females and followed by males which were 43%. The male: female ratio is 0.75. This is in accordance with the work done by the Indian bronchiectasis registry and Redondo M et al.(3,18) Majority of the patients are non-smokers (73.8%), 16.8% are smokers and 9.3% are patients were ex-smoker. This is in accordance with the work done by Nicotra MB et al and Angrill J et al.(20,21)

The confirmation of bronchiectasis is mainly dependent upon radiology findings of Computerized tomography of the chest. Hence, every suspected case of bronchiectasis needs CT scans for confirmation. (22)

Ali gholami et al study confirms that the WHOQOL-BREF/100 is a subjective questionnaire and a reliable tool. (23) In our study according to the WHOQoL-BREF/100 Criteria in the physical domain minimum score was 31 and the maximum physical domain score was 69, in the psychological domain minimum was 38 and the maximum was 81, in the social domain minimum was 31 and the maximum was 69, in the environmental domain minimum was 31 and maximum was 63. The highest mean questionnaire score was found for the psychological domain (57.34). (Table No 1) The findings from this Questionnaire show a relatively moderate quality of life in patients with bronchiectasis. Bronchiectasis significantly reduces in all four domains. The social relationship domain was the most suffered domain.

Poor scores in bronchiectasis can improve after treatment at a specialized care centre and these improvements are maintained for most patients after the initial visit. (5) Childhood Immunization, early diagnosis, treatment and pulmonary rehabilitation might improve the physical, social, mental and environmental quality of life in bronchiectasis patients.

The limitations of our study must be acknowledged. This is an observational study and as is typical of such studies the sample size is small. Our study is the single centre and bronchiectasis can have a heterogeneous presentation

CONCLUSION

WHOQoL-BREF/100 questionnaire scores were significantly impaired in the physical domain, psychological domain, social domain and environmental domain in our study and questionnaire scores indicate relatively poor quality of life in patients with bronchiectasis. It can improve with immunization, treatment and pulmonary rehabilitation in bronchiectasis patients.

Conflicts of interest: none

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