

## Disclaimer

The Permanente Medical Group (TPMG) Clinical Practice Guidelines (and those who developed with CMI) have been developed to assist clinicians by providing an analytical framework for the evaluation and treatment of selected common problems encountered in patients. These guidelines are not intended to establish a protocol for all patients with a particular condition. While the guidelines provide one approach to evaluating a problem, clinical conditions may vary significantly from individual to individual. Therefore, the clinician must exercise independent professional judgment and make decisions based upon the situation presented. While great care has been taken to assure the accuracy of the information presented, the reader is advised that TPMG cannot be responsible for continued currency of the information, for any errors or omissions in these guidelines, or for any consequences arising from their use.

## Definition

This guideline describes secondary prevention measures for patients with a diagnosis of ischemic heart disease based upon a history of angina, myocardial infarction (MI), coronary artery bypass surgery graft (CABG), percutaneous coronary intervention (PCI), or evidence of coronary artery disease on angiography or noninvasive testing.

## Depression

### Mental Health Outcomes:

The CAD Guideline Development Team (GDT) recommends that the treatment of depression in CAD patients should be based on the patients' mental health condition(s), for the purpose of improving mental health outcomes.

### Cardiovascular Outcomes:

The CAD GDT recommends against treating depression in patients who are post MI with cognitive behavioral therapy in order to improve cardiovascular outcomes.

The CAD GDT makes no recommendation for or against treating depression in patients with CAD, who are not post MI, with cognitive behavioral therapy in order to improve cardiovascular outcomes.

The CAD GDT makes no recommendation for or against treating depression in patients with CAD with anti-depressant medications in order to improve cardiovascular outcomes.

## Screening

Exercise stress testing, CT angiography, and coronary artery calcium scoring are not recommended for screening asymptomatic individuals for CAD.

## Angiotensin-Converting Enzyme (ACE) Inhibitor Therapy

For patients with CAD, with or without left ventricular systolic dysfunction (LVSD), Angiotensin-Converting Enzyme (ACE) Inhibitor therapy is recommended for long term use, unless contraindicated.

NOTE: For patients on concomitant aspirin, low-dose aspirin (81mg) is recommended, to preserve ACE inhibitor benefit.

## Angiotensin II Receptor Blocker (ARB) Therapy

Angiotensin II Receptor Blocker (ARB) therapy is recommended for the following patients with CAD who are intolerant to ACE Inhibitors:

- ▶ Patients with CAD and diabetes with hypertension and microalbuminuria (or albuminuria)
- ▶ Patients with CAD and LVSD

For patients with CAD and hypertension (without LVSD, microalbuminuria, or diabetes) who are intolerant to ACE Inhibitors, ARB therapy is an option equal to other antihypertensive medications.

For all other patients with CAD who are intolerant to ACE Inhibitors, there is insufficient evidence to recommend for or against ARB therapy.

## (Oral) Anticoagulant Therapy

### CAD Plus Atrial Fibrillation

In CAD patients with atrial fibrillation, oral anticoagulant therapy is recommended to be used indefinitely unless contraindicated.

Target INR (*International Normalized Ratio*) should be between 2.0 and 3.0.

### CAD Post MI

Warfarin is recommended for post-MI patients with left ventricular thrombus, unless contraindicated.

Long term warfarin therapy may be used in consultation with cardiology for post-MI patients with large transmural anterior infarctions.

NOTE: Use of warfarin in conjunction with aspirin and/or clopidogrel is associated with increased risk of bleeding.

### Aspirin Plus Oral Anticoagulant Therapy

Unless contraindicated, aspirin is recommended for patients with established CAD receiving warfarin for thromboembolic prophylaxis.

NOTE: Use of warfarin in conjunction with aspirin and/or clopidogrel is associated with increased risk of bleeding.

### Aspirin versus Oral Anticoagulant Therapy

In CAD patients who are not at increased embolic risk and who tolerate aspirin, aspirin is recommended in preference to both oral anticoagulant therapy and the combination of aspirin and oral anticoagulant therapy.

