Valve stenosis guidelines 2017

INTRODUCTION Guidelines of the European Society of Cardiology (ESC) are approved by the Spanish Society of Cardiology (SEC) and translated into Spanish for publication in the Revista Española de Cardiología. Each new guidance is accompanied by a commentary written in accordance with the objectives and methodology recommended by the SEC Clinical Practice Guidelines Committee.1 The Guidance Committee has appointed a panel of experts, to develop this article, which discusses the new 2017 ESC/EACTS guideline on the management of chvalular heart disease.2 Subsequently, additional experts have been appointed in the clinical cardiology, imaging and catheterisation sections of the heart to make an important contribution to the document presented here. These guidelines are an update of the guidelines published in 2012.3 Significant progress has been made over the last 5 years justifying the publication of new guidelines with relevant changes from the previous document: (a) there is a specific section on atrial fibrillation in chvalular heart disease, with particular attention to the role of direct oral anticoagulants; (b) new evidence has been obtained of implantation of the aortic valve (TAVI) for the treatment of severe aortic stenosis; (c) criteria are laid down which may be useful in diagnosing low-slope severe aortic stenosis; and (d) new antithrombotic indications are proposed for patients with surgical and percutaneous prostheses. The current guidelines, like the previous document, suffer from a lack of evidence to support those recommendations. The number of referrals increases dramatically from 70 to 159, Although many of them are IIb C. In addition, there are 2 new A-level recommendations: an indication of surgical ablation in patients with symptomatic atrial fibrillation undergoing valve surgery, and the possibility of dual antiaggregation therapy instead of triple therapy in patients with mechanical prosthesis following acute coronary syndrome and stent implantation (with a hemorrhagic risk more important than ischaemic risk). Most of the recommendations are still at level C (123 [77%]). We appreciate the inclusion in these guidelines of a section specifying the change from the previous guidelines3 and the new recommendations. We consider the guidelines to be an indispensable tool for evaluating patients with chvalular heart disease, as they provide all relevant information on the disease with a highly didactic approach to topics, in particular algorithms for managing various chvalular heart disease. GENERAL COMMENTSA document should be a general guideline for the management of patients with chvalular heart disease, but stresses that decision-making should be individualised for each patient, taking into account the resources available in each centre, both diagnostic and therapeutic, and, of course, at the patient's request. It insists on the need to take decisions within the framework of a multidisciplinary or especially in high-risk or asymptomatic patients. Clinical evaluation and stratification of risks Attention to aspects of clinical evaluation has been drastically reduced in this Guideline to underline the appropriate stratification of surgical risk of patients through various scores, in particular euroscore ii and sts models. Euroscore I is earmarked because it oversue surgical risk. Other risk factors not included in these models should be evaluated, such as frailty, porcelain aorta and previous exposure to chest exposure. In elderly patients, it is necessary to evaluate both comorbidity and lung disease, chronic kidney disease (glomerular filtration rate < 30 ml/min) and cerebrovascular disease, which undoubtedly increases mortality for both surgical and percutaneous procedures. This increased interest in risk assessment is partly motivated by the exponential growth of percutaneous therapy, especially in aortic stenosis. The guidelines introduce the

concept of a heart valve center (or center of excellence in valve heart disease), which consists of a multidisciplinary team that must meet regularly to discuss complex cases, follow interventional protocols, receive consultations from other centers, utilize all noninvasive diagnostic imaging techniques, and include highly experienced cardiac surgery and interventional cardiology offering all surgical or catheter interventional options. The appropriateness of centralized performance of very complex surgical or percutaneous interventions (eg, repair, MitraClip implantation, TAVI) is emphasized because the learning curve needs to be overcome and a minimum volume of cases per center are necessary to maintain the quality of care. The results of these heart valve centres must be audited and made available for internal and external