

Rational inhalation therapy in COPD in India: Hope or hype!

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Abstract

Chronic obstructive pulmonary disease (COPD) is common chronic lung disease usually treated in all health care settings as per knowledge of disease, availability of medicines and affordability of patients in India. COPD is second leading cause of death in list of all cause of mortality. COPD is under evaluated and half-heartedly treated with irrational oral medicines in spite of rational inhalation therapy in primary to tertiary care settings. More than half of the cases died due to cardiovascular causes are having underlying COPD as precipitating factor. More disease awareness regarding use of spirometry in health care professionals for proper diagnosis of COPD with more emphasis on rational inhalation treatment is must to prevent morbidity of mortality of this treatable disease.

Keywords: COPD; Rational Inhalation therapy; Spirometry; Oral Medicines; Awareness

1. Introduction

Chronic obstructive pulmonary disease (COPD) is the second leading cause of death in India, affects almost 53 million people respectively [1]. Various Chronic respiratory diseases are common in India including COPD, asthma, bronchiectasis, interstitial lung diseases and post-tuberculosis obstructive airways diseases. Authors have observed 43% cases were difficult to accept COPD diagnosis, 91% cases did not receive rational inhalation treatment and 42% cases were treated with oral medicines over rational inhalation treatment in their study in rural settings in India [2].

Although exact data of COPD disease prevalence, and its impact is not available due to diverse population and cultural trends here in India with 1.35 billion plus population, few published studies have documented prevalence of asthma and COPD in particular geographical setting in India [3]. The National Health Policy of India 2017 recommends that premature mortality from non-communicable diseases, including chronic respiratory diseases, should be reduced by 25% by 2025 [4].

Chronic Obstructive Pulmonary Disease (COPD) is now one of the top three causes of death worldwide and 90% of these deaths occur in low- and middle-income countries (LMICs). More than 3 million people died of COPD in 2012 accounting for 6% of all deaths globally. COPD represents an important public health challenge that is both preventable and treatable. COPD is a major cause of chronic morbidity and mortality throughout the world; many people suffer from this disease for years and die prematurely from it or its complications. Globally, the COPD burden is projected to increase incoming decades because of continued exposure to COPD risk factors and aging of the population [5].

COPD awareness has positive impact on disease diagnosis and rational treatment due to heterogeneous trends of practices in country as varieties of therapies (Allopathy, Homeopathy, Ayurveda, Unani and others) are involved in treatment of these conditions and nearly two third cases are still undiagnosed, only one fifth are getting rational inhalation treatment [2]. Spirometry has a vital role in diagnosis of COPD including other obstructive airway diseases,

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including asthma, help in assessing severity of illness, predicting prognosis, help in guiding rational inhalation treatment and is recommended by GOLD [5].

Various inhalers are available in India ranging from short-acting drugs salbutamol to long-acting salmeterol/formoterol with inhaled corticosteroids and tiotropium; former being cheaper and available in majority of government hospitals, also while later being the costlier and not available in government hospitals [6].

2. Hurdles in diagnosis and management of COPD

2.1. Underutilized spirometry in diagnosis of COPD in India

Spirometry is most common test used for diagnosis of COPD. GOLD guidelines endorsed Spirometry is gold standard test to establish diagnosis of COPD. Spirometry is effort dependent test and specialised trainings is must for performing the test. Spirometry is underutilised in India in evaluation of chronic lung disease. Spirometry is cost effective, easy to perform and sensitive test and operator and effort dependent test [5]. Lack of knowledge, less awareness, and minimal use of spirometry by family physicians are the reasons for less awareness about COPD in community. In one study in rural setting in India, Authors have documented 54% of cases were unaware of their underlying chronic lung disease as the reason for chronic symptoms. Authors also mentioned that these cases are totally new to spirometry test and COPD disease and they may be underreported due to lack of spirometry [7]. Authors have also reported the usefulness of spirometry performed by general practitioners in early diagnosis of COPD [7]. Authors in their study observed that majority of COPD cases were missed due to underuse or nonavailability of spirometry and 91% of cases are half-heartedly treated in peripheral setting. Proper trainings regarding methodology of spirometry are must as many of the cases will be missed due to faulty techniques of spirometry [7].

2.2. Oral medicines use preference by doctors and patients in management of COPD labeled as ‘difficult doctor and difficult patient’

Although inhalation treatment is preferred treatment and recommended by GOLD guidelines, oral medicines are mentioned in these guidelines as add on therapy in uncontrolled cases. Authors [7] have documented use of oral medicines in 42% COPD cases, with 16 % cases of theophylline, 7% cases of salbutamol, and 19% cases of oral steroids. They have recorded surprising beliefs, experiences and behaviours by COPD cases in ‘treatment preferences’ to oral medicines over rational inhalation treatment. Most common misbelief is that inhalation will decrease lung strength and have to continue for an entire life without any gap. Other misbeliefs are that inhalation treatment options are equivalent to oxygen therapy and increases dependency for symptom control once started and they consider inhalation as last resort to use in COPD. Some patients experienced minimal adverse events with inhalation as altered speech due to improper oral drug washout and manifested as phobia regarding loss of voice. Few COPD cases have documented urinary retention after tiotropium inhalation treatment which has been reflected as increased creatinine level resulting in aversion to inhalation treatment. Some patients believe that inhaled medicines will weaken the respiratory tract and should be avoided as far as possible. All mentioned facts have resulted in oral preference over inhalation and considered as ‘difficult patients’ [7].

