

**Treatment options of severe valve  
regurgitation in female seeking  
pregnancy**

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All women with VHD should ideally have preconception evaluation, including advice on risk prediction and contraception , by a joint cardiac–obstetric team seeking advice from other specialties.

Careful counselling on maternal and offspring risk should be done according to the CARPREG (CARdiac disease in PREGnancy) risk score or modified World Health Organization (WHO) classification

This should include information on complications such as heart failure and valve thrombosis which can occur during, but also beyond the immediate delivery period. Also the consequences of the medication that may be required (for example warfarin embryopathy) need to be discussed

**The following conditions are generally considered contraindications to pregnancy:**

- Severe pulmonary hypertension of any etiology.
- Severe fixed obstructive cardiac lesions.
- NYHA class III-IV heart failure.
- Left ventricular ejection fraction <40%.
- Prior peripartum cardiomyopathy .
- Dilated unstable aorta of 40 to 45 mm or above.
- Severe cyanosis.

**Left-sided regurgitant valve lesions** are in general well tolerated in pregnancy because the fall in systemic vascular resistance leads to a reduction in the regurgitant volume.

However, acute regurgitation, as well as regurgitation in the presence of poor ventricular function, is poorly tolerated.

- **MITRAL REGURGE**
- **AORTIC REGURGE**
- **TRICUSPID REGURGE**

## **Mitral regurgitation**

- **Etiology :**
  - Rheumatic, congenital
- **Risk to the mother:**
  - Moderate-to-severe MR with good LV function:** low risk with good care
  - Severe MR with LV dysfunction:** high risk of heart failure or arrhythmia
- **Risk to the foetus:**
  - No increased risk of foetal complications

- **Possible interventions:**
  - Non-pregnant:** patients with severe regurgitation and symptoms or impaired LV function or dilatation should be referred for pre-pregnancy surgery
  - Pregnant:** Symptoms of fluid overload can be managed with diuretics. Surgery in women with intractable HF.
- **Mode of delivery:**
  - Vaginal delivery is preferable.

## Aortic regurgitation

- **Etiology :**
  - Rheumatic, congenital, degenerative
- **Risk to the mother:**
  - Moderate-to-severe AR with good LV function:** low risk with good care
  - Severe AR with LV dysfunction:** high risk of heart failure or arrhythmia
- **Risk to the foetus:**
  - No increased risk of foetal complications

- **Possible interventions:**
  - Non-pregnant:** patients with severe regurgitation and symptoms or impaired LV function or severe dilatation should be referred for pre-pregnancy surgery
  - Pregnant:** Symptoms of fluid overload can be managed with diuretics and bed rest. Surgery in women with intractable HF, preferably after delivery.
- **Mode of delivery :**
  - Vaginal delivery is preferable.

## Tricuspid regurgitation

- **Etiology:**
  - Functional, Ebstein's anomaly, endocarditis
- **Risk to the mother:**
  - Moderate-to-severe TR with good RV function:** arrhythmias
  - Moderate-to-severe TR with impaired RV function:** heart failure
- **Risk to the foetus:**
  - No increased risk of foetal complications

- **Possible Interventions:**
  - Non-pregnant:** patients with severe regurgitation and symptoms or impaired LV and/or RV function or dilatation should be referred for pre-pregnancy TV repair
  - Pregnant:** severe TR can usually be managed medically with diuretic
- **Mode of delivery :**
  - Vaginal delivery is preferable.

## 2014 AHA/ACC Guideline for the Management of Patients With Valvular Heart Disease

Developed in Collaboration with the American Association for Thoracic Surgery, American Society of Echocardiography, Society for Cardiovascular Angiography and Interventions, Society of Cardiovascular Anesthesiologists, and Society of Thoracic Surgeons

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## Native Valve Regurgitation: Diagnosis and Follow-Up

Recommendations	COR	LOE
All patients with suspected valve regurgitation should undergo a clinical evaluation and TTE before pregnancy	I	C
All patients with severe valve regurgitation (stages C and D) should undergo pre-pregnancy counseling by a cardiologist with expertise in managing patients with VHD during pregnancy	I	C



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## Native Valve Regurgitation: Diagnosis and Follow-Up (cont.)