evaluation. Imaging techniquesCardiography remains the main technique for the initial diagnostic approach, as it allows the interpretation of etiological mechanisms and hemodynamic influence and in many cases the determination of the prognosis. The guidelines confirm the use of transesophageal echocardiography to evaluate the results of surgical and percutaneous procedures. As regards indications for other imaging techniques, the guidelines offer some innovations. The authors stress the usefulness of computed tomography (CT) in selecting candidates for TAVI and as an alternative to invasive coronary angiography for the excretion of ischaemic disease, even if only in patients at low atherosclerotic risk. Magnetic resonance imaging (MRI) is considered useful if echocardiographic studies are not optimal and as a reference technique in assessing the size and function of the right ventricle. Treatment of associated diseases As regards the treatment of associated coronary disease, the guidelines newly recommend that patients with coronary disease in the proximal segments undergo percutaneous coronary intervention prior to TAVI or MitraClip (IIa). In patients with atrial fibrillation, the document introduces the possibility of direct oral anticoagulant use more than 3 months after intervention in patients with bioprothesis and in patients with native valve disease, except when there is moderate or severe mitral stenosis (indication IIa, evidence C). Questionable aspects•More objective tools should be developed to stratification of patients' risk in valve surgery vs. catheter intervention. Futility should also be avoided.•As the new CT equipment, becoming more accessible and with more detectors, obtains images of superior quality with minimal radiation doses and good correlation with invasive coronary angiography, its use could be justified in patients at increased risk of atherosclerotic disease (at least moderate).•MRI is a reference technique for assessing the size and function of both chambers and may provide variables that allow more adequate prediction of the results of these patients.•The indication of direct oral anticoagulants during the first 3 months after implantation of the biological prosthesis or TAVI is not clearly established. Similarly, its contraindication in patients with moderate or severe mitral stenosis is not associated with any study. AORTIC REGURGITATIONDirectors reaffirm the role of echocardiography in the study of morphological and valvular changes and the regurgitation mechanism and quantification of the severity of regurgitation and ventricular function. Echocardiographic information is useful for determining the possibility of repairing the valve. Importantly, it is clearly explained how the root of the aorta and the aorta (from the anterior edge to the anterior edge of the aortic wall at the end of the diastol) should be measured.4 Depending on the results of these measurements, the ascending aorta is classified into 3 phenotypes: aortic root aneurysm, ascending aortic (or tubular) aneurysm or aortic aneurysm (isolated aortic regurgitation). Although MRI is a good technique for measuring the ascending aorta, the guidance recommends a multidetetor CT (MDCT) with ECG synchronization when designing surgery for better time resolution. For CT and MRI, diameters must be measured from the inner edge to the inner edge at the end of the diastole and by means of a double oblique technique perpendicular to the wall of the vessel in each segment. The aortic sinus should be measured from sinus to sinus and not from sinus to opposite. The indication for valve surgery in aortic regurgitation (AR) is the presence of symptoms or documented ejation fraction (EF) ≤ 50% (both, indication I B). It should also be considered (IIa B) in asymptomatic patients with EF > 50% and severely enlarged left ventricles with an end diastolic diameter > 70 mm or end-systolic diameter > 50mm (> 25mm/m2), especially if the body surface area is less than 1.68 m2. As a novelty is the possibility of repairing valves in selected patients especially those that have root dilation (type I mechanism) or cusp prolapse (type II) and always after discussing the case in a multidisciplinary team (Class I, evidence C). Indications for this type of surgery would lead to recommendations to centers specializing in this type of surgical repair. Aortic intervention is still recommended in patients requiring valve surgery, who have an aortic root or ascending aorta ≥ 45 mm. In Marfan syndrome, surgery is indicated for diameters of ≥ 50 mm, or ≥ 45 mm if there are other risk factors, including hypertension or growth > 3 mm per year (in previous guidelines, the threshold was 2 mm, which borders on the variability of the technique itself). A proper comparison of measurements in studies is important using the same methodology, projection and aortic measurement level. In patients with the TGFBR1 or TGFBR2 mutation (including Loeys-Dietz syndrome), the operation is indicated with an aortic diameter ≥ 45 mm. When it comes to medical treatment for aorta dilation, the guidance adds losartan for patients with Marfan syndrome as an alternative to beta-blockers. Questionable aspects•The criteria for repairing or replacing the aortic valve are poorly defined and should be better established in the coming years.