Considerations for the Management of Angina Pectoris with Nitroglycerin

A ngina pectoris, commonly called angina, is chest pain or discomfort that is a result of insufficient oxygenation of the myocardium; this lack of oxygenation is referred to as ischemia. Angina is a symptom often associated with coronary artery disease (CAD), and one that pharmacists often encounter in patients. Worldwide, the prevalence of angina ranges between 5% and 7% and varies by country. According to the American Heart Association, there are 500,000 new cases of angina a year among US adults 45 years and older, and in 2010, the prevalence of angina was 3.2% in US adults 20 years and older.

Management of Angina Pectoris
Fortunately for the millions of patients who experience angina, it is a symptom that, when properly treated, can be rapidly relieved and even prevented. Guidelines from the American College of Cardiology and American Heart Association recommend various medications for acute or chronic use to relieve symptoms of ischemic heart disease. These guidelines recommend using nitroglycerin lingual spray or sublingual nitroglycerin tablets for the acute relief of angina.

Despite the efficacy of nitroglycerin and the recommendations for its use, many patients with CAD do not receive a prescription for sublingual nitroglycerin, do not fill the prescription, or do not use the nitroglycerin to treat their angina. Two recent studies separately found that over one-third of patients with CAD did not receive a prescription for sublingual nitroglycerin. Of patients who received a prescription for sublingual nitroglycerin, only 43% received instructions on how to use the medication. Also, patients do not regularly receive instructions on the proper use of nitroglycerin. One study found that among patients who recalled having received instructions on how to use sublingual nitroglycerin, the average time since their most recent instruction was 3 years. Having nitroglycerin available is a critical component of anginal therapy, but it is equally important to ensure that the nitroglycerin is of adequate potency. The potency of nitroglycerin decreases over time. Nitroglycerin lingual spray typically has a shelf life of 2 years. Patients using sublingual tablets should check the expiration date on the packaging and ensure that the tablets are kept in the original bottle.

Even if patients are carrying sublingual nitroglycerin, they may not use nitroglycerin when experiencing symptoms. One study found that half of patients who had sublingual nitroglycerin did not use the medication when experiencing angina symptoms. Furthermore, knowledge regarding proper dose is often incorrect. A study showed that 31% of patients did not use the correct dose of nitroglycerin to treat their symptoms. These statistics indicate there is a need for greater knowledge regarding angina treatment among both health care providers and their patients.

Nitroglycerin for Preemptive Symptom Management
In patients with CAD, routine exercise improves quality of life and reduces mortality. Cardiovascular disease progression appears to be attenuated by an increase in exercise and overall fitness. As medical costs continue to rise, this inexpensive way to promote health should be encouraged and implemented.

According to a recent survey, 94.6% of patients, caregivers, and health care professionals surveyed agreed that patients are willing to start with small increments of exercise with the intention of increasing the length and/or intensity of the exercise later. However, angina is often triggered when there is an increased demand for oxygen, for instance, during physical exertion. Caregivers and health care professionals rated the fear of developing angina as the number 1 reason why patients with CAD do not initiate exercise. At the same time, over 85% of survey participants stated that if a medication could increase a patient’s exercise duration, the patient would have greater confidence to start exercise. Almost two-thirds (65.2%) of patients are unaware, not only that a drug to help prevent angina exists, but that many patients are already carrying it.
When used prior to exercise, nitroglycerin can help prevent angina. In a study of patients with CAD and angina, prophylactic use of sublingual nitroglycerin resulted in dose-dependent significant increases versus placebo in the time to onset of angina with exercise. Despite the effectiveness of using sublingual nitroglycerin prophylactically, only 31% of patients who have sublingual nitroglycerin use it this way.

Comparing Nitroglycerin Formulations

Although there are a variety of dosage forms of nitroglycerin, the 2 most commonly prescribed for the acute treatment of angina are lingual sprays and sublingual tablets. A few distinctions between nitroglycerin lingual spray and sublingual tablets are noted. Angina more commonly affects older patients who may have diminished dexterity. For these patients, nitroglycerin spray may be easier to use, as the patient does not have to unscrew the small twist-cap found on nitroglycerin tablet bottles. Patients with xerostomia, or dry mouth, may also benefit from nitroglycerin lingual spray. Because saliva is required for the dissolution of the sublingual nitroglycerin tablet, tablets dissolve more slowly in these patients. As the spray contains nitroglycerin already in solution, the medication is more readily absorbed into the bloodstream.

Role of the Pharmacist

As noted, patients do not always receive counseling regarding proper nitroglycerin use. Pharmacists are in a unique position to help ensure that patients with angina receive appropriate nitroglycerin therapy and counseling regarding the use of nitroglycerin (Table). Concise and directed conversations with patients regarding sublingual nitroglycerin have been shown to substantially increase patient knowledge. Pharmacists can ensure that every patient who receives a CAD diagnosis is properly prescribed sublingual nitroglycerin. The current paucity of patient knowledge combined with the intricacies of nitroglycerin therapy provide a rich opportunity for pharmacists to educate patients with CAD and angina.

References