



COPD

Chronic obstructive pulmonary disease (COPD) is a serious lung disease that makes it hard to breathe over time. COPD is often described by other names, like emphysema or chronic bronchitis. In people who have COPD, the airways—tubes that carry air in and out of your lungs—are partially blocked, which makes it hard to get air in and out. When COPD is severe, shortness of breath and other symptoms of COPD can get in the way of even the most basic tasks, such as doing light housework, taking a walk and even washing and dressing.

The “airways” are the tubes that carry air in and out of the lungs through the nose and mouth. Healthy airways and air sacs in the lungs are elastic—they try to bounce back to their original shape after being stretched or filled with air, just the way a new rubber band or balloon does. This elastic quality helps retain the normal structure of the lung and helps to move the air quickly in and out. In people with COPD, the air sacs no longer bounce back to their original shape. The airways can also become swollen or thicker than normal, and mucus production might increase. The floppy airways are blocked, or obstructed, making it even harder to get air out of the lungs.

More than 12 million people are diagnosed with COPD. An additional 12 million likely have COPD and don't even know it. COPD is the fourth leading cause of death in the U.S. and causes serious, long-term disability. COPD kills more than 120,000 Americans each year, one death every four minutes.

Symptoms associated with COPD include constant coughing, sometimes called “smoker's cough,” shortness of breath while doing activities you used to be able to do, excess phlegm production, feeling like you can't breathe, not being able to take a deep breath and wheezing. COPD develops slowly, and can worsen over time, so be sure to report any symptoms you might have to your doctor as soon as possible, no matter how mild they may seem.

Most people who are at risk for developing COPD have never even heard of it and, in many cases, don't even realize that the condition has a name. Some of the things that put you at risk for COPD include smoking (accounting for nine of 10 COPD patients); long-term exposure to things that can irritate your lungs, like certain chemicals, dust or fumes in the workplace, or heavy or long-term exposure to secondhand smoke or other air pollutants; and a genetic condition known as alpha-1 antitrypsin deficiency.

There are many things people at risk for COPD can do. First, if you smoke, the best thing you can do prevent more damage to your lungs is to quit. To help you quit, there are many online resources and several new aids available from your pharmacist or doctor. Second, try to stay away from other things that could irritate your lungs, like dust and strong fumes. Stay indoors when the outside air quality is poor. You should also stay away from places where there might be cigarette smoke. Third, see your doctor regularly, even if you are feeling fine. Finally, do your best to avoid crowds during flu season. It is also a good idea to get a flu shot every year, since the flu can cause serious problems for people with COPD. You should also ask your doctor about the pneumonia vaccine.

Once you have been diagnosed with COPD, there are many ways that you and your doctor can work together to manage the symptoms of the disease and improve your quality of life. Your doctor may suggest medications such as bronchodilators and inhaled steroids. Bronchodilators work to relax the muscles around your airways, to help open them and make it easier to breathe. Inhaled steroids help prevent the airways from getting inflamed. You also may need to participate in pulmonary rehabilitation, or “rehab.” This is a program that helps you learn to exercise and manage your disease with physical activity and counseling. It can help you stay active and carry out your day-to-day tasks. Lifestyle changes such as quitting smoking can also help you manage the effects of COPD. If your COPD is severe, your doctor might suggest oxygen therapy to help with shortness of breath. You might need oxygen all of the time or just some of the time. Your doctor will work with you to learn which treatment will be most helpful. Finally, COPD patients with very severe symptoms may have a hard time breathing all the time. In some of these cases, doctors may suggest lung surgery to improve breathing and help lessen some of the most severe symptoms.

For additional information on COPD and to see if you're at risk, visit the National Heart, Lung and Blood Institute's website at www.nhlbi.nih.gov/health/public/lung/copd/index.htm.

This information was accessed from the NHLBI website (www.nhlbi.nih.gov/health/public/lung/copd/index.htm) on Sept. 28, 2008.

For more information, ask your pharmacist!

This information provided by Michigan Pharmacists Association and:





Use of Selective Beta-Blockers in Patients with Chronic Obstructive Pulmonary Disease

Sarah Eagleston, Pharm.D.

