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EDITORIAL

Symptomatic severe aortic stenosis in the TAVI era: heart team assessment for all

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Aortic stenosis (AS) is the most frequent form of valvular heart disease in Europe. It is primarily caused by senile degenerative disease, which affects 2–7 % of the population over the age of 65. When symptoms occur, the prognosis of severe AS is poor. Without treatment, up to 50 % of patients die within the first 2 years after symptom onset, mainly from congestive heart failure or sudden death.

Current practice guidelines recommend aortic valve replacement (AVR) in patients with symptomatic severe AS [1]. Valve replacement should also be considered in asymptomatic patients with depressed left ventricular function (ejection fraction <50 %), with an abnormal exercise test (development of symptoms, abnormal blood pressure response), or in asymptomatic patients with normal exercise tolerance who are at high risk to become symptomatic (very severe or rapidly progressive aortic stenosis, elevated (NT-pro)BNP levels, significant gradient increase during exercise or excessive left ventricular hypertrophy).

The treatment option of choice is still surgical AVR, as it has been shown to prolong and improve quality of life, even in octogenarians. New in the most recent European Society of Cardiology (ESC) guidelines is the recommendation for transcatheter aortic valve implantation (TAVI) as an alternative for surgical AVR in patients with contraindications or high risk for surgery [1]. In patients considered unsuitable for surgery, TAVI renders survival benefit over conservative treatment (including balloon valvuloplasty), and in patients with a high surgical risk 1-year survival is non-inferior to surgical AVR [2, 3].

Despite the clear benefits of valve replacement in patients with severe symptomatic AS, even to date many patients in the Netherlands do not undergo invasive treatment. Confirming previous reports, this is shown by Heuvelman, van Geldorp and colleagues in the AVARIJN study [4]. They report that almost half of the patients with symptomatic severe AS do not undergo intervention, which may be an alarming finding. Particularly elderly patients with multiple comorbidities and low-flow/low-gradient AS were likely to receive conservative treatment. As the authors point out, the logistic EuroSCORE was not very high (7.2 %) in conservatively treated patients and may not fully explain why these patients were not considered candidates for valve replacement. One should realise that during the early years of the AVARIJN study, the use of TAVI was not as widespread as it is nowadays. This is illustrated by the small number of patients undergoing TAVI. It is likely that in most patients the decision for treatment was between surgical AVR and conservative therapy. Frailty or patient preference may form additional explanations why patients were not referred for surgery, even with an acceptable EuroSCORE. On the other hand, patients with a porcelain aorta, a history of chest radiation, or patent bypass grafts, may have been considered less suitable for surgical treatment. It would be of interest to know how many patients in the AVARIJN study were referred, but denied surgical intervention for these (or other) reasons.

At the present stage, TAVI has become an accepted therapeutic option for high-risk patients with severe symptomatic AS who are considered unsuitable for conventional surgery. In 2011 almost 800 TAVI procedures were performed in the Netherlands. The pivotal role of the multidisciplinary heart team in the assessment of individual patient's risk and technical suitability for TAVI (including access site) has now been included in the ESC guidelines [1]. Following the multidisciplinary team discussion, clinical evaluation of the individual patient by a member of the heart team together with a cardiac-anaesthesiologist may have additional value for tailored decision making. This does not only apply to the decision between surgical AVR and TAVI, but also between TAVI and conservative treatment. One-year mortality rates after TAVI are still

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considerable (25–30 %), reflecting the high overall mortality risk of this patient group. Especially in frail elderly patients with multiple comorbidities geriatric consultation could be used to assess whether the potential benefits of TAVI on quality of life and survival will outweigh the associated risks. Recent studies suggest that geriatric assessment may help identify patients at increased risk of mortality and cardiovascular events after TAVI [5].

In the near future the use of TAVI is expected to be extended to lower risk patients. However, prerequisites for the use in these patients are adequate trial data, long-term follow-up and technical improvements regarding procedure and devices. The currently used devices portend an increased risk of conduction disturbances and peri-valvular regurgitation, which have both been associated with impaired outcome [6, 7]. In addition, reduction of the risk of vascular complications and stroke is warranted. Until these issues are resolved, the use of TAVI should be limited to high-risk or inoperable patients.

A second important finding of the AVARIJN study is the progressive course of asymptomatic severe AS, with about two-thirds of patients becoming symptomatic within the 2-year follow-up period [4]. The timing of intervention in asymptomatic patients is still a matter of debate. The latest guidelines recommend exercise testing in physically active asymptomatic patients with preserved left ventricular function to assess symptomatology and blood pressure response [1]. In the AVARIJN study one-third of the patients who underwent exercise testing had a positive test. The majority of positive test results were based on ST-segment depression, rather than the development of symptoms or abnormal blood pressure response. However, the positive predictive value of ST-segment depression during exercise for impaired outcome is limited and lower than development of symptoms [8]. The clinical significance of asymptomatic ST-segment depression during exercise in this setting therefore remains unclear. In elderly and less active patients exercise testing is less useful, and spontaneous symptoms are probably the best criterion for referral for intervention, especially in high-risk patients. In asymptomatic patients with a normal exercise tolerance and without additional risk factors, prognosis is not impaired and watchful waiting is recommended, i.e. re-evaluation of the patient after 6 months [1].

The results of the AVARIJN study have several implications. The challenge for the referring cardiologists remains the identification of patients with a symptomatic severe AS. In patients without spontaneous symptoms, exercise testing can be used for risk stratification. When in doubt about the severity of the AS, stress echocardiography can be useful, especially in patients with a low-flow/low-gradient AS. After adequate assessment of symptomatology and severity of the AS, all patients with symptomatic severe AS and a life expectancy greater than 1 year should be referred for multidisciplinary heart team assessment in a tertiary centre. The responsibility of the heart team then lies in the selection of the best treatment option for the individual patient. For optimisation of care, better risk stratification models for elderly patients with AS are warranted. The AVARIJN study investigators should be congratulated on their careful survey, which may become a benchmark for future interventions.

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