

Essential Messages from ESC Guidelines

Committee for
Practice Guidelines

VHD

2017 ESC/EACTS Guidelines
for the Management of
Valvular Heart Disease

Essential Messages

2017 ESC/EACTS Guidelines for the management of valvular heart disease*

The Task Force for the Management of Valvular Heart Disease of the European Society of Cardiology (ESC) & the European Association for Cardio-Thoracic Surgery (EACTS)

ESC Chairperson

Helmut Baumgartner

Division of Adult Congenital
& Valvular Heart Disease
Dept. of Cardiovascular Medicine
University Hospital Muenster
Albert Schweitzer Campus 1, Building A1
D-48149 Muenster, Germany
Tel: **+49 251 834 6110**
Fax: **+49 251 834 6109**
Email: **helmut.baumgartner@ukmuenster.de**

EACTS Chairperson

Volkmar Falk

Department of Cardiothoracic & Vascular Surgery
German Heart Center, Augustenburger Platz 1
D-13353 Berlin, Germany
& Department of Cardiovascular Surgery
Charite Berlin, Charite platz 1
D-10117 Berlin, Germany
Tel: **+49 30 4593 2000**
Fax: **+49 30 4593 2100**
Email: **falk@dhzb.de**

Task Force Members

Jeroen J. Bax (The Netherlands), Michele De Bonis¹ (Italy), Christian Hamm (Germany), Per Johan Holm (Sweden), Bernard Iung (France), Patrizio Lancellotti (Belgium), Emmanuel Lansac¹ (France), Daniel Rodriguez Muñoz (Spain), Raphael Rosenhek (Austria), Johan Sjögren¹ (Sweden), Pilar Tornos Mas (Spain), Alec Vahanian (France), Thomas Walther¹ (Germany), Olaf Wendler¹ (UK), Stephan Windecker (Switzerland), Jose Luis Zamorano (Spain)

¹ Representing the European Association for Cardio-Thoracic Surgery (EACTS)

ESC entities having participated in the development of this document:

Associations: Acute Cardiovascular Care Association (ACCA), European Association of Cardiovascular Imaging (EACVI), European Association of Percutaneous Cardiovascular Interventions (EAPCI), Heart Failure Association (HFA).

Working Groups: Cardiovascular Pharmacotherapy, Cardiovascular Surgery, Grown-up Congenital Heart Disease, Valvular Heart Disease.

*Adapted from the ESC/EACTS Guidelines for the Management of Valvular Heart Disease (European Heart Journal 2017;38:2739-2791) - doi:10.1093/eurheartj/ehx391).

ESSENTIAL MESSAGES FROM THE 2017 ESC/EACTS GUIDELINES FOR THE MANAGEMENT OF VALVULAR HEART DISEASE

Table of contents

- Section 1 - Key messages
- Section 2 - Main gaps in evidence

Key messages

General

- Precise evaluation of the patient's history and symptomatic status as well as proper physical examination are crucial for the diagnosis and management of VHD.
- Echocardiography is the key technique to diagnose VHD and assess its severity and prognosis. Other non-invasive investigations such as stress testing, CMR, CT, fluoroscopy and biomarkers are complementary, and invasive investigation beyond preoperative coronary angiography is restricted to situations where non-invasive evaluation is inconclusive.
- Risk stratification is essential for decision making to weigh the risk of intervention against the expected natural history of VHD.
- Decision making in elderly patients requires special considerations, including life expectancy and expected quality of life, with regards to comorbidities and general condition (frailty).
- Heart valve centres with highly specialized multidisciplinary teams, comprehensive equipment and sufficient volumes of procedures are required to deliver high-quality care and provide adequate training.
- NOACs may be used in patients with atrial fibrillation and aortic stenosis, aortic regurgitation, mitral regurgitation or aortic bioprostheses >3 months after implantation but are contraindicated in mitral stenosis and mechanical valves.

Aortic regurgitation

- The evaluation of aortic regurgitation requires consideration of valve morphology and the mechanism and severity of regurgitation, including careful assessment of aortic dilatation.
- In asymptomatic patients with severe aortic regurgitation, careful follow-up of symptomatic status and LV size and function is mandatory.
- The strongest indication for valve surgery is the presence of symptoms (spontaneous or on exercise testing) and/or the documentation of LVEF <50% and/or end-systolic diameter >50 mm.
- In patients with a dilated aorta, definition of the aortic pathology and accurate measurements of aortic diameters are crucial to guide the timing and type of surgery.
- Aortic valve repair and valve-sparing aortic surgery instead of aortic valve replacement should be considered in selected cases in experienced centres.

Aortic stenosis

- The diagnosis of severe aortic stenosis requires consideration of AVA together with flow rate, pressure gradients (the most robust measurement), ventricular function, size and wall thickness, degree of valve calcification and blood pressure, as well as functional status.
- The assessment of the severity of aortic stenosis in patients with low gradient and preserved ejection fraction remains particularly challenging.

