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ELDER CARE

A Resource for Interprofessional Providers

COPD Management in Older Adults with Heart Disease or Diabetes

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Chronic obstructive pulmonary disease (COPD) has become the third leading cause of death worldwide, following ischemic heart disease and stroke. Morbidity from COPD increases with age and is affected by the presence of other comorbid chronic conditions that are common in older adults. In particular, care of older adults with COPD is complicated by the fact that medications used to treat those chronic conditions may have effects on the patient's lung disease. Conversely, medications used to treat COPD may have effects on those medical conditions.

This edition of Elder Care will review some interactions between treatments for stable COPD (not acute COPD exacerbations) and treatments for two of the most common chronic medical problems in older adults - heart disease and diabetes mellitus.

Medications

Most common cardiac medications are considered safe for patients with COPD. However, clinicians continue to be concerned about the use of beta blockers for the treatment of heart failure in COPD patients, as well as prescribing long-acting beta agonists for treatment of COPD in patients with heart disease.

Beta blockers Beta blocker therapy is known to have benefit in patients with heart disease. But, there still remains some uncertainty among clinicians about their use in patients who also have COPD due to concerns about inducing bronchospasm and worsening lung function. According to a 2010 Cochrane Review and the 2016 GOLD report, both cited in the resource list at the end of this Elder Care, cardio-selective beta blockers are considered safe and their benefits outweigh the potential risks associated with treatment. However, those conclusions are based on relatively short-term studies. It is still recommended that clinicians monitor pulmonary function over time when patients with COPD are receiving treatment with beta blockers.

Long-acting beta agonists Acute COPD exacerbations often require treatment with short-acting beta agonists, regardless of the presence of heart disease. There are limited data, however, on the safety and appropriate use of long-acting beta agonists for treatment of chronic stable COPD in patients with heart disease. According to the American College of Cardiology, long-acting beta agonists should only be prescribed as a treatment of chronic COPD when there is clear need for symptom relief from airflow obstruction. In addition, it is recommended that clinicians consider prescribing a long-acting anticholinergic first, rather than prescribing long-acting beta agonists. Further safety studies on long-acting beta agonists, particularly in older adults with heart disease, are required. Overall, these agents should be used with caution for patients with both COPD and heart disease.

Steroids Inhaled steroids improve COPD symptoms and reduce COPD exacerbations. They have fewer and less severe side effects than oral steroids, which are best used in acute exacerbations. Important side effects of inhaled steroids in older adults are an increased rate of bone fractures and an increased risk of eye disease, notably cataracts in patients with diabetes, and possibly glaucoma in any patient using inhaled steroids.

A recent meta-analysis suggested that patients with long-term exposure to inhaled steroids have a modest increase in the risk of fractures. Future studies are needed to determine the lowest effective dose of inhaled steroids to prevent fractures and whether bone-protective drugs can ameliorate the risk of fractures associated with inhaled steroids. In older patients receiving inhaled steroids, fracture risk should be assessed, including measurement and monitoring of bone density. The relative benefits and risks of inhaled steroid therapy should be considered before prescribing these drugs.

TIPS FOR TREATING COPD IN OLDER ADULTS WHO HAVE HEART DISEASE OR DIABETES

- When a patient with COPD requires beta-blocker therapy for heart disease, choose a cardio-selective beta blocker and monitor for abrupt changes in pulmonary status after starting therapy.
- Be cautious about starting long-acting beta agonists in patients with COPD who also have heart disease. Consider starting a long-acting anticholinergic instead.
- When prescribing inhaled steroids for treatment of COPD in older adults, assess for osteoporosis and fracture risk, and if the patient has diabetes, also screen and monitor for cataracts and glaucoma.

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Patients with diabetes are at increased risk of cataracts. According to a recent meta-analysis, that risk is increased by about 25% for each 1000 mcg per day increase in the dose of inhaled steroids.

There has been conflicting data regarding whether inhaled steroids increase the risk of glaucoma. One older study found an increased risk of glaucoma among patients who

were using inhaled corticosteroids and had a family history of glaucoma.

While these risks do not preclude the use of inhaled steroids for patients with COPD, screening for the presence of cataracts and glaucoma in older patients and regular surveillance eye exams is recommended when patients are taking these drugs.

Table 1. Concerns About Medications for Patients with Stable COPD Who Also Have Heart Disease or Diabetes Mellitus

Medication	Concern	Safety	Recommendation
Beta Blockers	Beta blockers prescribed for heart disease may increase airway obstruction in patients with COPD.	Cardio-selective beta blockers are considered safe for patients with COPD based on short-term studies. Cardio-selective beta blockers include: acebutolol, atenolol, betaxolol, bisoprolol, celiprolol (not available in the US), esmolol, metoprolol, and nebivolol.	Do not withhold cardio-selective beta blockers indicated for patients with heart disease who also have COPD. However, providers should monitor for worsening of the patient's lung function over time.
Long-Acting Beta Agonists	Long-acting beta agonists cause tachycardia and increase cardiac work, which is undesirable in patients with heart disease.	Safety remains uncertain given lack of studies evaluating patients with COPD and heart disease.	Use with caution, if at all. Consider starting a long-acting anticholinergic first before a long-acting beta agonist.
Steroids	May increase risk of fractures.	Modest increased risk.	Assess and monitor risk of osteoporosis when starting inhaled steroids. Use the minimum effective dose.
	Increased risk of cataracts and glaucoma, for which patients with diabetes are already at increased risk.	Studies confirm increased risk of cataracts. Inhaled steroids may increase risk of glaucoma in patients with a family history of glaucoma, though data are less clear.	Patients with diabetes should undergo annual eye exams. Importance of exams is increased in patients receiving inhaled steroids.

Note: This edition of Elder Care is an update of a prior edition on COPD written in 2009 by Jeffrey Tiemstra, MD and Barry Weiss, MD

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