## Antiplatelet Therapy

### Antiplatelet Therapy: Aspirin

For all patients with CAD, daily aspirin is recommended indefinitely, unless there is clear contraindication such as active bleeding, major coagulopathy, or true aspirin allergy.

For CAD patients on concomitant ACE Inhibitors, low-dose aspirin (81mg) is recommended.

For the initial six months following coronary artery stent placement, aspirin (81-325mg) is recommended. Following this period, aspirin (81-162mg) is recommended.

For all other patients with CAD, in whom aspirin therapy is being initiated, daily aspirin (81-162mg) is recommended.

### Antiplatelet Therapy: Post-Stent Placement

All patients with CAD should take aspirin therapy indefinitely, regardless of stenting status. In addition, the GDT makes the following recommendations:

Following coronary artery bare metal stent placement clopidogrel plus aspirin is recommended to be given for at least four weeks.

It is recommended that all patients receiving drug-eluting stents (DES) be prescribed uninterrupted dual treatment with clopidogrel and aspirin for at least 12 months.

It is strongly recommended that any elective procedures which would require stopping or interrupting this therapy (dental work, colonoscopy, or other surgical procedures)

should be delayed until after one year (12 consecutive months) of clopidogrel is completed.

Healthcare providers who perform invasive or surgical procedures and are concerned about peri-procedural and post-procedural bleeding must be made aware of the potentially catastrophic risk of premature discontinuation of clopidogrel in the first year following coronary DES placement.

It is strongly recommended that patients taking clopidogrel consult with their treating cardiologist before stopping this medication, even if instructed to do so by another healthcare provider.

For patients who receive a drug-eluting stent and who must have procedures that mandate stopping clopidogrel therapy, it is recommended that aspirin should be continued if at all possible, and the clopidogrel restarted as soon as possible after the procedure.

If there is presence of a rash after clopidogrel use, patients may be switched to ticlopidine.

### Antiplatelet Therapy: Clopidogrel Use in Stable Patients

In stable CAD patients who tolerate aspirin well (and who are not post-procedure), clopidogrel is not recommended as either a substitute for or in addition to aspirin.

In stable CAD patients with contraindications to aspirin, clopidogrel is recommended.

## Beta Blocker Therapy

For CAD patients, non-intrinsic sympathomimetic activity (non-ISA) beta blocker therapy is recommended, unless contraindicated.

For patients with two or more of the following risk factors for CAD (age  $\geq$  65 years, hypertension, current smoking, serum cholesterol  $\geq$  240 mg/dL (6.2 mmol/L), diabetes mellitus) beta blocker therapy is recommended peri-operatively for vascular surgery.

### Beta Blocker Therapy in CAD with Mild to Moderate Reversible Airway Disease or Chronic Obstructive Pulmonary Disease (COPD)

For CAD patients with concomitant mild to moderate reversible airway disease or chronic obstructive pulmonary disease (COPD) cardioselective beta blockers are recommended.

Discuss the risks and benefits of treatment with the patient and instruct the patient to report any increase in airway symptoms.

Initiating beta blocker therapy is NOT recommended:

- ▶ For patients with severe airway disease requiring frequent hospitalization or intubation.
- ▶ During acute exacerbation of airway disease.
- ▶ When airway disease is unstable or poorly controlled.

### Beta Blocker Therapy in CAD Plus Heart Failure

For CAD patients with heart failure and left ventricular systolic dysfunction (LVSD) (NYHA Class II-IV) or asymptomatic LVSD (NYHA Class I), beta blockers are strongly recommended.

For CAD patients with left ventricular systolic dysfunction carvedilol, metoprolol succinate, or bisoprolol is the recommended choice of beta blocker therapy.

## Calcium Channel Blocker Therapy

### CAD with Normal Ventricular Systolic Function

Calcium channel blockers (CCBs) are NOT recommended to reduce morbidity or mortality from CAD.