•MRI is a technique of greater usefulness than indicated in the guidelines. Sometimes it is difficult to define the AR severity of Doppler echocardiography, especially in the presence of eccentric regurgitant jets. The regurgitant fraction as measured by MRI is a predictor of the development of symptoms and the need for surgery.•Understanding the treatment algorithm for AR is hampered by its initiation with significant aortic dilation, ignoring the severity of regurgitation. In the absence of significant AR, indications for aortic ascending dilation surgery should be developed in the Aorta Disease Guidelines to avoid overlapping criteria or differences.•The guidelines create some confusion by believing that in women with a small body surface area, tgfbr2 mutations or extraaortic changes (phenotypic aspects) may be considered intervention with aortic diameter values of ≥ 40 mm. .7AORTIC STENOSIS Although echocardiography is the gold standard for the diagnosis and quantification of aortic stenosis (AS) and the aortic valve area (AVA) is an ideal parameter for quantifying its severity, there are technical limitations to its use in clinical decision-making. AVA should be considered together with stroke volume, mean inclination (most reliable parameter), ventricular function, hypertrophy, degree of calcification and blood pressure. Four categories of AS with AVA < 1 cm2 are defined: (a) AS with a mean gradient > 40mmHg, which is considered normal; (b) low flow AS (lift volume index ≤ 35 ml/m2) and gradient < 40mmHg with EF ≤ 50%, s defined by stress echocardiography with dobutamine; (c) AN with an average inclination < 40mmHg with EF > 50 % but a stroke volume index of ≤ 35 ml/m2), where measurement errors are systematically eliminated and the severity is confirmed by CT or other techniques; and (d) low gradient, normal flow rate and AS with normal EF, which are considered to be mild AS (figure). When diagnosing low flow, low gradient AS with preserved EF, integrated evaluation of different clinical variables with different diagnostic methods is particularly important.7 Therefore, AS is unlikely to be severe when calcium score is > 1600 AU in men and > 800 AU in women; in addition, these patients are proposed to ≤ 0.8 cm2. Eighteen therapeutic indications are produced with an increased number of Class I recommendations (55%) recommendation of one Class III; 78% of the recommendations are supported by a randomised study. In severe symptomatic low-gradient and low-flow AS without contractile reserve, the degree of referral was changed in favor of surgery from IIb to IIa in patients with high calcium scores (> 3000 AU in men and > 1600 AU in women). The role of clinical follow-up at short 6-month intervals is strengthened for severe asymptomatic AS. The indication of valve replacement based on very severe stenosis or accelerated haemodynamic progression such as Vmax > 5,5 m/s, severe valve calcification and annual progression of Vmax ≥ 0,3 m/s/year shall be respected. The new indication IIa C is defined for the presence of severe pulmonary hypertension (pulmonary artery systolic pressure > 60mmHg at rest confirmed by an invasive method) without further explanation. The indication IIb C is also modifiers for repeated and significantly increased concentrations of natriuretic peptides (> 3 times the normal range for age and gender of patients) without any other possible explanation, which becomes a recommendation of IIa C. In addition, the guidelines eliminate 2 previous indications of IIb, namely an increase in mean pressure gradient > 20mmHg with exercise and excessive left ventricular hypertrophy in the absence of hypertension. The choice of therapeutic modality (percutaneous approach or sternotomy) provides the greatest number of innovations and 5 recommendations of Class I are established: a) cardiac surgery and cardiology should be available in the same center; (b) the decision should be taken by assessing individually the technical aspects and the benefit-risk balance of each modality, taking into account experience and local results; (c) valve surgery is preferred in low-risk patients or patients without other factors not included in the scale, such as fragility, porcelain aorta and previous