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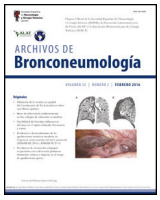

Editorial

COPD in China: Current Status and Challenges

Chronic obstructive pulmonary disease (COPD) is a heterogeneous airway disease characterized by persistent respiratory symptoms, airflow limitation, as well as local and systemic inflammation.[1] In mainland China, COPD is the most prevalent airway disease, about 99 million people being estimated to suffer from the disease.[2] According to the Global Burden of Disease Study, COPD has been the fifth leading cause of death in China.[3] The prevalence and burden of COPD are projected to continue to rise substantially, with the aging of the Chinese population. In the past 20 years, COPD has gained great attention both in the medical profession and the society, however, there are still big challenges ahead.

The recently published China Pulmonary Health (CPH) study, which sampled 50991 individuals aged more than 20 years between 2012 and 2015 in ten regions across mainland China, reported an overall prevalence of 8.6% of spirometry-defined COPD (11.9% in men and 5.4% in women), and a prevalence of 13.7% in those aged 40 years or older.[2] Another national survey during the same period (between 2014 and 2015) reported a very similar prevalence; the estimated standardized prevalence of COPD was 13.6% (19.0% in men and 8.1% in women) among 66752 adults aged 40 years or older.[4]

The high prevalence of COPD is mostly driven by the high prevalence of cigarette smoking and/or household biomass fuel exposure, among others. Smoking exposure is the most important risk factor for COPD in Chinese population.[2,4] The proportion of current-smokers among males in China is 49.8–58.2%, while that among females is 2.2–4.0%.[2,4] Smoking prevention and cessation is the key intervention for all smoking COPD patients. Healthcare workers should inform the patients of the harm of smoking and provide supported smoking cessation. Implementation of smoke-free regulations in public places is expected to reduce both direct and passive exposure.

Biomass fuel exposure, air pollution, lower level of education, chronic cough during childhood, parental history of respiratory diseases, and body mass index $\leq 25\ kg/m^2$ were likely to predispose non-smokers to COPD.[2] In a cohort of ~280,000 Chinese non-smokers, 91% reported regular cooking and 52% of them used solid fuels for cooking. Solid fuel exposure was found to be a major risk factor for COPD in Chinese non-smokers.[5] A 9-year prospective cohort study conducted in southern China reported that using clean fuels and improving kitchen ventilation significantly reduced the risk of COPD.[6] Therefore, providing clean fuels, improving kitchen ventilation and taking measures to reduce air pollution, will benefit to the prevention of COPD, especially among non-smokers.

As important as in other low- and middle-income countries (LMICs), history of pulmonary tuberculosis is an independent risk factor for COPD in the Chinese population,[4] highlighting the need to pay more attention to post-tuberculosis lung disease (PTLD).[7] More than 10 years ago, the Guangzhou Biobank Cohort Study demonstrated that prior tuberculosis was an independent risk factor for airflow obstruction, which explained, at least partly, the high prevalence of COPD in China.[8] Another cross-sectional survey conducted in China during 2004–2008 reported that prior tuberculosis was independently associated with airflow obstruction among ~317,000 never-smokers, more significantly in females.[9] Data from our studies showed that over 40% of the COPD patients had chest CT signs of prior tuberculosis,[10,11] and these lesions were associated with severe lung damage, including emphysema and/or bronchiectasis.[10] Pulmonary tuberculosis can cause permanent impairment of lung function and is associated with airflow obstruction. Approximately one fourth of the patients with new pulmonary tuberculosis developed airflow obstruction during the 12 months following successful treatment, over one half of them with COPD.[12] The phenotype of tuberculosis-associated COPD differs from smoking-associated COPD.[13] Patients with tuberculosis-associated COPD had a higher risk of persistent respiratory symptoms and exacerbations, and showed accelerating decline of lung functions.[14] The response to bronchodilators in tuberculosis-associated COPD may be poor. China is among the countries with the highest burden of tuberculosis. In a cross-sectional study of all patients reported in the national Tuberculosis Information Management System from January 1, 2005, to November 21, 2016, 10,582,903 patients with pulmonary tuberculosis were identified, accounting for more than 880,000 new cases annually. Of these patients, mostly were male (69.8%), with a median age of 46 years, and 28.53% were 60 years or older.[15] All these characteristics are also risk factors for COPD. Therefore, prevention, early diagnosis and treatment of pulmonary tuberculosis are highly relevant in efforts at reducing the incidence of COPD.

Under-recognition and under-diagnosis of COPD, mostly due to the limited access to spirometry, is another big challenge for the medical society. In the CPH study, only 11.1% of the population had ever received spirometry test.[2] Another nationwide survey reported that only 5.9% of the COPD patients had ever been tested

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by spirometry before they were enrolled.[4] To improve early recognition and diagnosis of COPD, professional societies have proposed that spirometry testing be included in the routine physical examination for people aged ≥40 years and primary medical institutions provide screening and spirometry for patients with risk factors of COPD.

Chinese Thoracic Society has updated the guideline for diagnosis and treatment of COPD in 2021, in which the recommendations on pharmacological therapy are consistent to the Global Initial for Chronic Obstructive Lung Disease (GOLD). Long-acting muscarinic antagonists (LAMAs) and inhaled corticosteroids plus long-acting β2 agonists (ICS/LABAs) have entered the National Essential Drug List, with the indications for obstructive airway diseases. Newer inhaled medications such as fixed-dose dual (LABA/LAMA) and triple (LAMA/LABA/ICS) therapies for COPD can be reimbursed through medical insurance in many regions. However, regional disparities exist in terms of access to healthcare services and medication availability. For example, a cross-sectional survey we conducted in Beijing showed that the above-mentioned inhaled medications for COPD were all available, and ∼80% of the patients maintained their long-term treatment.[16] However, another survey we conducted in the Tibet Plateau showed that only 36.9% of the COPD patients received regular long-term medications and inhaled medications were limited.[11] To improve the accessibility of medications, and to provide education for both patients and primary care physicians on the benefit of maintenance inhaler therapy for COPD, are immediate measures to take for optimal management of this disabilitating disease.

In summary, the prevalence of COPD is on the rise and the disease burden is heavy in China. In addition to cigarette smoking, biomass fuel exposure and pulmonary tuberculosis are other important risk factors for COPD in the Chinese population, particularly among females and non-smokers. Prevention strategies, therefore, should also be targeted at these specific exposures. Further improvement in diagnosis, pharmaceutical therapy and management of COPD requires public awareness, accessibility of spirometry test, patient and physician education, and propagation of national guidelines.

Conflict of interest

There is no interest to be disclosure.

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