

Acute medical complications of pregnancy

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Abstract

The prevalence of acute medical complications of pregnancy is increasing, partly due to demographic and lifestyle factors. In most industrialized nations, mothers are delaying childbearing until later in life; older women are at higher risk of complications such as venous thromboembolism and cardiovascular disease. 'Indirect' causes (medical and psychiatric) now dominate the list of leading causes of maternal death; some women suffer morbidity caused by medical conditions during or soon after pregnancy. An important part of the solution is to educate and train clinicians in the management of medical problems in pregnancy. Acute symptoms such as chest pain, breathlessness, headache and fever require prompt and thorough assessment. Pregnant women can develop a number of common medical conditions, as well as a few that are specific to pregnancy. Investigations and treatment should not be delayed or withheld simply because a patient is pregnant: most medications and radiological tests can be used in pregnancy.

Keywords Headache; maternal mortality; obstetric medicine; pregnancy; pulmonary embolism

Introduction

The prevalence of acute medical complications of pregnancy is increasing, partly due to demographic and lifestyle factors. In most industrialized nations, mothers are delaying childbearing until later in life; older women are at higher risk of complications such as venous thromboembolism (VTE) and cardiovascular disease. In addition, medical and surgical advances have enabled women to become pregnant despite having chronic conditions that would previously have made this inadvisable or impossible. However, this does come with a risk of acute deterioration during pregnancy. The 2015 Confidential Enquiries into Maternal Deaths and Morbidity (MBRRACE) report¹ revealed that 'indirect' causes (medical and psychiatric) now dominate the list of leading causes of maternal death (Figure 1), and for every maternal death, several other patients suffer morbidity during or soon after

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Key points

- If woman feels unwell, it should never be assumed that symptoms are caused by pregnancy alone
- Chest pain and breathlessness in pregnancy can be caused by cardiovascular and respiratory pathology as well as venous thromboembolism
- Headache is a common symptom in pregnancy. Although it is usually benign in aetiology, it is important to consider more sinister causes
- Most radiological investigations and medications can be used in pregnancy

pregnancy. This article provides an overview of some the important acute medical problems that can complicate pregnancy.

Physiological changes in normal pregnancy

Pregnancy induces several physiological changes, which are summarized in Table 1. This can cause symptoms such as mild peripheral oedema and deeper breathing ('air hunger'), which do not require further investigation.

However, if for any reason a woman feels unwell, it should never be assumed that the symptoms are caused by pregnancy alone. An explanation should be sought, particularly for symptoms such as chest pain, breathlessness and headache.

Cardiovascular disease

Acute coronary syndromes (ACS)

Although ACS are uncommon in pregnancy, the incidence is increasing as women delay childbirth into their 30s and 40s. The risk is increased by smoking, diabetes mellitus, obesity, hypertension and a family history of coronary artery disease. Atherosclerosis remains the most common mechanism, but pregnancy also increases the risk of ACS caused by coronary artery dissection and thrombosis. The maternal death rate of those who suffer acute myocardial infarction is 5–7%.

In patients with a history suggestive of ACS, the diagnosis and management are similar to those in non-pregnant patients. Troponin concentrations (unaffected by pregnancy) and serial electrocardiograms (ECGs) should be performed. Aspirin, clopidogrel, nitrates and morphine can be given in pregnancy. There are also good safety data for low-molecular-weight heparins (LMWHs). Although fondaparinux is not thought to be harmful to the fetus, data are limited. Echocardiography, cardiac magnetic resonance imaging (MRI) and coronary angioplasty/stenting should be performed if indicated. β -Adrenoceptor blockers can be initiated, but statins and angiotensin-converting enzyme (ACE) inhibitors should be withheld until after delivery.