Chronic obstructive pulmonary disease (COPD) is the only major health concern in the United States with an increasing mortality rate over the past 20 years.¹ By 2020, it is expected to become the third leading cause of death nationwide.² Mortality in COPD patients is not only from respiratory causes; cardiovascular problems are consistently the first or second leading cause of death in this population.³ Researchers have shown that compared to patients without COPD, those with COPD have two to three times the risk of hospitalization or death from causes such as chronic heart failure (CHF), atrial fibrillation, acute myocardial infarction and stroke.⁴ Coronary artery disease (CAD), presented in 10-22 percent of COPD patients, also contributes to many of these deaths.³ The association of COPD with many other comorbidities is likely due to both common risk factors (e.g. smoking) and the systemic effects of the disease.⁵ The occurrence of these conditions concurrently requires careful diagnosis and a comprehensive assessment. Management can be complicated, especially in exacerbations, as symptoms cannot clearly be attributed to one disease state. One major therapeutic dilemma in treating these concomitant diseases is the use of beta-blockers.

Beta-blockers have demonstrated significant mortality benefit in numerous cardiovascular diseases, including myocardial infarction, CHF and hypertension.⁶⁻⁸ Decreased myocardial contractility, chronotropic response and myocardial oxygen demand are thought to be the mechanisms of these benefits.⁹ In theory, it is reasonable to believe that administration of beta-blockers may cause bronchoconstriction. In fact, nonselective agents have been shown to significantly decrease FEV1 and inhibit response to bronchodilators.¹⁰ However, cardio-selective beta-blockers have a 20-fold greater affinity for beta-1 receptors than beta-2 receptors, though selectivity appears to be lost at higher doses. Despite this, the more commonly used selective beta-blockers are routinely avoided in addition to nonselective agents, and COPD patients who may greatly benefit from a beta-blocker are given alternative therapy. Improper diagnosis of COPD also leads to inappropriate denial of beta-blocker therapy.¹¹ Evidence supports the use of selective beta-blockers in COPD patients, and increased awareness of this may lead to increased use of beta-blockers for patient benefit.

The use of selective beta-blockers in COPD patients has been well studied and reviewed.^{3,6,10,12-16} A recent meta-analysis of 20

trials aimed to assess the effect of selective beta-blockers on respiratory function in COPD patients.¹² The effect of these agents on FEV1, incidence of symptoms and response to beta-2 agonists was evaluated. The selective beta-blockers included were atenolol, metoprolol, bisoprolol, practolol, celiprolol and acebutolol. Researchers found no significant change in FEV1 with administration of selective beta-blockers as a single dose or long-term duration. There was also no increase in respiratory symptoms or change in response to inhaled beta-2 agonists after treatment. In addition, a subgroup analysis showed these results were unchanged even in patients with severe COPD. Though many included studies were conducted 20 to 30 years ago, there was minimal interstudy variance and heterogeneity, and sensitivity analyses showed no significant changes in results. This meta-analysis made no mention of the effects of high dose therapy, though others studies have. One clinical trial found that 200 milligrams daily of metoprolol did not affect FEV1 when compared to placebo in moderately severe COPD.¹⁷ These results were confirmed by another more recent trial, in which the authors concluded that both the conventional and controlled release formulations of metoprolol can be safely used and titrated to maximum tolerated dose in patients with non-asthmatic COPD.¹⁸ Beta-blocker therapy has even shown benefits on mortality in patients hospitalized with acute COPD exacerbations.³ In a large retrospective study, beta-blocker therapy was associated with reduced mortality, even though patients receiving beta-blockers were older, had longer hospital stays and were more likely to have CHF and cerebrovascular disease.

It appears that the mortality benefits of selective beta-blockers in CAD, CHF, hypertension and other disease states outweigh the risks of respiratory problems in patients with COPD, even during exacerbations. The available data suggest that it is not necessary to withhold even high doses of beta-blocker therapy. The management of patients with these commonly occurring respiratory and cardiovascular diseases may be somewhat clearer for practitioners with this information. If clinicians can break the habit of withholding selective beta-blockers in patients with COPD who need them, many lives may be saved.

References are available upon request from the MPA office.