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American heart association guidelines for cabg

A defining feature of coronary artery disease is the focal narrowing of the vascular endothelium, which prevents blood flow to the myocardium. Atherosclerotic plaque forms the main lesion, which consists of a necrotic center containing cellular impurities, cholesterol and calcium. Outlines the necrotic center is a fibrous cap made of propagated smooth muscle cells, connective tissue and lipids. Although there are many identifiable risk factors for atherosclerosis, none of them represent a known mechanism for the pathogenesis of coronary artery disease. The widely accepted theory of the reaction to injury suggests that the initial stimulus should be an injury to the arterial endothelium. Damaged endothelial cells release various chemotactic factors and stimulate the deposition of fatty material. If the process is not reversed, mature fibrous plaques will prevent the arterial lumen. Angina Pectoris Angina is the main clinical consequence of reduced blood flow in the coronary arteries. It is characterized by chest pain or pressure, which patients often describe as crushing or squeezing. One of the most important features of angina is that it is usually brought on by physical exertion. The New York Heart Association (NYHA) has developed a functional classification system that is commonly used by physicians to assess the severity of angina from Class I angina, which is listed only with unusually strenuous activity, to Class IV, angina experienced while one is at rest. There are several types of angina syndromes. Stable angina describes a predictable pattern of angina symptoms. Unstable angina is more worrying because it can presage myocardial infarction. Angina is classified as unstable if the frequency, duration or severity of attacks changes. Symptoms occurring at rest are also considered unstable and are particularly alarming. Prinzmetal angina is a variant type of pain, usually occurs at night, which is suspected to occur due to transient coronary spasm. Without symptoms of coronary artery disease, they occur, especially in diabetic patients. Without the warning signs of angina, the first presentation of coronary heart disease may be a potentially fatal heart attack. Diagnosis of Angina Pectoris Only patient history can quickly lead to a diagnosis of angina and non-invasive testing options can confirm the diagnosis, preferably using a stress test. A resting electrocardiogram may be taken, but it is likely to be normal in the absence of pain and in patients with no history of myocardial infarction. Stress electrocardiography, recorded while the patient performs a kind of physical exercise, helps to detect and evaluate the severity of myocardial ischemia. A detailed discussion of the broad variability of sensitivity and specificity of stress testing exercises is available in the ACC/AHA Guidelines for Exercise Testing, American College of Cardiology/American Report of the Association Working Party on Stress Testing for Exercise [1]. A standard exercise stress test is considered low yield in some patients, including patients with pre-existing ECG abnormalities, such as left bundle branch blocks or left ventricular hypertrophy. The nuclear stress test is an excellent alternative to the standard stress test. Thallium, a radioactive substance, is injected into the bloodstream during peak exercise and a gamma camera is used to visualize the heart and its blood supply. Pharmacological stress tests using dobutamine, adenosine and dipyridamol are other alternatives and are suitable for patients who are unable to perform or who have deep vein thrombosis. Cardiac catheterisation is a gold standard test for the diagnosis of coronary artery disease and is used to determine whether medical or surgical therapy is preferable and to plan revascularization of surgery [2]. When a patient's medical history indicates congestive heart failure or when a revascularization procedure is considered, an echocardiogram is appropriate [2]. Medical treatment Most cases of chronic stable angina in patients who are considered to be at low risk of myocardial infarction (i.e. a disease of one vessel that does not affect the left major artery trunk) can be managed without surgery. Pharmacotherapy can reduce ischaemic pain, minimize the frequency and severity of ischemic episodes, prevent serious complications (myocardial infarction) and improve quality of life. For a good overview of the medical management of chronic stable angina, see an article published in the American Family Physician in January 2000 [2]. Important items in the drug therapy arsenal are: nitrates, beta-adrenergic blockers, calcium channel blockers, Aspirin and lipid-lowering agents. Treatment of unstable angina or angina at rest (Class IV) initially includes treatment with bed rest, intravenous heparin and aspirin. When the patient is stable, cardiac catheterization is performed to assess the degree of stenosis and plan the revascularization procedures. Percutaneous coronary intervention Percutaneous coronary intervention (PCI) are invasive procedures during which a small balloon-tipped catheter is inserted into either the femur or brachial artery and threaded until the lesion