Use of Heart Valves in Older Patients

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It has been known for at least 2 decades that the second- and third-generation porcine and pericardial bioprosthetic valves treated with glutaraldehyde are the preferable aortic valve devices in patients ≥65 years old who require aortic valve replacement.1 Furthermore, many studies of patients in this age group, especially with coronary artery disease, have repeatedly demonstrated that these patients rarely outlive these valves.2 Bioprosthetic cardiac valves do not need warfarin anticoagulation for patients in sinus rhythm, an advantage for older patients who have many concomitant disease states or existing conditions that contraindicate warfarin anticoagulation.3 Because of recent modifications in valve fabrication, including the use of glutaraldehyde at low fixation pressures, pericardial and porcine bioprosthetic valves have become even more reliable in terms of valve integrity and are clearly the choices for aortic valve replacement in older patients.4

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That this principle has been appreciated for some time led to the codification of this concept in the American Heart Association/American College of Cardiology (AHA/ACC) valve guidelines published in 1998.5 Thus, the article in this issue of Circulation by Schelbert et al,6 who review >80 000 patients ≥65 years old who underwent isolated aortic valve replacement in >1000 US hospitals from 1999 to 2001, is a surprise. Many who work in valve surgery centers have taken the general principal of using tissue valves in older patients as part of today’s established practice guidelines. In our own experience from 1992 to 2004 at the Brigham and Women’s Hospital in 2447 patients ≥65 years old, 81% of all patients in this age group received a bioprosthetic aortic valve. Schelbert and colleagues’ report documents that only 52% of patients older than age 65 received cardiac tissue valve. Even in patients >90 years old, only 60% overall received a bioprosthetic valve. They also document that the smaller volume of valvular heart surgery in older patients at a given hospital, the higher the probability of receiving a mechanical heart valve that requires anticoagulation. In their study, as the valve surgery volume increased the use of bioprosthetic valves also increased, so that by the tenth volume decile, 68% of patients received a bioprosthetic valve. This correlation between low valve surgery volume and percentage of older patients receiving mechanical valves may be because mechanical low-profile valves, bileaflet or single leaflet, are easier to insert into the aortic root than are bioprosthetic valves. Technical challenges such as aortic root atherosclerosis, a small aortic root, and excessive concern about patient–prosthesis mismatch7 may be factors that suggest a mechanical valve to less experienced valve centers. This concept that increased experience equals improved quality of care is not new and has been documented for many surgical therapies in addition to cardiac surgical problems.8

Patients in chronic atrial fibrillation or those who have other conditions requiring long-term chronic anticoagulation often will have a prosthetic valve in this age group, but even in these situations tissue valves may be more manageable in older people. As pointed out by the Brigham and Women’s group, the incidence of chronic atrial fibrillation in older patients is ≈16% but is not likely to account for the high rates of mechanical valve use observed in the analysis by these authors.9 Clearly, there is a need for further publicity about recommendations for valve type in older patients based on the 1998 AHA/ACC guidelines. Schelbert and associates’ article serves as a reminder that what is published in generally accepted guidelines may not necessarily be translated to real-world practice. This article also is a timely reminder that we will be seeing increasing numbers of older patients referred for aortic valve replacement in the coming decades. Recommendations based on what is acknowledged to be best for patients in the older adult age group should be reemphasized, and our collaborative efforts should be channeled with considerably more energy to attain optimal therapy for older Americans.

References


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