Key messages (continued)

- The strongest indication for intervention remains symptoms of aortic stenosis (spontaneous or on exercise testing).
- The presence of predictors of rapid symptom development can justify early surgery in asymptomatic patients, particularly when surgical risk is low.
- Although current data favour TAVI in elderly patients who are at increased risk for surgery, particularly when a transfemoral access is possible, the decision between TAVI and SAVR should be made by the Heart Team after careful, comprehensive evaluation of the patient, weighing individually the risks and benefits period.

Mitral regurgitation

- Echocardiography is essential to assess the aetiology of mitral regurgitation, as well as valve anatomy and function. An integrative approach is needed to assess the severity of mitral regurgitation.
- Indication for intervention in primary mitral regurgitation is guided by symptoms and risk stratification that includes the assessment of ventricular function and size, atrial fibrillation, systolic pulmonary pressure and LA size.
- In secondary mitral regurgitation, there is no conclusive evidence for a survival benefit after mitral valve intervention. Mitral surgery is recommended concomitantly in patients with an indication for CABG and may be considered in patients who are symptomatic despite optimal medical therapy (including CRT if indicated) and who have a low surgical risk when revascularization is not indicated.
- Mitral valve repair is the preferred method, but mitral valve replacement should be considered in patients with unfavourable morphological characteristics.
- Outcomes of mitral valve repair depend on surgeon experience and centre-related volume.
- Percutaneous edge-to-edge repair may be considered in patients not at low surgical risk, avoiding futility.

Mitral stenosis

- Most patients with severe mitral stenosis and favourable valve anatomy currently undergo PMC.
- Decision making as to the type of intervention in patients with unfavourable anatomy is still a matter of debate and must take into account the multifactorial nature of predicting the results of PMC.

Tricuspid stenosis and tricuspid regurgitation

- Tricuspid stenosis is a rare condition, whereas tricuspid regurgitation is more common, especially in its secondary form.
- For appropriate management, secondary tricuspid regurgitation has to be clearly distinguished from primary tricuspid regurgitation.

Key messages (continued)

- Similar to mitral regurgitation, primary tricuspid regurgitation requires intervention sufficiently early to avoid secondary damage of the RV, which is associated with poor outcome.
- Secondary tricuspid regurgitation should be liberally treated at the time of left-sided valve surgery.
- Consideration of isolated surgery of secondary tricuspid regurgitation after previous left-sided valve surgery requires comprehensive assessment of the underlying disease, pulmonary haemodynamics and RV function.

Combined and multiple-valve diseases

- In combined VHD, pathology is considered severe even if both stenosis and regurgitation are only of moderate severity and pressure gradients become of major importance for assessment.
- Management of multiple valve disease is dictated by the predominant VHD.

Prosthetic valves

- The choice between a mechanical prosthesis and a bioprosthesis should not overstress the role of age and should take into account the wishes of the informed patient.
- Patients with a mechanical prosthesis require lifelong treatment using VKA with a target INR adapted to the prosthesis and patient characteristics.
- Low-dose aspirin should be added to VKA only in selected patients with a mechanical prosthesis who have atherosclerosis or recurrent embolism.
- The risk of thromboembolism and bleeding is higher during the postoperative period and requires increased awareness of the monitoring of anticoagulant therapy.
- The management of anticoagulant therapy during non-cardiac surgery should be adapted to the type of surgery. Minor surgical procedures generally do not require interruption of anticoagulation.

Management during non-cardiac surgery

- In symptomatic patients with severe aortic stenosis, aortic valve replacement or TAVI should be considered before non-cardiac surgery.
- In patients with severe mitral stenosis and symptoms or pulmonary artery pressure >50 mmHg, PMC should be considered before non-cardiac surgery.

Management during pregnancy

- Pregnancy should be discouraged in women with severe mitral stenosis and severe symptomatic aortic stenosis.
- Pregnancy in women with a mechanical valve, especially in the mitral position, is associated with a high risk for maternal and foetal complications. Therapeutic anticoagulation during pregnancy is of utmost importance in these patients.

Main gaps in evidence

General

- Better tools for risk stratification need to be developed, particularly for the decision between surgery and catheter intervention and for the avoidance of futile interventions.
- Minimum volumes of procedures per operator and per hospital that are required to achieve optimal treatment results need to be defined.
- The safety and efficacy of NOACs in patients with surgical or transcatheter bioprostheses in the first 3 months after implantation should be studied.

Aortic regurgitation

- The impact of earlier markers of LV dysfunction on postoperative outcome requires further research.
- Criteria for the decision between valve replacement and valve repair must still be refined.
- Potential differences in the risk of aortic complications depending on subtypes of aortic aneurysms (site and morphology) should be studied.
- The effect of medical treatment on aortic enlargement in patients with bicuspid aortic valve needs to be studied.

