Inhaled Steroids for Chronic Obstructive Lung Disease

What is the problem and what is known about it so far?
Chronic obstructive lung (or pulmonary) disease (COPD) is a disease of the air sacs and air passages of the lungs. People with COPD are short of breath and sometimes cough and wheeze. Chronic obstructive lung disease is usually caused by smoking; damage to the lungs and symptoms slowly worsen over time. Most patients also have intermittent bouts of acute worsening of symptoms. Lung infections, cold weather, and exertion may cause these bouts.

Drugs that widen the airways of the lungs (bronchodilators) ease the breathing problems of patients with COPD. Drugs that decrease or prevent inflammation (corticosteroids) are also used, particularly in patients who have frequent bouts of worsening symptoms. However, whether the steroids really slow progression of COPD is not clear.

Why did the researchers do this particular study?
To see whether inhaled corticosteroids slow the decline in lung function of patients with COPD.

Who was studied?
3571 adults with COPD who had participated in 6 different studies of long-term use of inhaled steroids.

How was the study done?
Rather than doing a new study, the researchers looked at previous randomized trials that had compared inhaled steroids with a placebo (dummy inhaler) in adults with COPD. All trials followed the lung function of participants for at least 2 years. Lung function was tested regularly with lung volume tests. The tests showed how much air remained in the lungs when breath was fully exhaled (forced expiratory volume or FEV₁). Typically, FEV₁ declines over time in patients with COPD. The researchers used a mathematical technique called meta-analysis to summarize the trials and see whether inhaled steroids reduced decreases in FEV₁.

What did the researchers find?
The rate of FEV₁ decline in patients given inhaled steroids and those given placebo did not differ significantly. Effects of steroids on symptoms and on numbers of bouts of worsening symptoms were inconclusive: Some trials showed benefits while others showed no benefits. Adverse effects of steroids were also inconclusive. One trial showed that long-term inhaled steroid use decreased the normal ability of the adrenal glands to produce steroid hormones, whereas another trial found no such effect. One trial found that long-term use of inhaled steroids decreased bone density, whereas another found no effects on bone.

What were the limitations of the study?
In four trials, one third to one half of the participants withdrew from the trials before the end of the minimum 24-month follow-up period.

What are the implications of the study?
Inhaled steroids probably don’t affect long-term decline in lung function in patients with COPD. Tradeoffs between other potential clinical benefits and harms remain unclear.