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Chronic Obstructive Pulmonary Disease: The future

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Chronic obstructive pulmonary disease (COPD) is one of the major causes of morbidity and mortality across the world. Almost 90% of COPD deaths are occurring in low and middle - income countries.[1,2]

Chronic Obstructive Pulmonary Disease (COPD) is a common, preventable and treatable disease that is characterized by persistent respiratory symptoms and airflow limitation that is due to airway and/or alveolar abnormalities usually caused by significant exposure to noxious particles or gases.[3] This refined definition includes the impact of symptoms and developmental origins.

Chronic Obstructive Pulmonary Disease (COPD) is currently the fourth leading cause of death in the world but is projected to be the 3rd leading cause of death by 2020. The Global burden of COPD is estimated to be 384 million with a global prevalence of 11.7%. Females are at a higher risk of developing the disease with equivalent exposure as compared to males.

COPD is now not an untreatable disease, over the past few decades management have improved drastically with research growing exponentially. COPD was considered predominantly a smoking-related disease, however 25%–45% of patients suffering from the disorder have never smoked. The risk factors attributed to the disease that can affect at different life stages are —in utero due to maternal smoking/exposure to air pollution, in childhood because of respiratory tract infections and in adulthood due to indoor biomass fuels, outdoor air pollution.

In India, 90% of rural population houses and 32% of urban population houses cook their meals on a biomass stove,[4,5] only 25% of the cooking being done with cleaner alternative gases,[6,7] indicating biomass fuels a major cause of COPD. Mosquito coils used in the night are emitting particulate matter equivalent to around 100 cigarettes is also a major risk factor for development of non-smokers COPD.[8]

Lack of awareness of the disease, its symptoms or implications is one of the major reasons that the people at risk are not seeking help from their primary care physicians. Even if a symptomatic patient visits his general practitioners, there is increases chances of under diagnosis as spirometries are not routine and diagnosis is largely symptom based. The inhalational devices are generally prescribed at the 'terminal stage' of the disease and these devices have a virtual stigma in rural setting.

It is now well appreciated that COPD is much more than the combination of chronic bronchitis and emphysema. Chronic lung inflammation and remodeling of small airways can produce COPD, even in the absence of bronchitic symptoms or radiographic evidence of emphysema. The refined ABCD assessment tool adopts three step approach 1) diagnosis based on FEV1/FVC <0.7, 2) Airflow limitation assessment 3) Assessment of symptoms and risk of exacerbation.[3]

Due to the complexity of COPD, patients are best managed by a multidisciplinary team, which include clinicians, dietitians, educators, psychologist and respiratory therapists. The multidisciplinary team can educate patients to understand their disease and help in making self-management plans. TRILOGY is an important options in pharmacotherapy management for severe disease, bringing down the cost of treatment which still needs to be a priority in many parts of the world.[9]

Two Cochrane Reviews, one of admission avoidance hospital at home[10] and the other of early discharge hospital at home[11] were carried out on COPD patients. Higher admission rates were noted in patients of early discharge as compared to hospital at home. Fernando Martinez and colleagues report the results of the REACT trial, which shows that roflumilast, can reduce exacerbations and hospital admissions in patients with severe COPD and chronic bronchitis who are also receiving recommended therapy—a fixed inhaled corticosteroid and long acting β2agonist combination.[12]

We need to make protocols for the use of systemic corticosteroids, antibiotics, and, in hypercapnic individuals, noninvasive mechanical ventilation, which can accelerate recovery from exacerbations.

COPD patients frequently have co-morbidities like heart disease, osteoporosis, cachexia, and depression as result of or in conjunction with their COPD. These co morbidities severely impair the patient's health status, quality of life and must be treated aggressively. In spite of optimal therapy, few of the patients will experience exacerbations requiring urgent care.

Clinical trials have proved that inhaled bronchodilators therapy along with pulmonary rehabilitation improve out come in terms of functional capacity and quality of life and may reduce mortality rates.[13,14] The benefit of oxygen supplementation has been proven in persons with severe resting hypoxemia,

and lung volume reduction surgery is recommended for a subgroup of emphysematous patients.[13-15] The availability of effective treatments makes early intervention increasingly important. Pneumococcal and Influenza vaccination prevents lower respiratory tract infection and may reduce the infective exacerbations.

Despite of all our efforts, some patients will die due to COPD. Hence the, end-of-life issues should be discussed with patients and their families, especially in advanced disease, before they face a life-and-death crisis. This will ensure that the patient knows what would happen and patient's wishes can be respected during periods of medical crisis.

Scientific research is advancing rapidly. After decades of modest progress, researchers currently are making rapid advances using modern methods of genetics, genomics, and molecular pathology to better understand COPD.[13,14]These new advances in knowledge show the importance of protecting young, developing lungs from insults, including tobacco smoke The renewed interest in COPD research provides hope that novel therapies with the potential for modifying the disease process will soon be identified.

All guidelines aim to improve health care processes and outcomes through minimization of practice variation, and optimization of resources.[16] In low and middle income countries, with resource limitations, future research initiatives should be considered on how to improve compliance, adherence, accessibility and implementation of new treatments, where the burden of COPD disease is great.

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