Srce i krvni sudovi 2019; 38(1): 38-57

Guidelines review

Management of the cardiovascular disease during pregnancy in the light of 2018 ESC Guidelines

Danijela Trifunović-Zamaklar[1,2], Natalija Gavrilović[1], Jelena Dudić[1], Marina Deljanin-Ilić[3]

[1]University of Belgrade, School of Medicine, Belgrade, Serbia, [2]Cardiology Clinic, Clinical Center of Serbia, Belgrade, Serbia, [3]Institute for Treatment and Rehabilitation 'Niska Banja', Clinic of Cardiology, University of Nis School of Medicine, Nis, Serbia

During the Forth Congress of the 34th American College of cardiology consortium chapter of Serbia and Republic of Srpska, **PR**actical aspects and comparative analysis of **AC**C/AHA and E**S**C guidelines **In S**erbia 2019 (**PRACSIS 2019**) will be held on Jahorina (March 29-31).

The 2018 ESC guidelines for the management of cardiovascular diseases during pregnancy, written by the Task Force for the Management of Cardiovascular Diseases during Pregnancy of the European Society of Cardiology (ESC) and endorsed by the International Society of Gender Medicine (IGM), the German Institute of Gender in Medicine (DGesGM), the European Society of Anaesthesiology (ESA), and the European Society of Gynecology (ESG) was presented at the ESC Congress in Munich held in August 2018.

Pregnancy is complicated by maternal disease in 1–4% of cases. New data about the prevalence and incidence of pregnancy-related heart disease are limited with sudden adult death syndrome, peripartum cardiomyopathy (PPCM), aortic dissection, and myocardial infarction (MI) as the most common causes of maternal death. Knowledge of the risks associated with cardiovascular disease (CVDs) during pregnancy and their management in pregnant women who suffer from serious pre-existing conditions is of pivotal importance for advising patients before pregnancy. Since all measures concern not only the mother but the foetus as well, the optimum treatment of both must be targeted.

Since the previous version of these Guidelines was published in 2012, new evidence has accumulated, particularly on diagnostic techniques, risk assessment, and the use of cardiovascular drugs. This made a revision of the recommendations necessary.

This new Guidelines put more significance on the classification of risk stratification (group I-IV according to modified World health organisation (WHO) classification) and introduced several updates that can be summarized into the form of the following key messages.

Key messages from 2018 ESC Guidelines for the management of cardiovascular diseases during pregnancy

- Because of increased risk of complications in pregnant women with heart disease it is recommended to perform the risk assessment in all women with cardiac diseases of childbearing age and before conception, using the mWHO classification of maternal risk (mWHO II–III, III, and IV), pre- delivery counselling should be performed in an expert centre by a **multidisciplinary team: the pregnancy heart team**.
- In women with mWHO class IV, pregnancy and consequently fertility treatment, is contraindicated.
- The following patients should be **counselled against pregnancy**:

– with a Fontan operation and additional comorbidities (ventricular dysfunction, arrhythmias, or valve regurgitation),
– with pulmonary artery hypertension (PAH),
– severe systemic ventricular dysfunction (EF <30% or New York Heart Association (NYHA) class III–IV),
– severe (re-)coarctation,
– systemic right ventricle with moderate or severely decreased ventricular function,
– with vascular Ehlers-Danlos syndrome,
– with severe aortic dilatation or (history of) aortic dissection,
– with severe mitral stenosis (MS) (even when asymptomatic),
– patients with severe aortic stenosis (AS) who are symptomatic, or asymptomatic patients with impaired left ventricle (LF) function or a pathological exercise test,
– if left ventricle ejectio fraction (LVEF) does not normalize in women with previous PPCM,

- Foetal echocardiography should be of advised to women with congenital or other possibly genetic heart disease in weeks 19–22 of pregnancy.
- **Delivery plan**:

- should be made between 20–30 weeks of pregnancy (induction, management of labour, delivery, postpartum surveillance),

Corresponding author: Danijela Trifunović- Zamaklar, MD, PhD, Cardiology Clinic, Clinical Center of Serbia, Belgrade, Serbia, 8 Koste Todorovića, 11000 Beograd, Srbija, E-mail: danijelatrif@gmail. Tel: +381 11 366 3303.

