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Inhaled Corticosteroids in COPD
A Light at the End of the Tunnel?

COPD is characterized by a progressive deterioration of lung function with an FEV1 decline averaging 70 mL/yr. In bronchial asthma, the rate of decrement is only 5 mL/yr. This low decline in FEV1 has been attributed to the widespread use of corticosteroids and bronchodilators, which suppress inflammation and decrease airway hyperresponsiveness. In COPD, FEV1 decline is sustained and only cessation of smoking decreases the progression of lung function deterioration.

Blair and Light and Mendella et al showed that a short-course of systemic corticosteroids given to a comparable number of stable COPD patients improved FEV1 up to 25%. In a larger group of 107 patients, Weir et al, using oral prednisolone, significantly improved the spirometric baseline to 42%. Moreover, Postma and colleagues in a retrospective study, showed that steroids slow down decrements in FEV1 and possibly prolong life in subjects with severe COPD. In contrast, in a placebo-controlled double-blind crossover trial by Eliason and coworkers, COPD patients were given oral prednisone, and only 1 was steroid-responsive with a 32% increase in FEV1. Callahan et al did a meta-analysis on 10 selected placebo-controlled studies meeting strict standards of >20% improvement in FEV1 from baseline. They found that 10% of all patients responded to oral corticosteroid therapy.

The advent of inhaled corticosteroids has undoubtedly benefited asthma patients, providing an alternative approach for long-term administration with relative safety and ease. In COPD, the use of inhaled corticosteroids is unclear. Previous reports claimed less benefit of inhaled corticosteroids than oral preparations. Failure of inhaled corticosteroids to improve FEV1 from baseline spirometry was reported in patients with mild COPD treated for 1 year. Thompson et al reported that the inflammatory changes in chronic bronchitis correlated well with bronchoalveolar lavage findings and spirometric changes before and after 6 weeks of inhaled corticosteroid treatment. They showed significant improvement in FEV1 with modulation of the inflammatory changes in the airways. In one of the first reports to examine the long-term effects of inhaled...
corticosteroids in COPD, Dompeling and colleagues studied patients with rapidly deteriorating lung function. FEV₁ improved up to 323 mL/yr during the first 6 months of treatment with beclomethasone dipropionate. However, this was lower than the FEV₁ improvement in asthmatics (≥562 mL/yr), suggesting the superiority of corticosteroids in asthma patients.

In this issue of CHEST (see page 1568), Weiner et al describe their use of a β₂-agonist response >20% as a criterion for administration of inhaled corticosteroid in 30 patients with carefully diagnosed COPD. Six of eight (75%) β₂-agonist “responders” showed a significant improvement in FEV₁ compared to the “nonresponder” group where only 1 of 22 showed a >20% increase. The steroid responders comprised 20% (6 of 30) of the total COPD population, higher than previously reported. The above criterion better identifies patients who will benefit from inhaled corticosteroids from those with eosinophilia or allergy, rapidly deteriorating lung function, or response to oral corticosteroid therapy trial.

Superior improvement in FEV₁ from the combination of β₂-agonist and an anticholinergic has been reported. Can the reversibility achieved from this combination be another criterion? Reduced inflammation from inhaled corticosteroids can further augment bronchodilation with eventual decrease in airflow limitation.

The article by Weiner and associates, nonetheless, suffers from a small number of patients and a short duration (6 weeks) of treatment. Obviously, a large number of patients must be studied for longer periods using the proposed selection criterion, with or without an anticholinergic. We are just beginning to explore another possibility, the use of safer corticosteroids for treatment of patients with COPD.

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Technology Assessment

In most internists’ minds, rapid and uncritical adoption of technical “advances” and procedures are associated with surgery. Physicians of a certain age remember nephrology, uterine suspension, and the Vineberg procedure. More recently, a combination of factors, including large numbers of patients with medically intractable disease, willing and underemployed practitioners, and a belief system that valued doing something over doing nothing, led to performing coronary artery bypass grafting in patients who benefited as well as those who didn’t. The ability to sort out the two groups has taken more than a decade. Some of us suspect that lung volume reduction surgery is headed down the same path.

Pulmonary internists have been guilty of rapid, and at times persistent, adoption of therapeutic measures that are worthless or harmful, intrusive, and expensive. Intermittent positive pressure breathing (IPPB), in-