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COPD: Trends in 2020

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ARTIGO OPINIÃO | OPINION ARTICLE

COPD is a very complex disorder, whose paradigms of orientation and treatment are constantly changing. From a "completely over-looked" disorder, as written by Laennec in the nineteen century, COPD is currently the 3th leading cause of death[1], and the most common respiratory disease worldwide, in people ≥ 40 years old. The absolute number of COPD deaths is constantly increasing due to the growing and aging population, the rising of urban population and related indoor and outdoor air pollution, poverty, increasing of tobacco smoking and environmental exposures[2]. Crude mortality is also rising, mainly due to the decrease in mortality rate in cardiovascular and infectious diseases. However, age-standardised mortality rates, after adjusting for demographic composition in different time periods, show a significantly decrease. Probably in the future, people will continue to die with COPD, but not from COPD[3]. This picture is currently beginning to be perceived by doctors who treat patients in their everyday practice.

COPD has been classically understood as a disease of smokers, but almost half of COPD patients are thought to have no smoking history[4]. Recent literature have stressed the importance of childhood asthma, parental history of COPD, childhood and adult life passive smoking, intergenerational smoking behaviour and occupational or environment exposures, in changing lung function trajectory and leading to COPD in adulthood[5]. Low income is also an independent predictor of increasing airflow limitation and a factor for disease progression[6]. A better understanding of the pathogenesis of COPD can allow early medical intervention, changing the natural history of the disease before the appearance of the first symptoms and a significant deterioration in respiratory function.

The identification of markers of disease activity, allowing the identification and treatment of active pathological processes that lead to COPD progression, have been recognised for a long time as an important research field in the disease[7]. Until now, however, the diagnosis of disease progression is established retrosectively, and there is a very clear difficulty in finding biomarkers indicating disease activity. Therefore, the scientific community is currently focusing mainly in the identification of biomarkers associated with specific mechanisms of the disease which could be subject to a targeted treatment[4]. The blood eosino-

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phil count, predicting the beneficial effect of inhaled corticosteroids (ICS) in the prevention of COPD exacerbations (ECOPD), mainly in patients with history of frequent ECOPD[8], is currently the more useful biomarker in clinical practice. Some studies also suggest an association between low levels of blood eosinophil and severe emphysema, risk of acute exacerbations or adverse outcomes[9]. However, eosinophil count is known to vary over time, and the optimal cut-off point is far from being clear[10]. It is also unclear how long a complete blood count can be used to guide a changing of COPD treatment, and the minimal number of blood counts required. Alfa-1-antitrypsin (AAT) deficiency is a well-recognised genetic condition predisposing to early-onset emphysema and COPD, and routine measurements of AAT levels in all patients with COPD is highly recommended by the World Health Organization. Conversely, high levels of AAT can be a useful biomarker for chronic inflammation in COPD[11]. Nonetheless, although COPD is a chronic inflammatory disorder, attempts to manage inflammation have presented, until now, variable degrees of success.

Together with some loss of interest by scientific community in defining and diagnosing the asthma-COPD overlap (ACO), the search for asthma traits in COPD patients has gained relevance, partly because they are more likely to benefit from ICS[12]. Commonly referred traits are previous diagnosis of asthma, air flow reversibility ≥12%, history of atopy and a significant symptom or pulmonary function variability. These approach emphasises the heterogeneity of COPD, and supports the need to identify biomarkers that can be related to specific endotypes.

Some old concepts related to the understanding of the disease have been reviewed. COPD, regarded as a disease of accelerating aging, was associated with elevated levels of cellular senescence and mitochondrial alterations[13]. The "pink puffer" phenotype was redefined as the multi-organ loss of tissue phenotype, because it is also frequently associated with loss of bone mass, muscle and fat tissues. The importance in identifying this COPD phenotype, together with the identification of other pulmonary abnormalities, like bronchiectasis or early-stage lung cancer, emphasises the utility of chest computed tomography in the majority of patients with COPD[8]. On the other hand, the role played by lung microbiome disturbance, early life exposures and environment causes in lung development and in the pathogenesis of COPD are significantly growing fields of investigation[4].

Obesity is frequently associated with increased mortality and to worsen the prognosis of many disorders, like asthma or cardiovascular disease. In COPD it appears to be protective, as low body mass index (BMI) is usually related to poor prognosis: this is usually referred as the obesity paradox. Some authors have suggested that, despite an underweight status, an excessive abdominal fat accumulation can be related to lung function impairment[14]. Other authors, however, found a positive correlation between BMI and airway wall thickness, and suggested a direct structural effect of adipose tissue on airway function[15].

Digital health technology is a very pro-

mising field in medicine, and can be used in the management of patients with COPD, by increasing patient's autonomy and their participation in disease management, allowing remote monitoring, detecting early health-status deterioration and decreasing health-related costs[16]. However, and besides the difficulty of their implementation in clinical practice, significant improvements in patient outcomes have not yet been proven.

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