Although it has been clearly demonstrated in this and other published series that CABG in the geriatric population is associated with higher risk compared to the young population, surgery may still offer the best chance to these elderly patients. Nonsurgical revascularization, like percutaneous transluminal coronary angioplasty, has not been shown to be associated with a lower mortality rate compared to CABG. In fact, analysis of data from a randomized trial (the bypass angioplasty revascularization investigation)\(^1\) investigating bypass vs angioplasty revascularization showed that CABG should be the preferred strategy for revascularization in elderly patients > 65 years of age who have diabetes. The late outcome of these patients after surgery is often very satisfying, and a 1998 study showed that > 80% of them enjoyed a good quality of life.\(^2\)

The surgical treatment of elderly patients nonetheless presents a special challenge that is related to the physiologic process of aging and to a decrease in the functional reserve of the organs. Patient selection for surgery is not always straightforward, but the majority of these patients are operated on for symptoms rather than for prognosis.\(^3\) It has been shown recently that advanced age remains an independent predictor of delayed extubation and a requirement for prolonged intensive care, despite advances in “fast-track” management.\(^4\) As far as the operative strategy is concerned, patients who are frail with numerous comorbidities may tolerate poorly procedures with a long duration of ischemia and pump-run. Hence, expediency is more important for elderly patients than for younger, fitter patients. On the other hand, recent reappraisal of off-pump CABG has shown great promise in reducing postoperative complications in the elderly compared to the conventional approach.\(^5\)

Therefore, from the standpoint of patients, families, physicians, and society as a whole, it should be recognized that CABG in the elderly carries an increased risk, but, in the surgeon’s view, patients should not be turned down for surgical revascularization because of advanced age alone.

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The Continuing Evolution in the Management of Thoracic Aortic Dissection

Dissection of the thoracic aorta presents some of the greatest challenges in cardiovascular disease. The diagnosis often requires clinical suspicion. Patients present with a spectrum of symptoms, which can include acute myocardial ischemia or failure, neurologic events, visceral ischemia, and/or peripheral vascular insufficiency. Chest radiographs may suggest the diagnosis. Echocardiography (trans-thoracic and transesophageal), CT scan, MRI, and angiography are all applicable and have sensitivity of 80 to 100%. Angiography is particularly useful if there is clinical evidence of “malperfusion” of a critical branch vessel.\(^1\) Once the diagnosis is made, or if there is a suspicion of a diagnosis in an otherwise stable patient, the initial therapy includes antihypertensive therapy with \(\beta\)-blockers, maintenance of aortic blood pressure of 110 to 120 mm Hg (or mean of 70 to 80 mm Hg). The subsequent management of aortic dissection is determined by the anatomic extent and the chronicity of presentation. The DeBakey classification includes the following: type I, the dissection involves the ascending aorta, arch, and the various lengths of the descending and abdominal aorta; type II, limited to the ascending aorta and proximal arch; type III, involving the aorta distal to the left subclavian artery, with IIIa being limited to the thoracic aorta, and IIIb involving various degrees of the thoracic abdominal aorta.\(^2\) In the Stanford classification, type A dissections are those that involve the ascending aorta regardless of the site and distal extent to the process, and type B are those that involve the aorta distal to the left

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subclavian artery. Dissections are further categorized as being acute or chronic, depending on whether or not the duration of symptoms prior to diagnosis is < 2 weeks.

The proximal (type A Stanford type and DeBakey types I and II) represent up to 70% of dissections. These patients tend to present with anterior substernal pain, vascular instability, and/or asymmetric upper extremity pulses. Aortic insufficiency is present in up to three fourths of patients. Five percent may have an acute myocardial infarction. The risk of rupture is immediate, with 36% of patients presenting with free rupture or tamponade. In patients presenting with acute ascending aortic dissections who are not treated surgically, ≥ 50% die within 48 h, and as many as 90% die by 3 months. Thus, the majority of patients are treated as surgical emergencies. Operative mortality ranges from 5 to 30%. Chronic dissections complicated by aortic insufficiency, aneurysmal dilation (> 5 cm), and/or organ ischemia are also managed operatively.

Currently, most acute type III (Stanford type B) dissections are initially managed medically, as the mortality of surgical management acutely is at best the same as with medical management (5 to 20%). The friability of the tissues, coagulopathy, and the risk of spinal cord ischemia as well as of distal embolization complicate surgery. A complication specific approach is taken. Patients who fail medical management (usually indicated by persistent pain) or who experience complications (malperfusion, leak, and impending or frank rupture) undergo surgery.

