

COPD – an Indian perspective

Prevalence and etiology

Chronic Obstructive Pulmonary Disease (COPD) is defined in the GOLD guidelines of 2016, as a disease which is common, can be treated as well as prevented. COPD shows a characteristic airflow limitation which is persistent in nature, progressive and is always accompanied by an inflammation in the airways, which is chronic and is believed to be caused due to noxious irritants or gases. COPD is a combination of small airways disease and parenchymal destruction (obstructive bronchiolitis and emphysema respectively).¹ Several etiologic factors alone or in combination cause lead to COPD.²

Although GOLD guidelines are the most popular guidelines utilized for COPD management, there was a need to formulate a different set of guidelines for India due to the varied geographical distribution, differences in risk factors, disease prevalence and burden, and above all, the different overall health-care infrastructure. In addition to it, the heavy incidence and burden of tuberculosis, adds to the difficulties of diagnosis and management. In line with this thought, a working group was formed and a consensus workshop was held in December 2002. Indian guidelines were developed on the foundation of general GOLD recommendations. The modifications were made based on etiology, clinical criteria, exclusion of diagnosis of tuberculosis, and available health care options.³

Several population-based trials have been published using the Indian subset. There is plenty of variation observed in the COPD prevalence in these studies. According to INSEARCH I & II, the prevalence was 3.67% (4.46 & 2.86% among males % females respectively). The national burden of chronic bronchitis was estimated as 14.84million in 2012. It has been estimated that around 5lakh deaths every year, in India, are due to COPD. This creates an impact on the economic burden visa viz direct & indirect costs.⁴

Speaking about risk factors, tobacco smoking is a major risk factor for COPD. In India, though, there are various other potential etiological exposures viz. Bidi, hookah and pipe smoking and some other native forms of tobacco smoking. Additionally, air pollution is also a common cause. The primary sources of COPD-causing air pollution are from exhausts from vehicles, exhausts and fumes from industrial units, household dust and smoke which rise due to burning of crop residues in the fields. Another common cause is of course, pulmonary tuberculosis.⁴ In India approximately two-thirds of the population uses biomass fuel for cooking purposes. On the contrary, just one-third of the Indian subset comprises the smoking population. Thus, exposure to biomass fuel is a greater hazard for COPD in India.⁴ When wood, crop residues or dried dung is burned, the smoke from this combustion is an important cause of pollution. This is observed to a greater extent in the areas where these substances are used for household chores, i.e. villages, semi-urban and slum areas. This leads to a higher prevalence of COPD in rural areas, especially in women, more than one can imagine.³

Under-diagnosis and underutilization of spirometry

In India, chronic respiratory diseases were shown to account for

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Sulaiman Ladhani

Breach candy hospital, India

Correspondence: Dr Sulaiman Ladhani, Breach candy hospital, Consulting Chest Physician, Prince Aly Khan, Wockhardt, India, Tel 919820336674, Email sladhani@gmail.com

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7 per cent of deaths until 2005. This was not the exact picture as there was inadequate information available on COPD. More recent information now available on COPD from India has shown a higher mortality rate, which will increase with each passing year. Another reason for underassessment could be that COPD is still an under diagnosed respiratory disease in India. There is scarcity of published reports. In India, patients with COPD are mostly under the care of primary care physicians. Also, there are many doctors who practice alternative/traditional medicine, and do not differentiate asthma from COPD.⁵ Obviously, a majority of these physicians are unaware of Spirometry which is also a major reason for under-diagnosis. Due to this, significant numbers of patients often are inadequately managed.

Raising awareness of the disease among physicians who are facing these undiagnosed patients has become of paramount importance.⁶

In a study, where spirometry was used to diagnose COPD, there was increase in prevalence of COPD. This indicated that the realistic burden of COPD which is measured in most epidemiological studies in India is highly underestimated, by as much as half the real burden. It could be mainly due to use of respiratory symptom questionnaires due to which a major population suffering from COPD remains undiagnosed or wrongly diagnosed.

The main reasons could be listed as below:

- i. Tobacco smoking is the sole hazard which can cause COPD. This belief leads to poor detection of COPD in people who have never smoked, who comprise half of the COPD population.
- ii. Lack of use of Spirometry for diagnosis. Lack of knowledge and lack of availability of Spiro meters is a major cause.
- iii. Difficulty in differentiating COPD from asthma.
- iv. Under-diagnosis worsens the disease state as well as the quality of life of patients.⁷

Co-morbid conditions

The majority COPD patients are elderly, on multiple medications, having much comorbidity. COPD may be exacerbated by co-existing

chronic and acute health problems (myocardial infarction, angina, osteoporosis, respiratory infection, depression, diabetes, and lung cancer).⁸ Additionally, recently, anemia has been recognized as a frequent comorbidity in COPD patients.⁹

Another study states that the common co-morbidities associated with COPD are cardiovascular disorders (coronary artery disease and chronic heart failure), hypertension, metabolic diseases (diabetes mellitus, metabolic syndrome and obesity), bone disease (osteoporosis and osteopenia), stroke, lung cancer, cachexia, skeletal muscle weakness, anaemia, depression and cognitive decline.¹⁰

It has been observed in studies that as the COPD severity increases, the incidences of certain co-morbidities like hypertension, dyslipidemia, anxiety, depression, and under weight.¹¹

Compliance

One study states that the compliance rates to inhalers are lower in the rural population, especially the elderly male subset when compared to their urban, educated counterparts. The compliance is directly proportional to level of education and income. Lack of patient-counseling leads to non-compliance. Patients also need counseling on smoking cessation. One study concludes that the physicians should guide the patients and explain to them the nuances of their disease. There is a need to emphasize on the medications, the correct dose, at what intervals the doses should be taken and the technique to use the inhalers. This will lead to improved compliance.^{12,13} There is also a myth prevailing in the rural population that regular use of inhalers is habit-forming and could be addictive. Other rampant myths are that oral therapy is better than inhalation, inhalers are expensive, and inhalers should be used only in case of severe asthma. Patients often shy away from the notion of carrying and using inhalers in public. All these factors lead to decreased compliance to using inhalers.

Treatment options

In Indian scenario, the major options available are LABA, LAMA, LABA-LAMA fixed dose combinations, ICS, ICS-LABA fixed dose combination, triple fixed dose combination of ICS-LABA-LAMA. Other options available and used are PDE-4 inhibitors, theophyllines and antibiotics in case of infections or exacerbations.

Conclusion

The foremost and urgent requirement in India is awareness of the disease itself, in physicians as well as in the larger society. Secondly is the need to educate physicians on the importance of using spirometry for accurate diagnosis, symptomatic assessments and progress of patients. Thirdly, is an improvement in the management of patients which can happen with counseling, smoking cessation, exercise, pulmonary rehabilitation and using best-in-class therapy. As there

is little control possible over the environmental etiology, we need to combine all thinkable interventions to capitalize on the available options.

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Conflict of interest

The author declares no conflict of interest.

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