



**European  
Reference  
Network**

for rare or low prevalence  
complex diseases



**Network**

Vascular Diseases  
(VASCERN)

VASCERN DO'S AND DON'TS FACTSHEETS  
FOR RARE VASCULAR DISEASE PATIENTS  
FACING FREQUENT SITUATIONS

# Marfan syndrome and related disorders

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# VASCERN

VASCERN, the European Reference Network on Rare Multisystemic Vascular Diseases, is dedicated to gathering the best expertise in Europe in order to provide accessible cross-border healthcare to patients with rare vascular diseases (an estimated 1.3 million concerned). These include arterial disease (affecting aorta to small arteries), arterio-venous anomalies, venous malformations, and lymphatic diseases.

VASCERN currently gathers 48 expert teams from 39 highly specialised multidisciplinary Healthcare Providers (HCPs), plus 6 additional Affiliated Partner centers from 19 EU Member States, as well as various European Patient Organisations, and is coordinated in Paris, France.

Through our 6 Rare Disease Working Groups (RDWGs) as well as several thematic WGs and the ePAG (European Patient Advocacy Group), we aim to improve care, promote best practices and guidelines, reinforce research, empower patients, provide training for healthcare professionals and realise the full potential of European cooperation for specialised healthcare by exploiting the latest innovations in medical science and health technologies.

More information available at: <https://vascern.eu>

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# Abbreviations

**HTAD-WG:** Heritable Thoracic Aortic Diseases Working Group

**MFS:** Marfan syndrome

**IVF:** In vitro fertilization

**$\beta$ blockers:** beta-blockers

# Introduction

These factsheets are based on existing French factsheets which have been reviewed and adjusted by the experts of the VASCERN HTAD-WG.

The HTAD-WG agrees with the recommendations but wishes to emphasize that these are recommendations made by consensus at expert level. We would recommend that these factsheets be used as a guide to implement locally agreed policies.

These factsheets are meant for patients as well as for caregivers. Implementing these recommendations should go hand in hand with strategies to educate patients about medical situations where specific care is required and about relevant symptoms and how to act when they occur.

# Pregnancy, delivery and postpartum care

## 1.1 Before Pregnancy



### WHAT IS RECOMMENDED

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- Address the issue of pregnancy in both male and female Marfan syndrome (MFS) patients of childbearing age in a systematic manner to inform them of the options of prenatal/pre-implantation diagnostics. Inform women as well about specific management and care recommendations - also include the optimal conditions of follow-up and a written delivery plan.
- As soon as a pregnancy is being considered by someone suspected of having MFS, refer him and/or her to a specialized centre, if this has not already been done, for a full assessment and pre-pregnancy counselling.
- Plan the pregnancy in collaboration with the specialized centre.
- Assess the risk of aortic dissection before pregnancy by measuring the aortic diameter.
- <40 mm: pregnancy allowed.
- 40-45 mm: pregnancy allowed on a case by case basis.
- >45 mm: contra-indication for pregnancy with limited evidence. This aortic diameter may warrant prior surgery.
- No data is available on the effect of hormonal procedures (IVF). The same thresholds as for pregnancy (contra-indicated when ARD >45 mm) should be used.

# Pregnancy, delivery and postpartum care

## 1.2 During Pregnancy

The risk of aortic dissection is increased during pregnancy, delivery and the postpartum period



### WHAT IS RECOMMENDED

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- Treatment with  $\beta$ blockers throughout the entire pregnancy and in the postpartum period. Check the type of  $\beta$ blocker: atenolol is the least favourable; propranolol, metoprolol and labetalol are preferred.
- Monitor the aortic diameters (including abdominal diameters) by ultrasound at least twice during pregnancy: 20-24w and 32-36w. More examinations may be considered if the aortic diameter is above 40 mm or when increased growth is noted.
- Monitor blood pressure on a regular basis (target <130/80 mm Hg).
- Foetal growth should be monitored carefully to assess the effect of  $\beta$ blockers.



### WHAT YOU SHOULD NOT DO

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- Prohibit pregnancy for all women with Marfan Syndrome.
- Stop treatment with beta-blockers during the pregnancy or at delivery.

# Pregnancy, delivery and postpartum care

## 1.3 Delivery



### WHAT IS RECOMMENDED

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- Assess the risk of aortic dissection before delivery based on the aortic diameter.
- <40mm: vaginal delivery. Shorten the duration of stage 2 of labour with vacuum extractors, etc.
- 40-45 mm: delivery on a case by case basis (contact the expert centre).
- >45 mm: Caesarean section and plan the delivery by limiting the duration of the third trimester, the period of maximum risk.
- A tailored delivery should be formalized. Different factors should be taken into account: distance of home to hospital, aortic diameter, etc... Labour should be limited to a minimum.
- Adequate epidural anesthesia should be performed with caution, considering dural leakage and in some cases dose adjustment.



### WHAT YOU SHOULD NOT DO

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- Administer an epidural without first checking the condition of the spine (scoliosis, spondylolisthesis, dural ectasia).
- Stop treatment with  $\beta$ blockers.
- Prescribe beta-mimetics.



# Pregnancy, delivery and postpartum care

## 1.4 Postpartum care



### WHAT IS RECOMMENDED

- Cardiac ultrasound in the mother within 48 hours postpartum and after 6 weeks.
- Depending on the heart rate of the baby at birth, additional monitoring can be decided by the paediatrician.

#### **Breastfeeding**

- Breastfeeding is generally not contraindicated.

