Stable Ischemic Heart Disease

Richard Kones, MD, FAHA, FESC, FRSM*, Umme Rumana, MBBS

KEYWORDS

• Angina • Stable ischemic heart disease • Coronary artery disease • Myocardial oxygen balance
• Cardiovascular risk assessment • Silent ischemia • Nitrates • β-Blockers
• Calcium channel blockers

KEY POINTS

- Because angina is the most common presentation of stable ischemic heart disease (SIHD), a patient's first visit is frequently the gateway into the cardiac health system and is critical to the patient's successful journey.
- The pretest probability of ischemic heart disease (IHD) should be estimated and guideline-based therapies begun if appropriate; further investigation proceeds according to a patient's current condition or response to therapies.
- A patient's post-test risk and options should be evaluated, if necessary, with an invasive cardiologist or surgeon.
- A patient discussion concerning choices, risks, and benefits allows personalization of therapy and enlists the patient as a partner in therapy.
- Assessment of clinical and functional status, adherence to medications, and reinforcement for overall management continues on an outpatient basis.

DEFINITION AND CLINICAL DIAGNOSIS

Typical angina is commonly triggered by exertion, emotional stress, cold, wind, or fever. Exertional angina is relieved within 1 to 5 minutes through rest or sooner using sublingual nitroglycerin (NGN); otherwise, episodes may last 2 to 10 minutes. There is heaviness or pressure in the precordium, retrosternum, or epigastrium, with possible radiation to the outer aspects of both arms, neck, jaw, shoulders, or midabdomen. Quality is described as crushing, tightness, pressure, or gripping, with or without numbness. The average frequency of attacks in patients under medical care is approximately 2 per week, and many patients limit activities to avoid attacks.

In some patients, in particular diabetics and the elderly, myocardial ischemia may cause symptoms other than precordial discomfort, including dyspnea, diaphoresis, nausea and emesis, fatigue, weakness, altered sensorium, lightheadedness, and fainting as "equivalents" of angina. Often chest pain and restricted breathing occur together. Diminished pain perception of afferent signals or presence of dysautonomia in diabetes may modulate symptom expression and prolong anginal perceptual threshold. The insensitivity of chest pain as an index of heart disease or its severity and burden pose special difficulty, because cardiovascular mortality is 3-fold higher in diabetic men and between 2- and 5-fold higher among diabetic women compared with nondiabetic counterparts.

During classical angina, discomfort does not usually vary with position, the respiratory cycle, or cough. Angina or any "equivalent" may be accompanied by dyspnea, nausea, diaphoresis, weakness/fatigue, and apprehension. Pain of

The Cardiometabolic Research Institute, 8181 Fannin Street, Unit 314, Houston, TX 77054, USA
* Corresponding author.
E-mail address: cardiacresearchinstitute@gmail.com

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longer duration (>15 minutes), radiating to both arms, or accompanied by diaphoresis, a third heart sound, or hypotension suggests a myocardial infarction (MI).

Approximately 77% of individuals with chest pain do not seek medical care, often mistakenly attributing it to benign causes. Approximately 12% of patients presenting with chest pain are found to have IHD. Of those seen in emergency departments (EDs), 45% to 50% have a cardiac cause.[1,2] In primary care, the most common conditions encountered are musculoskeletal (including costochondritis), 36%; gastrointestinal conditions, including gastroesophageal reflux disease (GERD), 19%; panic disorder and psychiatric, 8%; pulmonary disease, 5%; stable angina, 10.5%; other cardiac conditions, 5.3%; and other/unknown, 16%.[3] Diagnoses that could produce sudden death should be efficiently eliminated: acute coronary syndrome (ACS)/MI, pulmonary embolus, aortic dissection, and tension pneumothorax (**Table 1**).

Silent Ischemia and Infarction Is Frequent

Data relying on clinical reports of anginal pain leave SIHD prevalence vastly underestimated, because silent (asymptomatic) ischemia is the most common manifestation of SIHD; 17% to 59% of diabetics have silent ischemia. During continuous monitoring or testing in high-risk patients, evidence of silent ischemia is apparent in many clinical situations. Perhaps 75% of ischemic episodes may occur without pain, especially in the early morning hours. When patients with SIHD are considered to be controlled clinically, at least 40% of patients show ischemia when monitored.[4,5] Silent MIs account for 33% of those identified by ECG retrospectively.[6] Such patients have a poorer prognosis than counterparts with chest pain,[7,8] in part because they may be incorrectly diagnosed and are less likely to receive appropriate treatment, resulting in poorer outcomes. In patients with unstable angina, one or more instances of

Table 1
Some noncoronary causes of chest pain

System	Diagnoses
Gastrointestinal	Peptic ulcer, gastritis, GERD, cholecystitis, cholelithiasis, choledocholithiasis, esophageal spasm/motility disorders, esophagitis, esophageal perforation, pancreatic diseases, some causes of acute abdomen, such as perforations, volvulus, mesenteric adenitis, etc. GERD accounts for up to 60% of noncardiac cases.
Musculoskeletal	Chest wall trauma/rib fracture, costochondritis, muscle/ligament/tendon strains, myositis, chronic overuse injuries, sternoclavicular arthritis, cervical radiculitis, brachial plexus compression, left shoulder bursitis
Pulmonary	Pulmonary embolism, severe pulmonary hypertension, pleuritis, pneumonia, pneumothorax, bronchiectasis
Other cardiovascular	Pericarditis, acute aortic dissection, aortic stenosis, mitral valve prolapse, idiopathic hypertrophic subaortic stenosis, cardiac contusion, acute stress cardiomyopathy (Takotsubo disease), uncontrolled hypertension, coronary anomalies, Kawasaki disease, polyarteritis nodosa, Takayasu arteritis (aortic arch syndrome)
Related processes that modulate oxygen supply and demand	Angina may be intensified or caused by hypotension; hypoxia; anemia; bradycardia; fever; thyrotoxicosis; high-output states, such as AV shunts; systemic and inflammatory diseases, especially sepsis, an example of demand ischemia. A hemoglobinopathy or carbon monoxide poisoning may interfere with oxygen delivery.
Nervous	Cervical radiculopathy, peripheral neuropathy, brachial plexus impingement, brachial neuritis
Psychiatric	Generalized anxiety disorder, panic disorder, hyperventilation, affective disorders (eg, depression), somatoform disorders, fixed delusions in thought disorders
Infectious	Herpes zoster prior to rash, acute lymphadenopathy, Pott disease (tuberculous spondylitis)
Metabolic	Hyperviscosity syndrome, acute thyrotoxicosis