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Corticosteroid Administration in COPD: Summary of the Global Initiative for Chronic Obstructive Lung Disease (GOLD) Guidelines 2017

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Abstract

Administration of Inhaled Corticosteroids (ICS) in Chronic Obstructive Pulmonary Disease (COPD) has always remained controversial because of its questionable benefit in this disease. Although several clinicians believe that corticosteroids have little or no role in controlling inflammation in COPD, its use in stable to heavily exacerbated COPD has been in practice especially in the developing countries where COPD is often over diagnosed/ underdiagnosed or misdiagnosed. Neutrophils being the crucial players in inflammation in COPD, steroids are considered to have a less functional effect on this type of inflammation as steroids especially glucocorticoids has been shown to enhance the survival of neutrophils and increase their functional responsiveness [1]. Therefore, such treatment might lead to incurring detrimental effects on the patients by enhancing the exacerbation.

Although some evidence have suggested that some drugs such as β2-agonists, methylxanthines (theophylline) or antibiotics (macrolides) may somewhat facilitate corticosteroid sensitivity in COPD [2,3], their functional aspects and clinical relevance are not quite clear. Moreover, since the effect of ICS may be modulated by these other add-on drugs, the effect of ICS alone in COPD has remained questionable. Most of the studies showed that ICS alone does not effectively reverse the progressive decline of FEV1 or mortality in patients with COPD [4]. The TOwards a Revolution in COPD Health (TORCH) trial showed higher mortality among COPD patients treated with ICS alone than those who received ICS (Inhaled Corticosteroids) +LABA (Long acting β2-agonists) [5].

The efficacy of a combination of ICS and LABA has been proved to be more effective in patients with moderate to very severe COPD, than either of them alone. Such combination therapies were found to improve lung function, health status and exacerbations [6-8]. However, ICS has also been disliked by several clinicians as a preferable option for COPD because of its potential side effects such as increased prevalence of oral and laryngeal candidiasis, hoarseness in voice, and pneumonia [4] and such effects are even prominent when administered at a very low dose [9]. Some observational studies reported that ICS treatment could attribute to comorbidities such as increased risk of diabetes/poor control of diabetes [10], cataracts [11], and mycobacterial infection [12] including tuberculosis [13,14]. Withdrawal of ICS also results in downstream consequence effects in terms of lung function, respiratory symptoms and rate of exacerbations [15-19], however many of these results were contradictory as other studies have not found similar results.

In light of these newly established findings of the efficacy of inhaled corticosteroids in the management of COPD, the Global Initiative for Chronic Obstructive Lung Disease (GOLD) has amended some changes in the guidelines published recently [20]. The guidelines suggest that systemic corticosteroids can be used in COPD to improve lung function, shorten recovery time and hospitalization duration but the duration of therapy must not be longer than 5-7 days. In the case of a suspected oral or laryngeal fungal infection, bacterial colonization or lower respiratory tract infection, corticosteroids are not recommended. Blood eosinophils should be considered as a major biomarker to determine effects of ICS on exacerbation and therefore, ICS should not be administered in patients with lesser (<2%) eosinophil in peripheral blood. Oral glucocorticoids should not be used as a daily treatment for COPD because of its no established role in the everyday quality of life in COPD but on the contrary, may lead to cause several other complications including steroid myopathy. Oral corticosteroids are only recommended for treating hospitalized COPD patients or in the case of an emergency situation such as acute breathlessness. These recommendations should be followed in everyday clinical practice for an effective management of COPD.

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