



Direct Healthcare Cost of Copd in Outpatients Attending A Government Tertiary Care Hospital

Krishnamoorthy K

Professor, Department of Thoracic Medicine, Tirunelveli, Medical College Hospital

Mathan E

Assistant Professor, Department of Thoracic Medicine, Tirunelveli, Medical College Hospital

Heber Anandan

Senior Clinical Scientist, Dr.Agarwal's Healthcare Limited

**Rahman Shahul
Hameed O.M**

Senior Resident, Department of Thoracic Medicine, Tirunelveli, Medical College Hospital

ABSTRACT

To study the direct healthcare cost of COPD patients attending a government tertiary care hospital. Methodology: 50 patients were evaluated using questionnaire in face to face interview. Demographic characters, working status with income, number of visits to hospitals, amount spent for treatment were obtained. Results: Mean monthly income of COPD patients was Rs.4510 (\pm 1648.26). Mean direct healthcare cost was Rs.296.50 per patient per month (Rs.3558 per year), for 50 patients annual direct healthcare cost is about Rs.1,77,900. 22% of patients were unable to work for a mean of 80 days (\pm 66.84) per year. Conclusion: COPD has a major impact in economic status and there is an urgent need to improve COPD care to prevent progression of the disease by early diagnosis, initiation of appropriate treatment, and implementation of pulmonary rehabilitation programme and COPD awareness campaigns. Further studies are needed to evaluate about the impact of COPD & to assist in the disease management.

KEYWORDS : Chronic obstructive pulmonary disease, COPD, healthcare cost, Economic burden

Introduction:

Chronic Obstructive Pulmonary Disease (COPD) is one of the major causes of morbidity and mortality throughout the world as many people suffer from this disease for years and die prematurely from it or its complications¹. COPD is the fourth common cause of death worldwide and contributing to about 3.1 million people in 2012², whereas in India it is the second most common cause of death after ischemic heart disease. Due to its progressive & debilitating nature, COPD has a major negative impact on the quality of life, normal physical activities, social & family activities and sleeping pattern³. In addition to the above, it interferes with person's ability to work leading to productivity losses and lost wages for workers. COPD is associated with significant economic burden. Direct healthcare costs accounting for nearly two-thirds of total COPD expenditure are those related to the diagnosis, treatment, prevention and rehabilitation of the disease, which include: physician visits, hospitalizations, home care, and medications. There is a direct relationship between the severity of COPD and overall cost at the patient level. Indirect healthcare costs include morbidity and mortality by the disease which include disabling effects of COPD producing days off from work⁴. In European Union, COPD accounts for 56% of the cost for respiratory disease. In United States the estimated direct cost of COPD was 29.5 million. Indirect cost was 20.4 billion¹. Present study is designed to assess the direct healthcare cost of COPD in patients receiving treatment from a government healthcare facility, where free diagnostic services and treatment are available. Here the patient's expenditure includes transportation and other miscellaneous expenses only.

Materials and Methods:

50 known COPD patients were selected randomly, from the Outpatient department of Thoracic Medicine in Government tertiary care hospital. Face to face interview was conducted with prepared questionnaire to collect data of working status with income, working days loss during treatment or disease progression, amount spent for buying drugs, distance travelled by the patient for seeking treatment and hospitalization in the previous year were obtained. Pearson chi-square test was used to analysis the categorical variable. Kendall's tau

test was used to analysis the correlation.

Results:

Study patients age range from 36 to 80 years with mean age (63.52 \pm 9.80), 60% of patients are in 61-80 years. Duration of illness varied from 2 months to 20 years with a mean duration of 4.91 (\pm 4.47) years. Income per month varied between 2500 - 8000 rupees with a mean amount of 4510 (\pm 1648.26) rupees. Among the 50 patients, 28 (56%) were working and 22 (44%) were not working. In working people, loss of working days per year due to the disease varied from 3 days to 6 months with an average of 80.6 days per year (\pm 66.84). People who were not working had one of their family members earning or received pension. As the patients were receiving treatment from government healthcare facility which provides free drugs and investigations, for the treatment of the disease including expenses for travel to the healthcare facility and others, every patient spent an average amount of Rs.296.4 per month. All of the 50 patients were receiving treatment from the government hospital, whereas 26% patients (n=13) also received treatment from private hospitals during aggravation of symptoms for which they spent an average amount of Rs.257.69 per month. Every patient travelled for an average of 9.16 (\pm 9.96) km for seeking healthcare in every visit. Mean direct economic burden from healthcare expenses was Rs.296.5 per patient per month (Rs.3558 per year), for 50 patients annual economic burden is about 1,77,900 rupees. About 20% patients (n=10) had a hospitalization in the previous year because of an exacerbation which contributed to an extra healthcare cost in addition to the annual expenditure. Amount loss (healthcare expenditure for COPD per month/ monthly income) is about 7.14% (\pm 5.83) per month. Working people are able to spend more money for the treatment of the disease. There is no significant association between the duration of disease in relation to amount loss due to the disease, hospitalization, distance travelled to hospital, working status and amount loss, age of the patient and amount loss.

