Heart disease in pregnant women: Recent ESC guidelines

Les cardiopathies de la femme enceinte: recommandations récentes de la Société européenne de cardiologie

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New guidelines from the European Society of Cardiology (ESC) on the management of cardiovascular diseases during pregnancy were published recently in the December 2011 issue of the European Heart Journal [1]. This version differs markedly from the previous guidelines on the same topic, published in 2003 [2]. This is not the consequence of major changes in knowledge over the past decade, but rather is related to the way in which these new recommendations are presented. Recommendations are difficult to elaborate in the field of cardiovascular diseases during pregnancy because situations are highly heterogeneous and most data come from observational series with an inherent low level of evidence. Nevertheless, this is the first time that graded recommendations have been made available in this field. The low level of underlying evidence is illustrated by the fact that nearly all of the recommendations are of a level of evidence C. It should be stressed that specific American College of Cardiology/American Heart Association guidelines are not available for cardiovascular diseases during pregnancy.

Besides specific sections according to the different types of heart valve disease, the section ‘‘General Considerations’’ is much more developed than in the previous guidelines and provides detailed information on the specificities of investigations and interventions during pregnancy. In clinical practice, the general approach proposed for risk stratification requires particular attention. Even if risk stratification needs to be further refined according to the specificities of each type of heart disease, it is important that practitioners who are not familiar with heart disease in pregnant women can easily identify those in whom pregnancy may compromise maternal and/or foetal life. In these cases, women should be made aware of the risks of pregnancy, treated before pregnancy if indicated and, if seen...
during pregnancy, orientated towards specialized teams comprising obstetricians, cardiologists and anaesthesiologists with specific experience in the management of pregnant patients with heart disease.

A particular feature of heart diseases during pregnancy is the impact of epidemiology. Advances in the management of congenital heart disease explain why a high number of women now reach childbearing age. Thus congenital heart disease is now the most frequent heart disease in pregnant women in Western countries, accounting for 70–80% of all cardiovascular disease during pregnancy. Conversely, rheumatic heart disease remains the leading cardiovascular disease in developing countries [3]. This also explains why rheumatic heart disease is still the second most frequent cause of heart disease during pregnancy in Western countries, accounting for approximately 15% of cases, mainly because of population migration. It is estimated that approximately 1% of pregnancies are complicated by heart disease in Europe, accounting for 50,000 pregnancies per year in the European Union [4]. In a registry from the United Kingdom, heart disease was found to be the leading cause of death during pregnancy, with a constant increase of the number of cases over the past 20 years [4].

Congenital heart disease is a particularly heterogeneous entity, not only because of the diversity of the lesions involved but also because of the considerable discrepancies in pregnancy-related risks, which range from low risk in left to right shunts to a 30–40% maternal mortality in Eisenmenger syndrome. This information highlights the need for a tailored approach by practitioners having a particular expertise in congenital heart disease in adults [5].

It is important to draw attention to the persistent burden of rheumatic heart disease during pregnancy because of the trend towards a decreased awareness in Western countries. The diagnosis of rheumatic heart disease, in particular mitral stenosis, should not be missed in women given the high risk of pregnancy-related complications and the availability of percutaneous mitral commissurotomy enabling a safe and effective treatment even during pregnancy. Maternal mortality is now low (less than 3%) in pregnant women with mitral stenosis in Western countries [6–8]. In contrast, 15 pregnancy-related deaths occurred among 32 women with decompensated mitral stenosis in a recent series from sub-Saharan Africa [9]. Regarding the case of previously operated patients, the ESC guidelines stress the high risk related to pregnancy in women with mechanical heart valve prosthesis. A number of observational series have reported high risks of thromboembolism whatever the anticoagulation regimen used. No anticoagulant therapy is definitely favoured for the first trimester and the decision should be individualized. Overall, the European point of view is less restrictive than recommendations from the US with regard to the use of vitamin K antagonists in pregnant women with a mechanical prosthesis [10,11].

Cardiomyopathies are less frequent than other heart diseases but present a particular entity. Unlike other heart diseases, peripartum cardiomyopathy seems to be a direct consequence of pregnancy instead of the decompensation of a previous heart disease due to the haemodynamic stress inherent to pregnancy [12]. Recent data suggest that metabolites of prolactin may play a role in the pathophysiology of peripartum cardiomyopathy [13]. However, at the present time, the management of peripartum cardiomyopathy remains based on a non-specific therapy of heart failure due to systolic dysfunction. Complications are rare with hypertrophic cardiomyopathy, provided functional tolerance was good before pregnancy.

Coronary artery disease is rare during pregnancy although its frequency is increasing and it carries a poor prognosis [14]. Acute coronary syndromes should be managed invasively in most cases, with appropriate precautions to minimize radiation during percutaneous coronary interventions.

Arrhythmias are frequently associated with structural heart disease, which is the main determinant of prognosis. Electric cardioversion can be safely performed at each stage of pregnancy. Drug therapy should be conducted with caution.

Hypertension is frequent, occurring in 6–15% of pregnancies, and is a heterogeneous entity. In pre-eclampsia, hypertension is only a marker of a systemic disorder and the treatment is timely induction of delivery. In pre-existing hypertension and gestational hypertension, complications are rare for mild-to-moderate hypertension (140–160/90–110 mmHg). Drug therapy is recommended when blood pressure is more than 150/95 mmHg and emergency hospitalisation is needed when more than 170/110 mmHg. Alpha-methylldopa remains the first choice medication, followed by labetalol and then dihydropyridines.

Risk stratification for venous thromboembolism is recommended in all pregnant women and prevention should be adapted to the individual risk level (early mobilization, compression stockings, antenatal and postpartum low-molecular-weight heparin).

Finally, these new ESC guidelines provide a comprehensive table reviewing cardiovascular drugs, ranked according to their safety profile during pregnancy.

Despite the lack of strong underlying evidence in most fields, these guidelines from the ESC provide useful information for the clinician in facilitating an overall and disease-specific approach. This is particularly needed given the heterogeneity of heart diseases and associated risks during pregnancy. These guidelines stress the need for interdisciplinary management at each stage of pregnancy, in particular during the peripartum period, involving cardiologists, obstetricians and anaesthesiologists. When pregnancy is at high risk, women should be managed in specialized centres, if possible with on-site cardiovascular surgery facilities. Ideally, counselling should start before pregnancy, thereby leading to prophylactic interventions if indicated.

**Disclosure of interest**

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**References**

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