In CAD patients with normal ventricular systolic function, calcium channel blockers (CCBs) may be used for the treatment of angina pectoris or hypertension when beta blockers and ACE inhibitors are ineffective or contraindicated.

In patients with CAD, immediate release formulations of nifedipine are NOT recommended due to the increased risk of cardiovascular mortality.

### CAD with Left Ventricular Systolic Dysfunction (LVSD)

Amlodipine\* and felodipine\* (second generation dihydropyridine calcium channel blockers) are options for the treatment of angina pectoris or hypertension in patients with LVSD.

The Guideline Development Team recommends against the use of calcium channel blockers (CCBs) other than amlodipine\* and felodipine\* in patients with LVSD.

\* Not FDA-approved for heart failure.

## Lifestyle Modifications

### Diet Therapy

For all patients with CAD a diet rich in fruits, vegetables, legumes, nuts, whole grains, and n-3 (omega-3) polyunsaturated fatty acids is recommended.

### Dietary Fat Modification

For all patients with CAD consuming a usual Western diet, the following modifications in dietary fat are recommended:

- ▶ Increase intake of n-3 (omega-3) polyunsaturated fatty acids to a level of ~ 1 g/day from a variety of sources (flaxseed, canola, and soybean oils, nuts, fish, and fish oil supplements).
- ▶ Replace saturated fatty acids with polyunsaturated and monounsaturated fatty acids.
- ▶ Reduce or eliminate intake of trans-fatty acids.

### Dietary Supplements

For patients with CAD, supplemental vitamins C, E, and beta carotene are not recommended for prevention of cardiovascular mortality or subsequent coronary events.

For patients with CAD, supplemental folic acid, vitamin B6, and vitamin B12 are not recommended.

### Smoking Cessation

For all patients with CAD who smoke, complete smoking cessation is strongly recommended.

### Exercise

For all patients with CAD, 30 to 60 minutes of exercise (walking, jogging, cycling, or other aerobic activity) at least three to four times weekly is recommended.

Either supervised or non-supervised exercise is recommended.

### Hormone Therapy

For postmenopausal women with CAD, unopposed estrogen therapy and estrogen and progestin combination therapy are not recommended for the prevention of cardiovascular events. Women taking these therapies solely to prevent cardiovascular events are strongly recommended to discontinue these therapies.

Women currently taking hormone therapy solely for the prevention of cardiovascular events are advised to discontinue use either all at once or by tapering the dose.

## Hypertension: Target Blood Pressure

The optimal goal blood pressure for patients with CAD or CAD risk equivalents (AAA, peripheral arterial disease, or carotid arterial disease) is < 130/80 mm Hg.

The optimal goal blood pressure for patients with CAD and diabetes or renal disease is < 130/80 mm Hg.

## Lipid Management

Excerpted from the KP National Dyslipidemia Guidelines

### Statin Treatment

- ▶ Reducing LDL-C is the primary focus of treatment.
- ▶ Because of its proven effectiveness in event reduction, safety and cost, simvastatin is the preferred first-line statin.

- ▶ Initiate statins at a dose sufficient to reduce LDL-C to < 100 mg/dL and by at least 30-40%. Treatment is recommended even if baseline LDL-C is < 100 mg/dL. If baseline LDL-C is < 160 mg/dL initiate simvastatin at 40 mg. If baseline LDL-C is > 160 mg/dL, initiate simvastatin at 80 mg.
- ▶ In people with established CAD, an LDL-C goal of < 70 mg/dL is optional.
- ▶ When the LDL-C goal is achieved, reassess LDL-C annually to ensure that the patient remains at goal; it is optional to repeat the lipid panel in 3-6 months.

Given that the Dyslipidemia Guideline committee recommends statin therapy for all patients with CAD, there is no role for a trial of lifestyle intervention alone prior to the initiation of statin therapy in patients with CAD.