- Induction should be considered at 40 weeks of gestation in all women with cardiac disease,
- Vaginal delivery is the first choice for the majority of patients.
- Indications for caesarean section: pre-term labour in patients on oral anticoagulants (OAKs), aggressive aortic pathology, acute intractable heart failure (HF), severe forms of pulmonary hipertension (PH) (including Eisenmenger's syndrome)

- Because of high-risk of maternal morbidity (especially valve thrombosis and bleeding) and even mortality, **women with a mechanical valve prosthesis** should be managed in expert centres by a pregnancy heart team. Now, separate recommendations for women with low and high dose are given for vitamin K antagonists (VKA) use during the second and third trimesters.
- **For VTE prophylaxis and treatment**, LMWH is the agent of choice. LMWH should be monitored weekly by measuring anti-Xa levels with dose adjustment, if necessary. It is recommended that the therapeutic dose of LMWH is based on body weight. Thrombolytics in treatment of VTE should only be used in patients with severe hypotension or shock.
- Women with **DCM and HfrEF should** be informed about the risk of deterioration of the condition during gestation and peripartum. In women with PPCM and DCM, subsequent pregnancy is not recommended if LVEF does not normalize. Women with HF during pregnancy should be treated according to current guidelines for non-pregnant patients, respecting contraindications for some drugs in pregnancy. For initialization of inotropic therapy and more advanced treatment it is recommended to be transported to the expert centre.
- In patients with **PPCM**, bromocriptine treatment may be considered to stop lactation and enhance recovery (LV function).
- Beta-blockers during pregnancy and post-partum are recommended in patients with congenital LQTS and catecholaminergic polymorphic VT.
- Flecainide or propafenone are recommended for **prevention of SVT** in patients with WPW syndrome. Sotalol is deleted.
- Catheter ablation with electroanatomical systems should be considered in experienced centres in case of drug-refractory and poorly tolerated SVT.
- **Initiation of antihypertensive drug** treatment is recommended in all women with persistent elevation of BP≥ 150/95 mmHg and at values >140/90 mmHg in women with:
  – gestational hypertension (with or without proteinuria),
  – pre-existing hypertension with the superimposition of gestational hypertension,
  – hypertension with subclinical organ damage or symptoms at any time during pregnancy. Methyldopa, labetalol, and calcium antagonists are recommended treatment for hypertension in pregnancy.
- It is advised for women at high or moderate risk of **pre-eclampsia** to take 100–150 mg of acetylsalicylic acid daily from week 12 to week 36–37 in addition to their hypertension treatment.
- **Drug choice** with decision-making based on former FDA categories is no longer recommended. New information on pharmacokinetics in pregnancy, with detailed information on pharmacodynamics in animal experiments are recommended to serve as guidelines.
- In the case of an emergency, drugs that are not recommended by the pharmaceutical industry during pregnancy and breastfeeding should not be withheld from the mother. The potential risk of a drug and the possible benefit of the therapy must be weighed against each other.
- Other than few exceptions (such as some degree of aortic dilatation and severe asymptomatic MS**) indications for intervention** (surgical or catheter) in the majority of patients do not differ in women who consider pregnancy compared with other patients.

Further in the text below we present parts of this Guidelines with presentation of our cases and comments from the expert.

References

1. Regitz-Zagrosek V, Roos-Hesselink JW, Bauersachs J, Blomström-Lundqvist C, et al. 2018 ESC Guidelines for the management of cardiovascular diseases during pregnancy. Eur Heart J. 2018;39(34):3165-241.