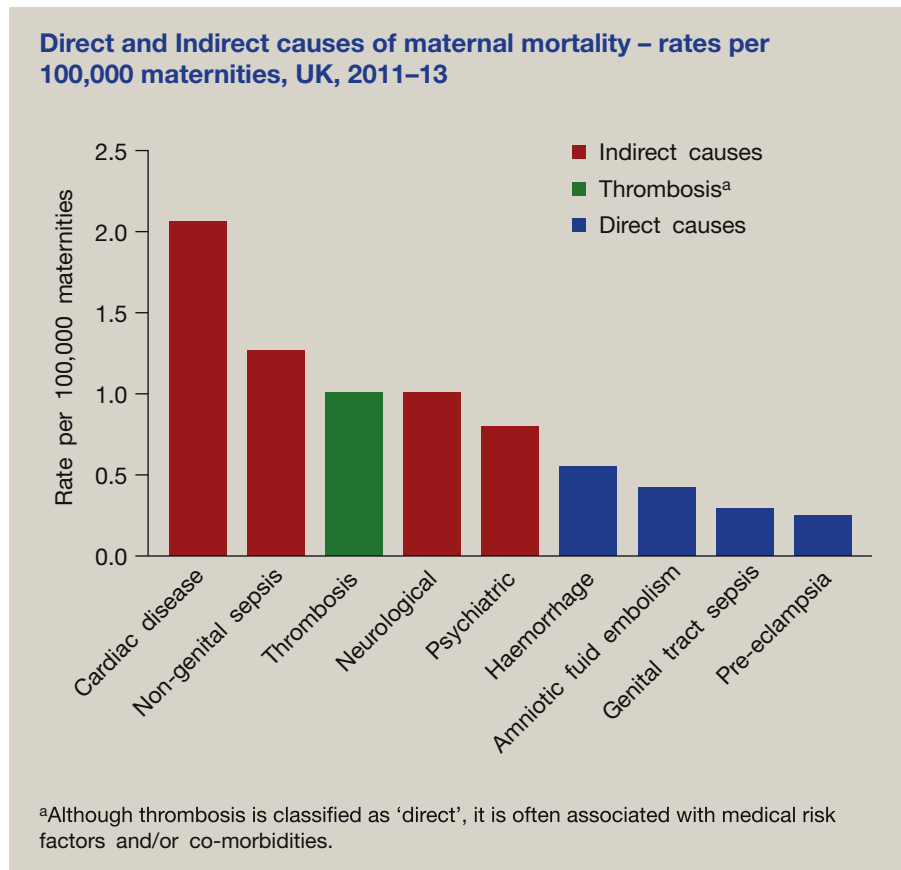


Figure 1

Aortic dissection

Dissection of the thoracic aorta should be considered in the differential diagnosis of any pregnant woman presenting with acute chest pain. Women with connective tissue disorders such as Marfan's syndrome and Ehlers–Danlos syndrome (type IV) are at particularly high risk. Other risk factors include coarctation of the aorta and bicuspid aortic valve, which are occasionally newly diagnosed during pregnancy. Diagnosis is by echocardiography and computed tomography (CT) angiography. Most cases in pregnancy are type A dissections involving the ascending aorta, which require urgent surgical management.

Physiological changes in normal pregnancy

- Blood pressure falls by around 10 mmHg in the first half of pregnancy, and then gradually returns to pre-pregnancy levels by term
- Cardiac output increases by 40–50% (heart rate increases by 10–20 beats per minute and stroke volume by 30%)
- Respiratory rate increases very slightly
- Tidal volume increases by 40–50%
- There is no change in temperature or oxygen saturation
- Glomerular filtration rate increases by up to 50%

Table 1

Arrhythmia

Palpitations are a common symptom in pregnancy, resulting from increased cardiac output and therefore increased awareness of sinus tachycardia and ventricular ectopics. These have no adverse effect on the mother or fetus. A 12-lead ECG should be performed, and continuous ambulatory ECG monitoring considered for those with persistent symptoms. It is also important to investigate for anaemia and thyrotoxicosis.

The most common arrhythmia in pregnancy is paroxysmal supraventricular tachycardia. The management is similar to that outside pregnancy. Vagotonic manoeuvres, adenosine, flecainide, β -adrenoceptor blockers and verapamil can all be used, but amiodarone should be avoided. Direct current cardioversion can be performed with obstetric anaesthetic support and fetal monitoring.

Peripartum cardiomyopathy

Peripartum cardiomyopathy is defined as the development of heart failure resulting from left ventricular systolic dysfunction at the end of pregnancy or in the months following delivery, when no other cause of heart failure is found. The risk is increased by multiple pregnancy, hypertension, advanced maternal age and black African or Caribbean ethnicity. The aetiology is uncertain. Patients present with dyspnoea, reduced exercise tolerance, palpitations and pulmonary/peripheral oedema. Diagnosis is by echocardiography, and treatment includes diuretics, vasodilators and β -adrenoceptor blockers. Elective delivery should be

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