radiation; (d) in patients with moderate or high surgical risk or other factors, a percutaneous approach should be considered by considering the age of the patients and the possibility of access to the femur; and (e) TAVI is indicated to a multidisciplinary team of patients deemed unfit for surgery by the multidisciplinary team. the table specifies the aspects to be considered in the indication for TAVI. Balloon valvuloplasty is considered only a bridge for valve replacement or diagnostic option. A new indication of IIa C for TAVI valve in the valve is included in patients with prosthetic dysfunction depending on the surgical risk of patients and the type and size of the prosthesis. Similarly, a new IIa C recommendation will be established for the possibility of percutaneous coronary revascularisation in TAVI candidates who have proximal coronary stenosis > 70%. Importantly, the guidance includes TAVI data from patients at medium risk based on the results of the PARTNER-II and SURTAVI studies and various meta-analyses. Questionable aspects•The limitations of the calculation of AVA by echocardiography using the continuity equation are becoming increasingly clear. The guidelines propose the inclusion of several clinical and imaging variables for the diagnosis of major AS. However, this vital aspect does not appear to be carved in stone.•It remains unclear how to identify asymptomatic patients who would benefit from prior surgical treatment.•New indications for TAVI in patients under 75 years of age or with a lower surgical risk still need to be established. In addition, the shelf life of TAVI prostheses is still insufficiently established. MITRAL VALVULOPATIA The new guidelines propose substantial changes in the management of mitral regurgitation (MR) and maintain similar recommendations for mitral stenosis, a pathology with several new data in recent years. More frequent echocardiographic follow-up (every 6 months) is recommended in patients with severe MRI (previously it was annual) and ideally in the context of a heart valve center, or echocardiogram every 1 to 2 years in patients with moderate MRI (previously, every 2 years). The guidelines maintain a surgical indication for patients with severe symptomatic or asymptomatic primary MRI with EF ≤ 60%, endystolic diameter ≥ 45 mm, atrial fibrillation or systolic pulmonary pressure ≥50mmHg confirmed by haemodynamic monitoring. However, changes have been introduced in 2 aspects: (a) there is a tendency to work on asymptomatic patients with severe primary MRI and (b) indications for percutaneous device treatment. Therefore, surgery (indication IIa) is recommended in asymptomatic patients with severe MRI, even if they are in the sinus rhythm and have a left ventricular (LV) EF > 60%, if the probability of repair is high, the systolic diameter of the LV is between 40 and 44 mm and one of the following criteria is met: the left atrium is enlarged (≥ 60 ml/m2) or the cause is a rupture of the chordae tendineae. The indication is removed for surgery in case of severe pulmonary hypertension with exercise in patients with asymptomatic primary MRI. usually due to ischaemic heart disease, cardiomyopathy or chronic atrial fibrillation, the guidelines state that in the severity criterion, although the levels of aperture volume or regurgitant are lower than in primary MRIs, the prognosis of these patients may be more associated with ventricular dysfunction than with the severity of MRI. Percutaneous devices are included in the treatment of severe secondary MRI (IIb recommendation). In patients with severe ventricular dysfunction who are not indicated for revascularisation and remain symptomatic despite optimal medical therapy, surgery may be indicated if the surgical risk is low, and percutaneous procedures if the surgical risk is not low and valve morphology is favourable (IIb C), especially with LVEF > 30%. The choice between surgery and percutaneous repair will depend on the surgical risk. In patients with LVEF < 30%, the indication should be individualised as there is no evidence that a reduction in secondary MRI improves survival. The indication of previous Guideline3 for the treatment of moderate MRI during coronary revascularization surgery has been withdrawn, although it is maintained if the MRI is severe. There are no significant changes in the management of mitral stenosis. Valve replacement surgery should be considered in asymptomatic patients, patients with adverse properties for percutaneous mitral commissurotomy in case of high risk of embolism or haemodynamic decompensation, or if symptoms develop with low levels of exertion, if surgical risk is low. Questionable aspects•Although the recommendation for surgery is made in patients with asymptomatic MR and a significantly enlarged atrium, there are still substantial differences from the US recommendations11, where repair is carried out only if it is feasible and has a high success and durability rate. There is no light on the potential usefulness of repeated measurements showing progressive dilation or a decrease in LVEF below the limit values described in the recommendations.