Discussion:

The knowledge about the cost of illness of COPD is very much helpful in planning and achieving effective management⁵. Most of the

studies were based on administrative and population data and used a prevalent based cost-of-illness approach⁶. This study tried to evaluate the direct healthcare burden of cost in known COPD patients attending a government healthcare facility. Mean age of the study population was 63.52 ± 9.80 years. Patients between 61-80 years of age contributed to 60% of the study sample. In present study the duration of COPD were 36%, 10% & 4% in group of <5years, 6-10 years and >10 years respectively. In another study⁷ it was higher in group of 6-10 years, >10 years of group of duration of illness. As the patients were receiving treatment from a government healthcare facility where the diagnostic, laboratory tests and drugs are available free of cost. So direct medical cost of COPD is negligible, but direct non medical cost including travel and other expenses contributes significant burden to the patient. Our study indicated that COPD is one of the diseases causing economic burden to the patients in terms of healthcare costs and working days loss. COPD patients experienced an annual direct healthcare cost of 3552 rupees. In addition to measurable losses many patients lost their ability to work. Direct healthcare cost was less than the other developed countries such as united states and European countries⁹. Patients travelled for nearly 9.16 ± 9.98 km for every visit, as the severity of the disease increases they travel more distance to get treatment. COPD incurs huge economic burden on the patient as well as the healthcare systems, at individual level it frequently proves to be financially ruin some families with average income⁸. Medications can effectively prevent and control symptoms of COPD, reduce the frequency and severity of exacerbation, improve exercise tolerance and quality of life. Optimizing management of COPD patients especially stable patients can reduce the frequency of acute episodes⁹. Study was limited by less number of samples and many patients lacked the information regarding the exact indirect expenses from the disease.

Conclusion:

COPD is the leading cause of morbidity and mortality worldwide and results in significant economic and social burden. So there is an urgent need to improve COPD care to prevent progression of the disease by early diagnosis, initiation of appropriate treatment, and implementation of pulmonary rehabilitation programme and COPD awareness campaigns are essential. So that COPD patients can remain less symptomatic, they will have improved quality of life and remain productive in work force for as long as possible.

References:

1. *Global Initiative for Chronic Obstructive Disease (GOLD). Global strategy for the diagnosis, management and prevention of COPD. 2015.* (2016). Retrieved 14 March 2016, from <http://www.goldcopd.org/guidelines-global-strategy-for-diagnosis-management>
2. *World Health Report 2012. Geneva: World Health Organization.* (2016). Retrieved 14 March 2016, from <http://www.who.int/mediacentre/factsheet/index3>
3. *American Lung Association (updated 2011). COPD factsheet.* (2011). Retrieved 14 March 2016, from <http://www.lung.org/lung-disease/copd/resources/facts-figures/COPD-Fact-Sheet.html>
4. Chapman, K. (2006). Epidemiology and costs of chronic obstructive pulmonary disease. *European Respiratory Journal*, 27(1), 188-207. <http://dx.doi.org/10.1183/09031936.06.00024505>
5. COST of acute exacerbation of COPD in patients attending government hospital in Kerala, India. (2014). *International Journal Of Pharmacy And Pharmaceutical Sciences*, 4(3), 659-661.
6. Lou, P., Zhu, Y., Chen, P., Zhang, P., Yu, J., & Zhang, N. et al. (2012). Vulnerability, beliefs, treatments and economic burden of chronic obstructive pulmonary disease in rural areas in China: a cross-sectional study. *BMC Public Health*, 12(1), 287. <http://dx.doi.org/10.1186/1471-2458-12-287>
7. Miravittles, M., Murio, C., Guerrero, T., & Gisbert, R. (2002). Pharmacoeconomic Evaluation of Acute Exacerbations of Chronic Bronchitis and COPD. *Chest*, 121(5), 1449-1455. <http://dx.doi.org/10.1378/chest.121.5.1449>
8. Patel, K., Lalwani, T., & Shah, K. (2014). Economic Burden in Direct Cost of Chronic Obstructive Pulmonary Disease at a Tertiary Care Teaching Hospital: A Prospective Observational Cohort Study. *Indian Journal Of Pharmacy Practice*, 7(3), 61-68. <http://dx.doi.org/10.5530/ijopp.7.3.11>
9. WILSON, L., DEVINE, E., & SO, K. (2000). Direct medical costs of

chronic obstructive pulmonary disease: chronic bronchitis and emphysema. *Respiratory Medicine*, 94(3), 204-213. <http://dx.doi.org/10.1053/rmed.1999.0720>