

PHARMACOLOGICAL MODULATION OF A PULMONARY INFLAMMATION IN COPD

L. M. Fabbri

Department of Respiratory Diseases - University of Modena & Reggio Emilia
Via del Pozzo 71, - 41100 MODENA

Chronic obstructive pulmonary disease (COPD) is associated with cellular and structural changes in both peripheral and central airways, including airway wall inflammation, fibrosis, smooth muscle hypertrophy, goblet cell metaplasia and lumen occlusion by mucous plugging. Particularly, T-lymphocytes and macrophages are the predominant cells infiltrating the airway wall, whereas neutrophils, that are scanty in the airway wall, are increased in the airway lumen. The functional consequence of these abnormalities is expiratory airflow limitation.

According to GOLD guidelines, the only treatment that is shown to affect COPD progression is smoking cessation. Although the inflammatory nature of COPD, none of the existing medications have been shown to modify the long-term decline in lung function that is the hallmark of the disease. Therefore, pharmacologic therapy is used to prevent and control symptoms, reduce the frequency and severity of the exacerbations, improve health status and improve exercise tolerance. Since COPD is usually progressive, there should be a stepwise increase in treatment, depending of the severity of disease. Furthermore, regular treatment needs to be maintained at the same level for long periods of time.

Bronchodilator medications are central to the symptomatic management of COPD. They are given on as-needed basis or on a regular basis to prevent or reduce symptoms. The principal bronchodilator treatments are β_2 -agonists, anticholinergics and theophylline and a combination of these drugs. Regular treatment with long-acting bronchodilators is more effective and convenient, but more expensive. The addition of regular treatment with inhaled steroids to bronchodilator treatment is appropriate for symptomatic COPD patients with an FEV₁<50% predicted (Stage III: severe COPD and Stage IV: Very severe COPD) and repeated exacerbations.

In conclusion, inhaled steroids may have a small effect on disease progression. Most treatments are clearly to offer symptomatic benefits. Finally, the effects of various treatments on exacerbation rate do not appear to be additive.