•For secondary severe MRLs, the current guidelines are inclined to repair valves with restrictive anuloplasty as a selection technique. However, based on a recent randomized study,12 the latest update of U.S. guidelines recommends valve replacement surgery with maintenance of the subvalvular device due to higher rates of MR recurrence after repair.•As for percutaneous repair (MitraClip) secondary MRI, despite multiple registries and meta-analysis, iib recommendation with evidence level C remains unchanged. TRICUSPID DISEASE CHLOPNEThose guidelines do not include relevant changes related to tricuspid valve disease compared to 2012.3 Include the possibility of repairing the tricuspid valve in patients undergoing left valve surgery with moderate tricuspid regurgitation if correct heart failure has been documented without the need for anulus valve dilation or right dysfunction (IIb C).13COMBINED AND MULTIPLE VALVE DISEASESIn case of combined valve lesions, the gradient is considered to better reflect the haemodynamic load caused by the valve lesion in front of the valve area and other measurements. Valve repair is considered a procedure of choice and new guidelines remove the paragraph that preferred implantation of 2 prostheses if one of the valves was not repairable. PROSTHETIC VALVESOne of the most important innovations compared to previous guidelines3 is in the section on antithrombotic management of patients with prostheses. The number of recommendations therefore increases from 8 to 18. These include Recommendation I with evidence level B for inr self-management and IIa recommendation for dual anti-aggregation therapy during the first 3 to 6 months after TAVI and then one antiaggregation agent. Emphasis is placed on the need to adequately inform patients about the risks and benefits of mechanical or biological prosthesis implantation and the importance of joint decision-making with the patient, and age is not the only consideration. The document is very clear that direct oral anticoagulants should not be administered to patients with mechanical prostheses and that the aim should still be a median INR, not a range, in order to avoid the possibility that extreme values in the therapeutic range will be considered valid. An important aspect is the new recommendations for the anti-aggregation treatment of patients with mechanical valves after implantation of coronary stent14 with 1 month use of three-month antiaggregation therapy with vitamin K antagonists (VKAs), aspirin, regardless of stent type and clinical syndrome motivating implantation, and prolong treatment by up to 6 months in patients at high ischaemic risk but without a high risk of bleeding. Dual treatment with lapidogrel and VKA should be considered as an alternative to triple therapy in patients at higher risk of bleeding; discontinuation of antiaggregation therapy may be considered 12 months after stent implantation. In patients with mechanical prostheses with concomitant atherosclerotic disease, the addition of low-dose aspirin to VKA has changed from indication IIa to IIb. The indication IIa is stored for the treatment of VKA in the first 3 months after implantation of the bio prosthesis in the mitral or tricuspid position or aspirin alone for aortic interventions. Despite the absence of confirmatory studies, the interesting role of direct oral anticoagulants in biological prostheses is considered, especially after the third month when anticoagulation is indicated. The recommendation to implant a mechanical prosthesis in already anticoagulated patients and carriers of another mechanical prosthesis has been moved from indication I. class to Class IIa. There have been no changes in the management of obstructive thrombosis of mechanical prostheses. Emergency surgical replacement is treatment of selection if co-morbidities are not significant (Class I indication). Fibrinolysis should be considered when surgery is not available or there is a high surgical risk (indication IIa). In non-destructive prosthetic thrombosis after embolism, surgery (IIa) is indicated when the thrombus ≥ 10 mm. Reoperation is recommended in patients with paravalvular leak caused by endocarditis causing severe haemolysis or symptoms, with the possibility of percutaneous closure in patients at high surgical risk (definitely a multidisciplinary team) and an individualised indication for percutaneous implantation of a new aortic bioprotesis (valve-in-valve) is proposed, depending on the risk and type and size of the prosthesis. Questionable aspects•In clinical practice, patients taking a biological prosthesis tend to be younger than those receiving mechanical. This trend is probably due to the more active lifestyle of the middle-aged population, who prefer to avoid anticoagulation with VKA, and the greater durability of some biological prostheses. The guidelines miss an opportunity to discuss the types of mechanical and biological prostheses available on the market and their differences in haemodynamics, thrombosis risk and durability.