



Guest Editor: Prof. Khalil Fattouch

Aortic valve stenosis: treatments options in elderly high-risk patients

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In the last decades, a trend towards a worldwide aging has been reported and diseases which are common in the elderly people would have important implications in clinical practice. Aortic stenosis (AS) is perhaps the most common and most often cause of sudden death among valvular heart diseases.^[1] Its prevalence is low among adults aged < 60 years, but increases to almost 10% in adults \geq 80 years.^[2] Since the degenerative calcific disease represents the leading cause of AS in developed countries, the improved understanding on its pathogenesis (atherosclerotic processes and/or skeleton key) may offer potentially new targets for preventing and inhibiting AS development and progression.^[3] Patients with AS are generally asymptomatic for a prolonged period and the development of symptoms is a critical point in the natural history. Indeed, the prognosis changes dramatically with the onset of symptoms of angina, syncope or heart failure. Attention must be given to older adults who, typically having decreased activity levels, tend to experience a delayed onset of symptoms or to relate their symptoms to other coexisting conditions.^[4] Aortic valve replacement (AVR) is the gold standard therapy for severe symptomatic AS. However, a substantial number of patients with clear indications are not referred to the surgery. In a recently published multicenter survey (involving near one thousand of patients, coming from 10 centres of various size and geographic distribution), only one-half of the patients who met the criteria for clinically severe AS was referred to a cardiothoracic surgeon (CTS) for a preliminary evaluation and, of these, 41% effectively underwent AVR. Trends were similar across all the institutions. Referral to the CTS was more likely in the setting of symptoms of angina (rather than heart failure or syncope) and elevated echocardiographic gradients (rather than low valve area). Many patients who could benefit from AVR do not undergo evaluation for the global clinical condition or family refusal. The

one-year survival was $94\% \pm 2\%$ for operated patients vs. $69\% \pm 3\%$ for non-operated patients.^[5] Invasive approaches should not be however denied to the older patient on the basis of age alone. Interestingly, Di Eusanio, *et al.*^[6] have recently reported excellent contemporary outcomes in a population of 638 octogenarians patients (mean log-EuroSCORE 13.0%) underwent to conventional AVR. Overall hospital mortality and stroke rates were 4.5% and 1.3%, respectively. At six years, octogenarians' survival rate was similar to the expected survival of the age- and sex-matched regional population. Independent risk factors for decreased six years' survival were renal insufficiency (preoperative creatinine > 2.1), extra-cardiac arteriopathy and peripheral neurological dysfunction.^[6] Moreover, there are increasing evidences regarding the potential benefits of minimally invasive surgical procedures (MIS) in AS. Apart better aesthetic results, MIS could indeed offer several advantages over conventional full sternotomy (FS) AVR, aiming to reduce trauma and to achieve decreased postoperative pain and ventilation time, less blood loss and faster recovery. Current evidence suggests that MIS is associated with excellent early and late outcomes that are at least comparable to FS. Progressive technical improvements (facilitated by the development of sutureless or rapid deployment prostheses)^[7,8] may further reduce operative times durations and continue to increase its clinical application^[9,10] Whether strongest long-term follow-up, randomized studies and registry data are still required to assess the durability and long-term outcomes, perspective of MIS-AVR in elderly patients should be carefully evaluated. Transcatheter aortic valve replacement (TAVR) has also expanded the proportion of patients with AS who are candidates for valve replacement. Indeed, it has been shown to be a viable alternative treatment modality for patients previously deemed in-operable.^[11] Being patient selection for TAVR still now one of the most challenging issues in clinical practice, geriatricians should be part of Heart Team and overall frailty

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(combination of ageing, disease and risk factors making people vulnerable) carefully evaluated.^[12] In this new era with expanded treatment options, symptomatic patients who remain untreated after referral for TAVR experience a mortality rate of 39% at one year.^[13] Recently reported data, suggested good outcomes even in selected population of very older patients (> 85 years)^[14] The results of the Pegaso Registry have showed that octogenarians (84.2 ± 3.5 years) symptomatic for severe AS are frequently managed conservatively. Older age, logistic EuroSCORE, Katz index A, maximum gradient, pulmonary artery pressure, and reduced left ventricle ejection fraction were predictive factors for the absence of surgery (TAVI or conservative management). The planned conservative management was associated with a poor prognosis [TAVI, HR = 0.68 (95% CI: 0.49–0.93; *P* = 0.016) and AVR, HR = 0.56 (95% CI: 0.39–0.8; *P* = 0.002)].^[15] In high-risk patients with “temporary” contraindication to AVR or TAVR, percutaneous balloon aortic valvuloplasty could be safely used as a bridging intervention procedure (bridge-to-decision) and the short-term procedural and clinic outcomes are satisfactory.^[16,17] Along with a provision of a detailed overview of the current literature regarding the improved understanding on pathophysiology of AS and its clinical implications, this special issue will address specific consideration of treatment options especially in elderly high-risk patients.

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