We read with great interest the study by Niclauss et al [1]. The authors report their experience with biological valves in the aortic position in 84 patients <65 years of age. Their results show a reoperation rate of 6%, almost exclusively in patients <56 years old. In the same time period, 140 patients <65 years of age received a mechanical prosthesis. During a 10-year period, they found that the numbers of mechanical valves steadily declined, whereas the numbers of biological valves steadily increased, indicating that patients are more accepting of the idea of reoperation and more inclined to avoid life-long anticoagulation.

The recent revisions of the ESC/EACTS guidelines published last year have expanded the indication for bioprosthetic aortic valves, proposing that both types of valves are suitable for patients between the ages 60 and 65 years. The same results reported by Niclauss et al are noted in US heart centers, at an even more convincing level. At our hospital, there has been a dramatic increase in the number of the biological aortic valves at the expense of the mechanical ones. In the recent years, almost 93% of the overall aortic valve replacements have been done with biological prostheses. The percentage remains high even in patients <65 years old, approaching 80%. It is characteristic that the vast majority of younger patients who are reoperated due to endocarditis or bioprosthetic valve degeneration choose a biological prosthesis again.

The major reason behind this trend is an increased awareness of the complications of life-long anticoagulation, as well as the dramatic improvement of reoperation outcomes [3]. Today, second and even third-time reoperations are a daily routine, and patients survive through complex surgeries. Furthermore, modern technology has improved the longevity of the bioprostheses, making them less prone to calcific degeneration. Minimally invasive techniques and transcatheter options offer interventions with far less morbidity and mortality, making reoperations attractive to our patients. It is of no surprise that they chose and will keep choosing biological aortic valves over mechanical ones, and it is our responsibility to make sure that they receive the best possible operation with the best outcome and the least complications.

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References


eComment. A novel lower age threshold for use of biological valves

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The publication by Niclauss et al [1] highlights a subject with conflicting results in the literature: the determination of a lower age limit for bioprosthetic valves in the aortic position. They concluded that biological aortic valve replacement could be an alternative treatment option for patients between 56 and 60 years old at the time of surgery. Nevertheless, biological aortic valves in patients younger than 60 years old is still a matter of ongoing debates, and the debate has gained renewed impetus with the advent of transcatheter aortic valve implantation and the feasibility of valve-in-valve procedures [2]. Moreover, valve-related complications in this patient population have not been clearly investigated. It is noteworthy that in two recently published studies, mechanical valves among younger patients were shown to have more superior clinical outcomes compared to bioprostheses.

Badhwar et al. [3], who conducted a prospective study on 172 propensity-matched patients, demonstrated a significantly lower mortality rate in patients with mechanical prostheses after 4 years of follow-up. Of note, patients with bileaflet mechanical prostheses enrolled in the above-mentioned study were monitored at
low international normalized ratio thresholds using point-of-care home monitoring. The merits of mechanical aortic valve have been reiterated by the study of Weber et al. [4]. They selected a cohort of 103 patients younger than 60 years old with the Perimount Carpentier-Edwards pericardial tissue valve and compared them with a propensity matched group of 103 patients with mechanical bileaflet aortic valve over a period of 10 years. Surprisingly, valve-related event rates were similar in both groups; however, survival was significantly reduced in patients with bioprostheses (90% vs 98%). One possible explanation speculated by the authors was the protective role of oral anticoagulation in patients with mechanical valves. The current guidelines from major international cardiovascular societies propose that both valve types are acceptable in patients aged between 60 and 65 years at the time of surgery. However, there is still insufficient evidence to recommend biological valves for patients younger than 60 years, other than in patients who have major medical contraindications to anticoagulant therapy.

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References


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