is clogged in the coronary artery. When the balloon is inflated, the plaque is flattened against the endothelial wall, the artery is dilated, and blood flow to the myocardium increases. Small wire stents can be inserted in place to maintain dilation and prevent restenosis [3]. Coronary artery bypass surgery More serious cases of coronary artery disease require coronary artery bypass surgery (CABG), a procedure designed to restore blood flow to the myocardium. Performed since the late 1960s, it is now one of the most common operations in the United States-up to 500,000 are performed annually. Indications for Coronary Artery Bypass Surgery 1999 Guidelines for CABG Surgery American College of Cardiology and American Heart Association list the following 6 conditions as indications for CABG in patients with stable angina [4]: 1. Significant stenosis of the left major coronary artery. 2. Left main equivalent: significant (70 percent) stenosis of the proximal left anterior descending (LAD) and proximal left circumflex artery. 3. Disease of three vessels. 4. Disease of two vessels with significant proximal STENOSIS LAD and either the ejection fraction ≤ 0.50 or demonstrable ischemiaemia in non-invasive testing. 5. Stenosis of one or two vessels without significant lad proximal stenosis, but with a large area of viable myocardial infarction and high risk criteria for non-invasive testing. 6. Switching off the angina despite maximum non-invasive therapy, when the operation can be performed with an acceptable risk. During the procedure, the blocked coronary artery is bypassed by the inslating of the vessel (usually the patient's own saphenous vein or internal mammost artery) around the lesion. Surgery traditionally requires the heart to be stopped while the patient is connected to a heart-pulmonary machine that acidates and circulates blood at the point of pumping the heart. Innovations in surgical technique allow minimally invasive bypass surgery and avoid the use of a cardio-pulmonary pump. The main anatomical indications for CABG are the presence of triple-vascular disease, severe left major stem artery stenosis, or left major equivalent disease (i.e. 70 percent or higher left anterior stenosis descending and proximal left artery circumscision)—especially if left ventricular function is impaired. Overall, scientific studies have shown that CABG improves long-term survival in these high-risk patients while relieving their angina symptoms [4]. However, the advantages of CABG are not indisputable. For example, the Angioplasty Revascularization Investigation (BARI) was a large, randomised controlled study that looked at mortality in patients with multi-facet disease who were treated with either CABG or less invasive PCI. After 5 or 10 years with one exception, no statistical difference in survival rate was found. Diabetic patients had statistically significant lower mortality with CABG after 10 years [5]. In the 1990s and 1990s, the It is important to note that BARI is often criticised for its inclusion criteria. Sixty percent of the patients in the study had moderate disease of 2 blood vessels. These patients are not expected to benefit from CABG to the same extent as patients with severe anatomical disease. So what can we say about the benefits of invasive therapies such as PCI and CABG? Invasive therapy is generally not recommended in low-risk patients with single-blood vessel disease unless they suffer significantly from angina or have failed medical treatment. Low-risk patients with single-blood vessel disease who have not achieved angina relief with medical therapy is likely to improve symptoms and quality of life with PCI. Cabg has not been shown to improve survival in low-risk patients with single blood vessel disease except those with left major or left major equivalent disease [3]. Secondly, patients at high risk of complications (due to the anatomical severity of their disease) undergoing CABG will see a reduction in their risk of death [3]. Even in these high-risk patients, cabg delivers an immediate improvement in quality of life compared to PCI and requires fewer repetitive procedures [3]. In moderately risk patients (i.e. vascular disease), either invasive procedure can be used. Deciding between procedures can be difficult and should be based on patient preferences and analysis of risk factors. However, a new meta-analytical study (which includes a BARI study) prepared by physicians at Tufts-New England Medical Center suggests that CABG is associated with both reduced mortality risk and greater improvement in symptoms after 5 years compared to PCI. Researchers found a 1.9 percent absolute survival advantage in favor of CABG for 5 years. Patients undergoing PCI were more likely to require repeated procedures and have more severe angina symptoms compared to patients undergoing bypass surgery [7]. It is clear that the prevention of atherosclerotic coronary artery disease should be a top priority in view of the increasing incidence of this disease with the age of the population. Both medical and surgical approaches to the management of coronary artery disease need to be supported by lifestyle changes. References Gibbons RJ, Ballads GJ, Beasley JW, et al. 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