Authors [7] have specifically documented more preference by treating physicians to oral medicines over rational inhalation treatment in COPD cases. Most common experience by treating physicians is cost effective oral medicines, easy to use and universal availability over inhalation treatment. Other experiences especially mentioned by majority physicians as they have experienced lost to follow-up cases whenever offered inhalation treatment and those patients prescribed oral medicines showing adequate adherence irrespective of partial symptom control. They have mentioned that patients were demanding oral medicines over inhaled medicines. Most common misbelief was minimal symptom control achieved with oral medicines although transient and not as effective as inhalation treatment will be sufficient for their patients. Lack of knowledge regarding COPD disease and usefulness of rational inhalation treatment they are preferring oral medicines over inhalation treatment and reluctant to shift to inhalation after knowing benefits and are considered as ‘Difficult doctor’ [7].

Authors [8-11] have reported similar preferences and trends of use of oral medicines over inhalation treatment as the former is cheaper, easily available and simple to use and later one is costlier, requires specialist/pulmonologist consultation and requires training before use. They also mentioned similar to our study as transient symptom control with oral medicines is one of the ‘disease control criteria’ which can be achieved with oral medicines, although long term benefits of these medicines are not known or not expected by patients [8-11]. GOLD guidelines and Indian guideline [12] also recommended against use of oral medicines in COPD unless the patient is unaffordable and or inhaled medicines are not available.

2.3. Factors affecting less preference for Inhaled medicines or rational inhalation treatment and labeled as difficult treatment

Pharmacological therapy for COPD is used to reduce symptoms, reduce the frequency and severity of exacerbations, and improve exercise tolerance and health status. Individual clinical trials have not been sufficiently conclusive to show that pharmacotherapy can reduce the rate of lung function decline. Combining bronchodilators with different mechanisms and durations of action may increase the degree of bronchodilation with a lower risk of side-effects compared to increasing the dose of a single bronchodilator [5].

Authors [7] have documented inhalation treatment use in 58% COPD cases, with 31% cases of levosalbutamol monotherapy, 18% cases of levosalbutamol plus beclometasone, and 9% cases of either formoterol plus budesonide or salmeterol plus fluticasone. Authors [7] have recorded in a present study that patients believe inhalation treatment is higher strength treatment (longer acting bronchodilators LABA-LAMA with inhaled corticosteroids) to oral treatment due to cost difference. Other misbeliefs in the category of inhalation treatment as longer acting drugs are costlier than short acting drugs and these are higher strength drugs and should be reserved for advanced courses of illness or when disease advances or health conditions worsens requiring hospitalizations. Some patients believe costlier inhalation treatment will have more side effects as documented with tremors and altered voice in comparison to cheaper oral drugs without these side effects. Importantly, patients experienced some relief with short acting drugs which are cheaper although benefit is not as much as long-acting drugs which are costlier, they consider symptomatic relief as basic disease control parameter apart from long term outcomes and benefits of long-term inhalation treatment. As per our study, cost is the basic factor for more preference to oral medicines over inhalation treatment in management of COPD and is considered as 'Difficult treatment' [7].

Globally, Inhalation treatment method is the preferred route of administration of drug for treatment of COPD and considered as 'lung targeted therapy' and evidence-based medicine has observed significant improvement in symptom control and lesser systemic side effects due to smaller volume of drug used as compared to oral or intravenous route of administration [13]. Authors have mentioned high cost of long-acting or rational inhalation treatments and improper drug selection by family physicians was the reason for least preference to inhalation medicines over oral medicines [2]. Similarly, various studies [14-15] have mentioned COPD management remains suboptimal due to lack of knowledge or unawareness regarding current guidelines by treating physicians, and poor adherence by patients to prescribed medicines regarding usefulness of rational inhalation treatment. Observed different preferences of drugs by primary care physicians during treatment of COPD [15]. Indian guidelines recommended Inhalation treatment as the rational therapy in management of COPD [12].

2.4. Measures to increase awareness of COPD, Spirometry and rational inhalation treatment

More disease awareness regarding use of spirometry in peripheral or rural settings by digital or social media and more emphasis for spirometry and rational inhalation treatment. Spirometry training campaigns on regular intervals by medical schools, medical experts, pulmonologists conducted to train and involve general physicians/family physicians or primary health care providers.

Rational treatment awareness by Government organizations and medical experts using social or digital media with attractive and view changing 'slogans' as [7]-

- Inhalers are right choice for COPD;
- Inhalers will control disease progression;
- Inhalers will decrease risk of hospitalization and overall cost of care in comparison to cost of rational inhalation medicines;
- Inhalers are safe to use for longer duration and for entire life without any side-effects;
- Inhalers can be used in all age groups; Inhalers dose is less to oral medicines and ultimately lesser side-effects;
- Inhalers should be taken after consultation with lung experts; Inhalers will prevent 'lung attack' or exacerbations.

3. Conclusion

In India, we 'hope' and should recommend for use of spirometry test as a routine in all chronic respiratory symptom's patients for exact diagnosis of COPD. More emphasis should be given for trainings of family physicians to spirometry. Oral medicines are commonly preferred treatments in COPD over universally accepted inhalation treatment due to misbeliefs, experiences and behaviours of patients and doctors.

Now or when to 'hype' for more awareness and sensitization regarding benefits of rational inhalation treatment in COPD, especially advantages of these methods of treatment in symptom control, improvement in quality of life and long-term disease related outcomes, and special emphasis on their role in decreasing hospitalization risk during exacerbation and overall cost of treatment.

“Doctor–patient–drug trio” discordance clubbed as “difficult doctor, difficult patient, and difficult treatment” is a very common issue observed during diagnosis and management of COPD in peripheral setting in India.

Compliance with ethical standards

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