# Physical activity

Sports can be of great value considering body weight, blood pressure and fitness of the patient. Many symptoms like aches, pains and migraines may benefit from exercise. Sports can also be dangerous if they are accompanied by a significant increase in arterial blood pressure or if there is a risk of impact (to the eye in particular).



### WHAT IS RECOMMENDED

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- Endurance sports such as swimming, walking, running, and cycling.
- The physical activity level should be adjusted by the cardiologist based on the evaluation of aortic dimensions and valvular function, both in children and adults.



### WHAT YOU SHOULD NOT DO

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- Abrupt, isometric exercises, such as weightlifting, football, basketball, handball, and tennis.
- Expose oneself to the risk of bodily collisions which could increase the likelihood of ectopia lentis.

# Anaesthesia

General anaesthesia does not pose any particular problems, apart from an interaction with  $\beta$ blocker treatment or anticoagulants ([www.orphananaesthesia.eu](http://www.orphananaesthesia.eu)).



## WHAT YOU SHOULD NOT DO

---

- Expose the patient to blood pressure fluctuations.

# Antiplatelet agents and anticoagulants



### WHAT IS RECOMMENDED

---

- Indications and contraindications for antiplatelet and anticoagulant treatments are identical in Marfan and non-Marfan patients.



### WHAT YOU SHOULD NOT DO

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- Modify the prescription of antiplatelet agents or anticoagulants as a result of a diagnosis with Marfan Syndrome.

# Stroke

The incidence of stroke is not increased in patients with Marfan Syndrome.



### WHAT IS RECOMMENDED

---

- Rule out aortic dissection with extension to the supra-aortic trunks.
- Management and treatment are identical for Marfan and non-Marfan patients.



### WHAT YOU SHOULD NOT DO

---

- Stop treatment with  $\beta$ blockers.
- Delay management and treatment as a result of a diagnosis of Marfan Syndrome.

# Orthopaedic surgery



### WHAT YOU SHOULD NOT DO

---

- Stop  $\beta$ blockers - expose the patient to blood pressure fluctuations.

# Colonoscopy, gastroscopy and laparoscopy

No particular issues except in cases with dissection of the descending aorta.



### WHAT IS RECOMMENDED

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- A high degree of caution in cases with dissection of the descending aorta due to the high risk of blood pressure variations.



### WHAT YOU SHOULD NOT DO

---

- Expose the patient to blood pressure fluctuations.

# Retinal detachment

There are no specific issues with management and treatment even though patients have a higher incidence of retinal detachment.



# Aortic dissection



### WHAT IS RECOMMENDED

---

- Consider aortic dissection if chest pain/back pain/abdominal pain is present in a patient with Marfan syndrome or a Marfan-related syndrome.
- Treat the dissection as an emergency, following the same protocols as with a non-Marfan patient.



### WHAT YOU SHOULD NOT DO

---

- Use a stent as a first option in the presence of a dissection of the descending aorta.

# **Extra-aortic peripheral arterial dissection**



## **WHAT IS RECOMMENDED**

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- Ensure that there is no evidence of aortic dissection.



## **Marfan syndrome and related disorders**

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# **Pulmonary embolism**

Thrombolysis is not contraindicated.



## **Marfan syndrome and related disorders**

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# **Fibroscopy**

No specific recommendations.



## Marfan syndrome and related disorders

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# Glaucoma

Glaucoma is potentially related to lens dislocation.  
Check the position of the lens.

# Spontaneous haemoperitoneum



## WHAT IS RECOMMENDED

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- Rule out aortic dissection.



## **Marfan syndrome and related disorders**

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# **Infiltrations**

No particular issues except in cases of anticoagulant treatment.

# Contraindicated medications

There are no specific contraindications to Bromocriptin, or any other drug, in patients with Marfan syndrome



### WHAT IS RECOMMENDED

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- QT prolongation should be checked on the electrocardiography prior to proposing QT prolonging drugs.



# Odontology/Dentistry

No specific issues with management and treatment, even though patients have a very narrow jaw.



### WHAT IS RECOMMENDED

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- Regular monitoring.
- Early orthodontic follow-up due to dental misalignments.
- The prevention of endocarditis, as in the general population (only in the case of a history of valve surgery or if previous history of endocarditis).

# Pneumothorax

No particular issues except in cases of anticoagulant treatment.



### WHAT IS RECOMMENDED

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- Indications and treatments are identical for Marfan and non-Marfan patients.
- Perform aortic imaging if there is the slightest suspicion of aortic dissection.



### WHAT YOU SHOULD NOT DO

---

- Stop treatment with  $\beta$ blockers.
- Delay care as a result of the diagnosis of Marfan syndrome.

# Acute coronary syndrome



## WHAT IS RECOMMENDED

---

- A coronary dissection may be seen in syndromes related to Marfan Syndrome, and this diagnosis should be considered in a young person.
- Ensure that there is no aortic dissection.

# Abdominal/gastrointestinal/ gynaecological emergencies

No particular issues except in cases of anticoagulant treatment.



### WHAT IS RECOMMENDED

---

- Rule out aortic dissection if there is the slightest doubt or in the event of unexplained pain.
- Indications and treatments are identical in Marfan and non-Marfan patients.



### WHAT YOU SHOULD NOT DO

---

- Administer a spinal anaesthetic without first checking the condition of the spine (scoliosis, spondylolisthesis, dural ectasia).
- Stop treatment with  $\beta$ blockers.
- Delay treatment as a result of the diagnosis of Marfan Syndrome.

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# Marfan syndrome and related disorders

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