

# Diseases of the cardiovascular system and pregnancy

Pregnancy is an onslaught on the cardiovascular system. A healthy woman can handle it without any problems, on the other hand, a number of latent diseases can manifest themselves during pregnancy. Critical from this point of view is mainly **3. trimester** and **period of birth**.

## Most significant changes

- an increase in the volume of circulating blood (peak in the 32nd week) - up to 1.5-2 l;
- *increased cardiac output*, increases frequency and stroke volume;
- cardiac output increases by 50 % (if the myocardium does not have functional reserves, failure may occur);
- Blood pressure often drops, reaching an average of 105/60 in the 2nd trimester.

## During childbirth

- anxiety, pain, hyperventilation, uterine contractions - all this affects circulation;
- cardiac output increases by up to 50 % during uterine contractions.

## After birth

- venous return will increase significantly - decompression inferior vena cava, autotransfusion from a contracted uterus.

Although some symptoms of heart disease occur normally during pregnancy (reduced exercise tolerance, increased fatigue, presyncopal states, tachycardia, swelling of the left ventricle, etc.), they still need to be paid attention to. For the first two degrees of NYHA, there is no objection to pregnancy from an obstetric point of view.

## Congenital heart defects

 For more information see *Congenital Heart Defects*.

### Atrial Septal Defect

Pregnancy usually proceeds undisturbed, paradoxical embolizations are rare.

### Ventricular septal defect

If there is no pulmonary hypertension, pregnancy is also relatively fine. ATB prophylaxis of endocarditis is recommended.

### Coarctation of the aorta

The defect should be "operated on before pregnancy", pregnancy in the presence of the defect is not recommended (risk of rupture, dissection). Hypertension therapy in the pre-coarctation area could compromise the perfusion of the post-coarctation area.

### Bicuspid aortic valve

It may cause **hemodynamically significant stenosis in the young, which may be asymptomatic but manifest during pregnancy. A valve operation**' is recommended with a gap before conception. If it appears at the beginning of pregnancy, we recommend that the woman terminate the pregnancy, have surgery, and then plan another pregnancy. If the pregnancy continues, it is high risk. Surgery in extracorporeal circulation is highly risky for the fetus (50% mortality).

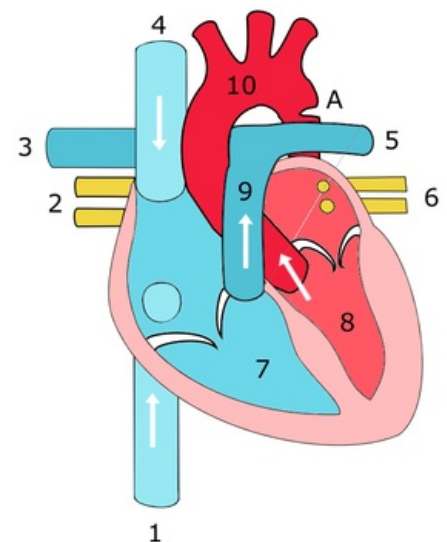
### Tetralogy of Fallot

It's fine in the operated ones, it's rare in the non-operated ones.

### Marfan Syndrome

During pregnancy, the risk of aortic dissection increases (especially in the 3rd trimester). We give  $\beta$ -blockers.

## Acquired heart defects



Coarctation of the aorta

 For more information see *Acquired Heart Defects*.

## Mitral Stenosis

It often manifests itself for the first time during pregnancy. In the case of sudden dyspnea, SV arrhythmia, we always indicate an echo. Treatment consists of small doses diuretic,  $\beta$ -blockers, balloon valvuloplasty (there is radiation exposure from the X-ray – we move it to the 3rd trimester best), we will ensure delivery [ [ATB]] and anticoagulants.

## Aortic Stenosis

A similar situation to the bicuspid valve.

## Mitral regurgitation

Pregnancy usually does not make the condition any worse.

## Flap replacements

During pregnancy, the degeneration of biological valves (mainly mitral) is accelerated. There is a high risk of thrombosis with mechanical ones, especially in the 2nd trimester. A number of authors recommend administering warfarin during this period despite the risks, switching to heparins again in the 3rd trimester.

## Cardiomyopathy

 For more information see *Cardiomyopathy*.

## Hypertrophic

Usually well tolerated pregnancy. There is no evidence that pregnancy increases the risk of sudden death.

## Pregnancy KMP

A specific type of dilated KMP, it is rare (1:15,000). It manifests as **cardiac failure in the peripartum period**. The treachery lies in the fact that it affects previously completely asymptomatic women. Genetic factors and high levels of prolactin and sFlt-1 play a role. In 30-45% it occurs together with preeclampsia.<sup>[1]</sup>

## Ischemic heart disease

It rarely occurs in young pregnant women (incidence increases in women after menopause). Rarely, acute myocardial infarction can occur in women (usually over 33).

## Links

### Related Articles

- Pregnancy
- Birth
- Hypertension in pregnancy

### Source

- BENEŠ, George. *Study Materials* [online]. [cit. 2009]. <<http://jirben.wz.cz>>.

### References

1. ERSBØLL, Anne S – DAMM, Peter – GUSTAFSSON, Finn. Peripartum cardiomyopathy: a systematic literature review. *Acta Obstet Gynecol Scand* [online]. 2016, vol. 95, no. 11, p. 1205-1219, Available from <<https://www.ncbi.nlm.nih.gov/pubmed/27545093>>. ISSN 0001-6349 (print), 1600-0412.