•Although recent randomised studies have suggested a reduction in the INR target in patients with mechanical aortic prostheses, the recommendations have not changed. These data should be confirmed in the future.•Following percutaneous or surgical implantation of the biological prosthesis, current guidelines recommend echocardiography after 30 days, 1 year and thereafter (previously only an annual echocardiogram was recommended after the fifth year in patients with normal biological prosthesis). These recommendations are not based on any clinical study and would lead to significant overload of echocardiographic laboratories in Spain.•Antithrombotic therapy within the first 36 months after inadequate definition of TAVI. It is proposed that one anti-aggregating agent be used instead of double anti-aggregation therapy, as well as the possible benefit of initial anticoagulation in patients at low risk of bleeding to prevent subclinical thrombosis <. Wise, a strategy is not specified if the thrombus persists despite adequate anticoagulant > >ation. Recommendations for caesarean section are also. There is no indication for bicuspid valve surgery with aortic lathing. For anticoagulation in patients with mechanical prosthesis, oral anticoagulation is recommended until delivery in women requiring warfarin < 5 mg/d and switching to low molecular weight heparin, while anti-Xa activity in the remaining patients. Questionable aspects•In relation to women with mechanical prosthesis, receiving oral anticoagulation during pregnancy should be specified that oral anticoagulation should be maintained until 36. Adherence to the recommendations may require some improvement in quality standards in clinical treatment, imaging techniques and surgical or percutaneous treatment. The recommendation for annual reviews in some subgroups of patients with chvalular heart disease is an important over-care that is difficult to manage in the current environment. With tools such as telemedicine, close and continuous clinical cooperation with primary care physicians should be encouraged, especially in patients whose medium risk of complications is not predictable. LOCAL SOCIO-ECONOMIC CONSEQUENCESAdvances in the treatment of chvalular heart disease, especially in the field of surgical and percutaneous treatment, represent a significant increase in health spending, occasionally in a group of seriously ill patients. Spanish experts cannot ignore our responsibility to analyse and individualise the balance of benefits and costs of our actions. A specialised multidisciplinary referral centre could undoubtedly allow for an objective analysis of complex patients with valve disease and improve decision-making efficiency. In addition to optimising the care of these patients in the hospital environment, these units must also communicate with regional hospitals and family doctors in their towing area. CONCLUSIONS These guidelines are an update of the recommendations for the management of patients with chvalular heart disease and have considerable use in the practice of a general clinical cardiologist. Support and description of the requirements of multidisciplinary units for the care of patients with valve disease are increasingly needed, due to the constant increase in therapeutic options for complex, elderly and comorbid patients. In this context, the guidelines include contributions from recent TAVI studies, consider an indication for earlier primary MRI surgery that can be reliably corrected, and address in more detail the antithrombotic management of patients with a chvalular prosthesis. Conflicts of interestNone said. Appendix. ESC/EACTS Guidelines Working Group on The Management of Vuvalular Heart Disease 2017: Arturo Evangelista, J. Alberto San Román, Francisco Calvo, Ariana González, Juan José Gómez Doblas, Ana Revilla, Juan Antonio Castillo and Carlos González Juanatey.Expert Reviewers for the 2017 ESC/EACTS Guidelines for the Management of Valvular Choroba: Juan José Gómez Doblas, Teresa López Fernández, Manuel Barreiro, María José Oliva, Laura Galian Gay, Ana Serrador, Pilar Jiménez Quevedo, Manuel Pan, Miguel A. 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