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## SCIENTIFIC EDITORIAL

## The new ESC/EACTS Guidelines on the management of valvular heart disease

Les nouvelles recommandations de la Société européenne de cardiologie et de l'Association européenne de chirurgie cardiothoracique sur la prise en charge des valvulopathies

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An update of the existing European Society of Cardiology (ESC) guidelines, published in 2007 [1], was felt necessary for two main reasons. Firstly, new evidence has accumulated, particularly on risk stratification; in addition, diagnostic methods and therapeutic options have changed due to further development of surgical valve repair and the introduction of percutaneous interventional techniques, mainly transcatheter aortic valve implantation (TAVI). Secondly, the importance of a collaborative approach between cardiologists and cardiac surgeons in the management of patients with valvular heart disease (VHD) – in particular when they are at increased perioperative risk – has led to the production of a joint document by the ESC and the European Association for Cardio-Thoracic Surgery (EACTS) [2]. The Task Force comprised a similar number of cardiologists and surgeons, and this strong interaction reflects the importance of close collaboration in clinical practice, particularly in high-risk patients. These guidelines emphasize the need for a multidisciplinary approach structured in the 'Heart Team', which should include cardiologists, cardiac surgeons, imaging specialists, anaesthetists and other specialists, if needed.

### Patient evaluation

With regard to patient evaluation, as was the case in the previous document, the Task Force highlighted that after a comprehensive clinical examination, echocardiography is

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the key examination to confirm diagnosis and assess severity and prognosis. As stated in the documents from the European Association of Echocardiography, which are used as references, whatever the value of quantitative parameters the evaluation of the severity of valve disease should result from an integrated approach [3–5]. The physician should check consistency between the different echocardiographic findings evaluating severity, mechanism anatomy of valvular disease and the clinical assessment.

Other than the widespread use of echocardiography, the use of stress testing is encouraged in asymptomatic patients. The Task Force acknowledges that exercise echocardiography may provide additional information in aortic stenosis, mitral regurgitation and mitral stenosis; however, this technique could be technically demanding and requires specific expertise. Magnetic resonance imaging is the alternative process for valve regurgitation and left ventricular function if echocardiography is inadequate. Now multislice computed tomography plays a crucial role for work-up of patients before TAVI.

The Task Force emphasizes the difficulty of the decision-making process in patients with valve disease. Risk scores such as the EuroSCORE or STS scores have been used in practice for years and provide relatively good discrimination, but the calibration is poor in high-risk patients, with an overestimation of the risk [6]. Other factors, such as frailty and anatomical conditions such as porcelain aorta significantly increase the risk, but are not included in current risk scores. In the absence of a perfect risk score, the Task Force clearly stated that such scores should be included in, but not be substitutes for, the clinical judgement of the Heart Team.

## Specific valvular diseases

The changes in the specific chapters since the 2007 ESC guidelines, with regard to therapeutic options, are as follows.

In *aortic regurgitation* where pathology of the aortic root is frequent, the Task Force reassessed the thresholds for intervention on the ascending aorta. In the light of recent studies on the natural history, it was felt that in patients with Marfan syndrome, surgery is indicated when the maximal ascending aortic diameter is greater or equal to 50 mm, while the threshold for intervention should be lower in patients with risk factors for progression. In cases with bicuspid aortic valve, the new threshold is 50 mm for patients with risk factors and 55 mm for all others. The thresholds are lower if aortic valve replacement is combined with the treatment of aortic root disease or if valve repair is performed.

In *aortic stenosis*, among the new treatments reviewed in the guidelines, the most important is TAVI, which was introduced for the first time in the valve guidelines. TAVI is recommended only 'in hospitals with cardiac surgery on-site' and with a Heart Team available to assess individual patient risks. The indications for TAVI are based on the results of large European registries and also importantly on results of the randomized PARTNER trials [7,8]. TAVI is indicated in patients with severe symptomatic aortic stenosis who are judged by the Heart Team as unsuitable for valve replacement. TAVI should be considered for high-risk

patients with severe symptomatic aortic stenosis based on the individual risk profile as assessed by the Heart Team, rather than on thresholds of risk scores. The guidelines emphasize that at present TAVI should not be performed in patients at low or intermediate risk for surgery, for whom no supporting data are currently available.

In the newly recognized entity of paradoxical low-flow, low-gradient aortic stenosis with normal ejection fraction, aortic valve replacement should be considered in symptomatic patients with low-flow, low-gradient (<40 mmHg) aortic stenosis with normal ejection fraction only after eliminating all potential errors of measurements and if comprehensive evaluation suggests significant obstruction.

The debate on the indications for aortic valve replacement in asymptomatic patients is ongoing. In light of the recent data, surgery should be considered in patients at low operative risk, with normal exercise performance, with very severe aortic stenosis or progressive disease. Surgery may also be considered in patients with markedly elevated natriuretic peptide levels, significant increase of mean pressure gradient by exercise echocardiography or excessive left ventricular hypertrophy.

In *mitral regurgitation*, the Task Force reinforces the statement that mitral valve repair should be the preferred technique when it is expected to be durable. As a consequence, it is important to increase surgical expertise and the number of reference centres for this frequent disease.

Here again the indications in the asymptomatic patients with primary mitral regurgitation are still a matter of debate, but the Task Force widened the indications and proposed that surgery should be considered in asymptomatic patients with preserved left ventricular function, high likelihood of durable repair, low surgical risk, flail leaflet and left ventricular end-systolic diameter greater than 40 mm. Surgery may also be considered in such patients in cases with severe dilatation of the left atrium or pulmonary hypertension on exercise echocardiography.

Following results from the EVEREST trials [9] and European registries [10], edge-to-edge percutaneous mitral valve repair is reported to be relatively safe and to improve symptoms, but the procedure reduces mitral regurgitation less effectively than mitral valve surgery. Thus the Task Force stated that percutaneous mitral valve repair using the edge-to-edge technique may be considered in high-risk or inoperable patients refractory to optimal medical management with the aim of improving symptoms. However, longer follow-up is needed as well as data from randomized clinical trials.

*Tricuspid disease* should not be forgotten, and surgery should be carried out early enough to avoid irreversible right ventricular dysfunction. Surgery should be considered in patients with mild or moderate secondary tricuspid regurgitation with dilated annulus, undergoing left-sided valve surgery.

The choice of the *type of valve prosthesis* remains a difficult issue, which should be individualized and discussed in detail with the patient and surgeon, taking into account multiple factors. Age is one of the parameters for the decision, and to follow the widening of the indications for bioprostheses, the age limit for implanting a bioprosthesis was lowered to 60–65 years for patients who should receive an aortic

prosthesis, and to 65–70 years in the case of mitral prosthesis.

Finally with regard to the debated issue of antithrombotic therapy after valve surgery, the need for a 3-month period of postoperative anticoagulant therapy has been challenged in patients with aortic bioprostheses. The use of low-dose aspirin is now favoured as an alternative on the basis of data from registries. On the other hand, oral anticoagulation should still be considered for the first 3 months after implantation of a mitral or tricuspid bioprosthesis or mitral valve repair.

The overall message of this document is to stress the importance of the comprehensive evaluation of the cardiac and extracardiac condition of the patient, constantly checking consistency between the results of diagnostic investigation and clinical findings at each step of the decision-making process. The decision-making process and the management of the patient should ideally be made by the Heart Team with particular expertise in valve disease. Furthermore, and importantly, owing to the paucity of evidence-based data in the field of valvular heart disease, leading to most recommendations being based on expert consensus, the Task Force pleads for an increase in the research efforts in this field.

## Disclosure of interest

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