There are multiple technical issues that need to be considered on an individual basis with any dissection. A variety of strategies have been employed to reduce the risk of CNS and spinal insult, including hypothermic circulatory arrest, bypass, and CSF drainage. In acute dissections, the major effort is directed at eliminating the proximal false lumen, and in the case of proximal dissections, resuspending the aortic valve as well as addressing any coronary insufficiency that has resulted from the dissection. Persistence of the distal false lumen is not uncommon and may be associated with the risk of subsequent aneurysmal formation and rupture. The adaptation of the gelatin-resorcinol-formal glue has allowed easier approximation of the intimal flap back to the media, thereby obliterating the false lumen, and allowing simpler anastomotic technique. Performing the distal anastomosis in an “open” fashion, allowing maximum visualization, may be associated with decreased incidence of false lumen persistence, but must be weighed against the neurologic and hemostatic consequences of circulatory arrest.

In chronic dissections, as opposed to the acute setting, the false lumen is often more substantial and directly supplies a branch vessel. In this situation, the distal anastomosis is combined with a fenestration procedure, in which a wedge is cut out of the membrane between the two lumens and flow is maintained to both.

There is preliminary experience that suggests a potential role for intervention techniques, including fenestration, and endovascular stent placement. Malperfusion is associated with as high as 50% mortality, and affects 30 to 50% of patients. Fenestration of the membrane distally allows equalization of pressures and can restore flow to the affected branch vessel. This, in conjunction with stent grafts, has been used in selected patients as preliminary or definitive therapy, with perioperative mortality rates as low as 16%.

In this episode of CHEST (see page 1271), Mészáros and associates describe the results of a population-based study over a 27-year period, including 18 patients who died from aortic dissection prehospitalization and 66 patients who were admitted. They describe an incidence of 2.9 in 100,000, largely in patients with atherosclerosis. They note that in 85% of cases, the diagnosis was initially not recognized, resulting in a critical delay in treatment. The overall mortality of those admitted alive within 48 h was approximately 50%. All of these point to the importance of having clinical pathways for acute chest pain. The authors also noted that up to 41% of patients who experienced rupture had a pain window, which implies that this is not a reliable end point for gauging success of medical management. Rather, more aggressive radiologic follow-up may be required. They also describe that 11 of 14 patients with descending aortic dissections experienced rupture (7 patients within 24 h), which would tend to support more aggressive early intervention. Their data are consistent with other reports noting a high rate of branch artery occlusion (41%) and associated increased mortality. Interestingly, they documented in five cases spontaneous healing of the false lumen, an event that is generally considered uncommon. The importance of this article, given the continuing evolution in the management of aortic dissection, is that it refocuses attention on the fact that there are possibly significantly older and more fragile patients who present with this complex process. Survival is linked critically with the early diagnosis and an appropriate decision between surgical and medical management. Surgical outcomes may be improved by newer intervention techniques. As the population gets older, the prevalence of aortic dissection will...
increase, and with it so will the need for more creative and specific strategies.

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Killip and Forrester Classifications

Should They Be Abandoned, Kept, Reevaluated, or Modified?

To question the past is human; to do so is even imperative in the domain of science. Classifications have a certain “life span”: they come and go as their utility is surpassed by increasing scientific insight and experience. New classifications replace the old ones, just declared outmoded. At best, they can be retained in a modified form.

The science of classification was invented by Linnaeus, the Swedish naturalist-physician. His taxonomy has been at the heart of all attempts to bring some order to science in general, and the biological realm in particular, by emphasizing similarities in members of a class, while ignoring their individual attributes. Classification is a prerequisite for language and abstract thought. Scholars maintain that classifying in “pairs of opposites” is inherent to our brain’s basic function. However, implicit to classification is its artificiality and arbitrariness. There is nothing inherent to a body of information that calls for a single and unique way of classification. An infinite number of classifications can be imposed onto a set of data. Thus, it is a corollary of the above that results of various “outcomes” from the analysis of a given database will be different, depending on the classification system implemented.

The medical literature is replete of classifications, scores, types, screens, instruments, stratifications, predictors, assessment equations, determinants, methods, measures, categories, indicators, tools, markers, indices, systems, profiles, and prognosticators, used for diagnosis, risk assessment, and management. In this age of the computer, there has been an acceleration of this trend, as everyone tries to graduate from qualitative to semiquantitative, and even to quantitative assessment of problems. This treatment of data is amenable to statistical analysis, and this is not a small matter. Although many of these classification tools have remained unaltered, others have undergone modification; for example, we have experienced APACHE III (acute physiology and chronic health evaluation III), through APACHE I4 and APACHE II.5

In the field of myocardial infarction (MI), different scores and classifications have been used for many years as prognostic instruments of short- or long-term outcome. The end points have evolved to become uniform and include, with rare variations in the theme, mortality (overall, cardiovascular, arrhythmic, or nonarrhythmic), recurrence of MI, angina or hospitalization, and need for revascularization procedures, used either singly or in various composite forms. On the other hand, the classifying variables have comprised a large array of clinically derived signs, comorbidity, risk factors, or information from different non invasive and invasive testing. There are large differences among classification systems in the time of their design, the number, kind, and clarity of definition of the classifiers used, and the inclusion criteria of the study cohorts on which they were based. Some of these predictive tools were based on retrospective analysis, whereas others employed prospective analysis of data. The clinical parameters comprising these indices were either used to determine “membership”