

cations for the patient's prognosis. The consultant can also assist in planning for follow-up.

A. History

A careful history is crucial to the discovery of cardiac and/or comorbid diseases that would place the patient in a high surgical risk category. The history should seek to identify serious cardiac conditions such as prior angina, recent or past myocardial infarction (MI), HF, and symptomatic arrhythmias and also determine whether the patient has a prior history of a pacemaker or implantable cardioverter defibrillator (ICD) or a history of orthostatic intolerance. Modifiable risk factors for coronary heart disease (CHD) should be recorded along with evidence of associated diseases, such as peripheral vascular disease, cerebrovascular disease, diabetes mellitus, renal impairment, and chronic pulmonary disease. In patients with established cardiac disease, any recent change in symptoms must be ascertained. Accurate recording of current medications and dosages is essential. Use of alcohol and over-the-counter and illicit drugs should be documented.

The history should also seek to determine the patient's functional capacity (Table 1). An assessment of an individual's capacity to perform a spectrum of common daily tasks has been shown to correlate well with maximum oxygen uptake by treadmill testing (7). A patient classified as high risk owing to age or known CAD but who is asymptomatic

and runs for 30 minutes daily may need no further evaluation. In contrast, a sedentary patient without a history of cardiovascular disease but with clinical factors that suggest increased perioperative risk may benefit from a more extensive preoperative evaluation (5,6,8,9). The preoperative consultation may represent the first careful cardiovascular evaluation for the patient in years, and in some instances, ever. For example, inquiry regarding symptoms suggestive of angina or anginal equivalents such as dyspnea or HF may establish or suggest these diagnoses for the first time.

B. Physical Examination

A careful cardiovascular examination should include an assessment of vital signs (including measurement of blood pressure in both arms), carotid pulse contour and bruits, jugular venous pressure and pulsations, auscultation of the lungs, precordial palpation and auscultation, abdominal palpation, and examination of the extremities for edema and vascular integrity. The presence of an implanted pacemaker or ICD can also be confirmed on physical examination. More detailed observations will be dictated by specific circumstances.

The following points are worth emphasizing:

- The general appearance provides invaluable evidence regarding the patient's overall status. Cyanosis, pallor, dyspnea during conversation or with minimal activity, Cheyne

Table 1. Clinical Predictors of Increased Perioperative Cardiovascular Risk (Myocardial Infarction, Heart Failure, Death)

Major

Unstable coronary syndromes

- Acute or recent MI* with evidence of important ischemic risk by clinical symptoms or noninvasive study
- Unstable or severe† angina (Canadian class III or IV)‡

Decompensated heart failure

Significant arrhythmias

- High-grade atrioventricular block
- Symptomatic ventricular arrhythmias in the presence of underlying heart disease
- Supraventricular arrhythmias with uncontrolled ventricular rate

Severe valvular disease

Intermediate

Mild angina pectoris (Canadian class I or II)

Previous MI by history or pathologic Q waves

Compensated or prior heart failure

Diabetes mellitus (particularly insulin-dependent)

Renal insufficiency

Minor

Advanced age

Abnormal ECG (left ventricular hypertrophy, left bundle-branch block, ST-T abnormalities)

Rhythm other than sinus (e.g., atrial fibrillation)

Low functional capacity (e.g., inability to climb one flight of stairs with a bag of groceries)

History of stroke

Uncontrolled systemic hypertension

ECG indicates electrocardiogram; MI, myocardial infarction.

*The American College of Cardiology National Database Library defines recent MI as greater than 7 days but less than or equal to 1 month (30 days); acute MI is within 7 days.

†May include "stable" angina in patients who are unusually sedentary.

‡Campeau L. Grading of angina pectoris. *Circulation*. 1976;54:522-3.