Recommendations	COR	LOE
All patients referred for a valve operation before pregnancy should receive pre-pregnancy counseling by a cardiologist with expertise in managing patients with VHD during pregnancy regarding the risks and benefits of all options for operative interventions, including mechanical prosthesis, bioprosthesis, and valve repair	I	C



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## Native Valve Regurgitation: Diagnosis and Follow-Up (cont.)

Recommendations	COR	LOE
Pregnant patients with severe regurgitation (stages C and D) should be monitored in a tertiary care center with a dedicated Heart Valve Team of cardiologists, surgeons, anesthesiologists, and obstetricians with expertise in managing high-risk cardiac patients	I	C
Exercise testing is reasonable in asymptomatic patients with severe valve regurgitation (stage C) before pregnancy	IIa	C




## Native Valve Regurgitation: Intervention

Recommendations	COR	LOE
Valve repair or replacement is recommended before pregnancy for symptomatic women with severe valve regurgitation (stage D)	I	C
Valve operation for pregnant patients with severe valve regurgitation is reasonable only if there are refractory NYHA class IV HF symptoms (stage D)	IIa	C




## Native Valve Regurgitation: Intervention (cont.)

Recommendations	COR	LOE
Valve repair before pregnancy may be considered in the asymptomatic patient with severe MR (stage C) and a valve suitable for valve repair, but only after detailed discussion with the patient about the risks and benefits of the operation and its outcome on future pregnancies	IIb	C
Valve operations should not be performed in pregnant patients with valve regurgitation in the absence of severe intractable HF symptoms	III: Harm	C



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



**Table 1 Preconception evaluation in any women with valvular heart disease planning a pregnancy or assessment in early pregnancy**

- Careful history, family history, and physical examination, including screening for connective tissue disorders
- 12-lead electrocardiogram
- Echocardiogram including assessment of left- and right-ventricular and valve function
- Exercise test to be considered for objective assessment of functional classification
- Careful counselling including maternal risks for complications and mortality, information on choices of therapy (heparin vs. Vitamin K), risk of miscarriage, risk of early delivery, and small for gestational age and, when applicable, risk of foetal congenital defect (inheritance risk)

**EACTS** **Choice of the aortic/mitral prosthesis in favour of a bioprosthesis (continued)** **ESC**  
European Society of Cardiology

Recommendations	Class	Level
A bioprosthesis should be considered in patients for whom there is a low likelihood and/or a low operative risk of future redo valve surgery.	Ia	C
A bioprosthesis should be considered in young women contemplating pregnancy.	Ia	C
A bioprosthesis should be considered in patients aged >65 years for a prosthesis in the aortic position, or age >70 years in a mitral position*, or those with life expectancy lower than the presumed durability of the bioprosthesis.	Ia	C

\* Between 60 and 65 (aortic prosthesis) / 65 and 70 years (mitral prosthesis), both valves are acceptable and the choice requires careful analysis of factors other than age

[www.escardio.org/guidelines](http://www.escardio.org/guidelines) 2017 ESC/EACTS Guidelines for the Management of Valvular Heart Disease (European Heart Journal 2017 - doi:10.1093/eurheartj/ehx393) 84

## Conclusion

VHD remains an important cause of morbidity and mortality in postpartum women.

All women with known VHD should be seen and counseled on pregnancy prior to conception.

Left-sided regurgitant valves are well tolerated in pregnancy compared to acute regurgitation and left and/or right ventricular dysfunction, which are poorly tolerated.

When assessing a woman for valve replacement in the context of possible pregnancy, one must consider the risks and benefits involved with artificial, bioprosthesis/tissue, and mechanical valves focusing on the need for anticoagulation, valve hemodynamics, thrombotic risk, durability, and ultimate impact on fetal outcome.

**Tissue valves** (xenografts, homografts, and autografts) require no anticoagulation, but are associated with a high risk of valve deterioration and need for future reoperation.

**Mechanical valves** (caged ball, tilting disk, and bileaflet valves) have the best durability, but carry a thromboembolism risk with the continuous need for anticoagulation.

- **Valve repair** we have limited data about safety and long term outcomes in pregnancy.

**THANK YOU**