Aortic Stenosis

- The impact of earlier markers of LV dysfunction on postoperative outcome requires further research.
- The identification of patients with low-gradient aortic stenosis who have severe stenosis and would benefit from intervention requires improvement.
- The criteria for identification of patients who would benefit from early elective surgery in asymptomatic severe aortic stenosis requires further research.
- Long-term follow-up after TAVI is required; in particular, the long-term durability of the valves needs to be studied.
- Criteria for the decision between TAVI and SAVR in patients at increased operative risk who are eligible for both must be refined and must be studied in surgical low-risk patients.
- Criteria for when TAVI should no longer be performed since it would be futile need to be further defined period.

Mitral regurgitation

- The potential role of elective mitral valve surgery in asymptomatic patients with severe primary mitral regurgitation with preserved ventricular size and function who are in sinus rhythm and have not developed a high pulmonary artery pressure requires investigation in a randomized controlled trial.
- The impact of earlier markers of LV dysfunction on postoperative outcome requires further research.
- The thresholds to define severe secondary mitral regurgitation are controversial and need to be evaluated with regards to their impact on prognosis after mitral valve intervention.

Main gaps in evidence (continued)

- The potential impact of mitral valve intervention (surgery and catheter intervention) on survival in patients with secondary mitral regurgitation needs to be evaluated.
- The new percutaneous valve repair and valve implantation techniques require further evaluation.

Mitral Stenosis

- The scores predicting the results and complications of PMC, particularly those of severe mitral regurgitation, must be refined.
- The potential role of transcatheter mitral valve implantation in high-risk patients is to be determined, particularly those with severe degenerative mitral stenosis.

Tricuspid regurgitation

- Criteria for optimal timing of surgery in primary tricuspid regurgitation require refinement.
- Criteria for concomitant tricuspid valve surgery at the time of left-sided surgery in patients without severe tricuspid valve disease require refinement.
- The potential role of transcatheter tricuspid valve treatment in high-risk patients needs to be determined.

Combined and multiple-valve diseases

- More data on the natural history and the impact of intervention on outcome are required to better define the indications for intervention.

Prosthetic valves

- The safety and efficacy of very-low-target INRs (median <2.5) in patients with a mechanical prosthesis in the aortic position should be further studied.
- The safety and efficacy of NOACs in patients with a mechanical prosthesis require further research.
- The safety and efficacy of low-dose aspirin associated with contemporary target INRs in patients with a mechanical prosthesis, according to the presence or absence of atherosclerosis, require further evaluation.
- Optimal early antithrombotic therapy after implantation of surgical and transcatheter aortic bioprostheses needs to be better defined.
- Long-term outcome data of transcatheter valve-in-valve and valve-in-ring procedures are required.

Management during pregnancy

- The optimal management of pregnant women with mechanical heart valves with regards to the antithrombotic regimen needs to be better defined.

© 2018 The European Society of Cardiology

No part of this document may be translated or reproduced in any form without written permission from the ESC.

The following material was adapted from the 2017 ESC/EACTS Guidelines for the Management of Valvular Heart Disease (European Heart Journal 2017;38:2739-2791) - doi:10.1093/eurheartj/ehx391).

To read the full report as published by the European Society of Cardiology, visit our Web Site at: www.escardio.org/guidelines

Copyright © European Society of Cardiology 2018 - All Rights Reserved.

The content of these European Society of Cardiology (ESC) Guidelines has been published for personal and educational use only. No commercial use is authorized. No part of the ESC Guidelines may be translated or reproduced in any form without written permission from the ESC. Permission can be obtained upon submission of a written request to ESC, Practice Guidelines Department, Les Templiers - 2035, Route des Colles - CS 80179 Biot - 06903 Sophia Antipolis Cedex - France. Email: guidelines@escardio.org

Disclaimer:

The ESC Guidelines represent the views of the ESC and were produced after careful consideration of the scientific and medical knowledge and the evidence available at the time of their dating.

The ESC is not responsible in the event of any contradiction, discrepancy and/or ambiguity between the ESC Guidelines and any other official recommendations or guidelines issued by the relevant public health authorities, in particular in relation to good use of health care or therapeutic strategies. Health professionals are encouraged to take the ESC Guidelines fully into account when exercising their clinical judgment as well as in the determination and the implementation of preventive, diagnostic or therapeutic medical strategies. However, the ESC Guidelines do not override in any way whatsoever the individual responsibility of health professionals to make appropriate and accurate decisions in consideration of each patient's health condition and in consultation with that patient and the patient's caregiver where appropriate and/or necessary. Nor do the ESC Guidelines exempt health professionals from taking careful and full consideration of the relevant official updated recommendations or guidelines issued by the competent public health authorities in order to manage each patient's case in light of the scientifically accepted data pursuant to their respective ethical and professional obligations. It is also the health professional's responsibility to verify the applicable rules and regulations relating to drugs and medical devices at the time of prescription.



European Society of Cardiology
Les Templiers - 2035, Route des Colles
CS 80179 Biot
06903 Sophia Antipolis Cedex - France

Phone: +33 (0)4 92 94 76 00
Fax: +33 (0)4 92 94 76 01
Email: guidelines@escardio.org

www.escardio.org/guidelines