

The oral lidocaine congener mexiletine is poorly tolerated, producing frequent gastrointestinal adverse effects. There is no consensus on which class of drug should be used as a first-line treatment for any chronically painful condition. However, because relatively high doses of anticonvulsants are required for pain relief, sedation is very common. Sedation is also a problem with TCAs but is much less of a problem with serotonin/norepinephrine reuptake inhibitors (SNRIs; e.g., venlafaxine and duloxetine). Thus, in the elderly or in patients whose daily activities require high-level mental activity, these drugs should be considered the first line. In contrast, opioid medications should be used as a second- or third-line drug class. Although highly effective for many painful conditions, opioids are sedating, and their effect tends to lessen over time, leading to dose escalation and, occasionally, a worsening of pain due to physical dependence. Drugs of different classes can be used in combination to optimize pain control.

It is worth emphasizing that many patients, especially those with chronic pain, seek medical attention primarily because they are suffering and because only physicians can provide the medications required for pain relief. A primary responsibility of all physicians is to minimize the physical and emotional discomfort of their patients. Familiarity with pain mechanisms and analgesic medications is an important step toward accomplishing this aim.

19 Chest Discomfort

David A. Morrow

Chest discomfort is among the most common reasons for which patients present for medical attention at either an emergency department (ED) or an outpatient clinic. The evaluation of nontraumatic chest discomfort is inherently challenging owing to the broad variety of possible causes, a minority of which are life-threatening conditions that should not be missed. It is helpful to frame the initial diagnostic assessment and triage of patients with acute chest discomfort around three categories: (1) myocardial ischemia; (2) other cardiopulmonary causes (pericardial disease, aortic emergencies, and pulmonary conditions); and (3) non-cardiopulmonary causes. Although rapid identification of high-risk conditions is a priority of the initial assessment, strategies that incorporate routine liberal use of testing carry the potential for adverse effects of unnecessary investigations.

EPIDEMIOLOGY AND NATURAL HISTORY

Chest discomfort is the third most common reason for visits to the ED in the United States, resulting in 6 to 7 million emergency visits each year. More than 60% of patients with this presentation are hospitalized for further testing, and the rest undergo additional investigation in the ED. Fewer than 25% of evaluated patients are eventually diagnosed with acute coronary syndrome (ACS), with rates of 5–15% in most series of unselected populations. In the remainder, the most common diagnoses are gastrointestinal causes (Fig. 19-1), and fewer than 10% are other life-threatening cardiopulmonary conditions. In a large proportion of patients with transient acute chest discomfort, ACS or another acute cardiopulmonary cause is excluded but the cause is not determined. Therefore, the resources and time devoted to the evaluation of chest discomfort *in the absence of a severe cause* are substantial. Nevertheless, a disconcerting 2–6% of patients with chest discomfort of presumed non-ischemic etiology who are discharged from the ED are later deemed to have had a missed myocardial infarction (MI). Patients with a missed diagnosis of MI have a 30-day risk of death that is double that of their counterparts who are hospitalized.

The natural histories of ACS, acute pericardial diseases, pulmonary embolism, and aortic emergencies are discussed in [Chaps. 288, 294 and 295, 300, and 301](#), respectively. In a study of more than 350,000 patients with unspecified presumed non-cardiopulmonary chest discomfort, the mortality rate 1 year after discharge was <2% and did not differ significantly from age-adjusted mortality in the general population. The estimated rate of major cardiovascular events through 30 days in patients with acute chest pain who had been stratified as low risk was 2.5% in a large population-based study that excluded patients with ST-segment elevation or definite noncardiac chest pain.

CAUSES OF CHEST DISCOMFORT

The major etiologies of chest discomfort are discussed in this section and summarized in [Table 19-1](#). Additional elements of the history, physical examination, and diagnostic testing that aid in distinguishing these causes are discussed in a later section (see “Approach to the Patient”).

MYOCARDIAL ISCHEMIA/INJURY

Myocardial ischemia causing chest discomfort, termed *angina pectoris*, is a primary clinical concern in patients presenting with chest symptoms. Myocardial ischemia is precipitated by an imbalance between myocardial oxygen requirements and myocardial oxygen supply, resulting in insufficient delivery of oxygen to meet the heart’s metabolic demands. Myocardial oxygen consumption may be elevated by increases in heart rate, ventricular wall stress, and myocardial contractility, whereas myocardial oxygen supply is determined by coronary

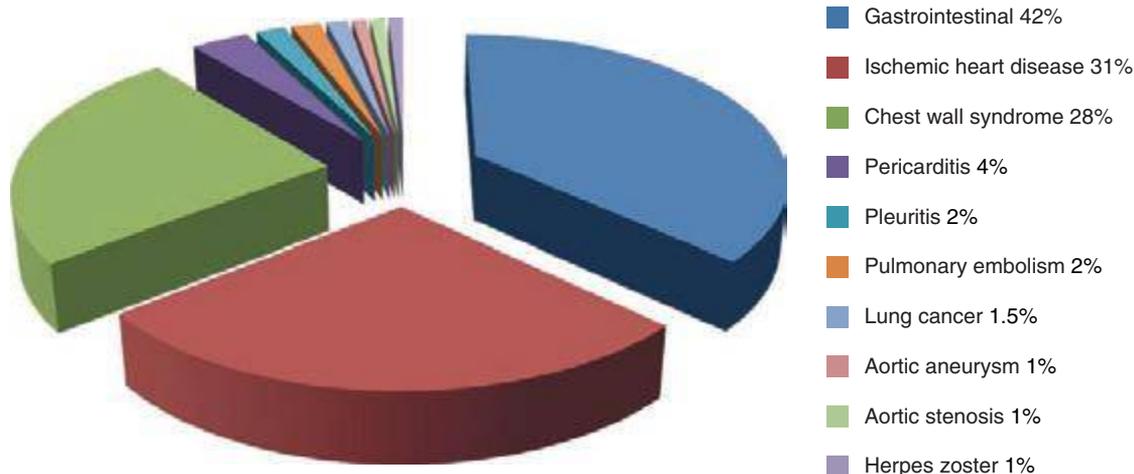


FIGURE 19-1 Distribution of final discharge diagnoses in patients with nontraumatic acute chest pain. (Figure prepared from data in P Fruergaard et al: *Eur Heart J* 17:1028, 1996.)