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Frontmatter
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Heart Disease and Pregnancy

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More information

Heart Disease and Pregnancy

Second Edition

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More information

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More information

Contents

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Frontmatter
More information

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Frontmatter
More information

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More information

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Frontmatter
More information

Preface

Since the turn of the twenty-first century, cardiac disease has become the leading medical cause of death in relation to pregnancy in the United Kingdom. In response to this, the meetings committee of the Royal College of Obstetricians and Gynaecologists in London put together an international study group of 28 obstetricians, cardiologists, anesthetists and other experts in related fields to discuss this challenge to maternal health. The group met on February 13–15, 2006 at the RCOG in London, and out of this meeting came the first edition of *Heart Disease and Pregnancy*, published in the same year. Both the first and second printing sold out, so clearly the book was meeting a need.

From 2010 onwards, there were increasing requests for an update to a volume that so many people had found useful. Unfortunately, the RCOG no longer funds such activities; study groups now concentrate on developing research proposals, and the publishing department has been closed, and its booklist transferred to Cambridge University Press. Fortunately, we were able to persuade Cambridge University Press of the need for a second edition, and we are grateful to Nick Dunton for taking our proposals forward to success. In addition, one of us (MAG) runs a regular international meeting on congenital heart disease, and he was able to arrange a consensus session at one of the meetings (held at the Royal College of Surgeons in September 2014) where many of the original participants (and some new ones) gathered together to update the consensus statements.

Consensus statements are necessary because there is a paucity of randomized trials in relation to heart disease in pregnancy, and therefore clinical guidelines rely heavily upon expert opinion. Funding for randomized trials or international collaborative studies is difficult to obtain because globally, maternal and child health have a low political priority. In addition, the increasing number of international regulations applying to any studies involving drug therapy make randomized trials extremely expensive, especially when the conditions studied are individually relatively uncommon. However, the growing number of surviving women with corrected or ameliorated congenital heart disease, and the increasing attempts to improve maternal health globally, means that guidelines are required for the growing number of centers dealing with pregnant women with heart disease.

We are grateful to those authors who have updated their previous chapters, and there have been a considerable number of new contributors, who have looked at things afresh, and sometimes contributed entirely new chapters (for example, on transplantation). The chapters are laid out in a way that we hope readers will find intuitive, starting with prepregnancy counseling and contraception, moving through the antenatal period to delivery and the puerperium, and finishing with long-term outcome. There is some overlap between chapters, for example the physiological changes of pregnancy are often recapped at the beginning. The purpose of this is to make each chapter comprehensible in its own right, both for easy initial reading, and for rapid revision. We have done our best to make sure that there is no significant conflict between the content of the various chapters.

In the first edition, we had a special section at the end for the consensus statements, both "overarching" and specific to individual chapters. In response to feedback from the many readers who felt the consensus statements were particularly useful, we have now put the overarching statements right at the front of the book, and those that are more specifically condition related are included at the beginning of their appropriate chapters as "practical practice points." We hope that this innovation will make the book even more useful than the first edition.

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Frontmatter
More information

Consensus statements

The following consensus statements were drafted at a face to face meeting at the Royal College of Surgeons (London) on September 30, 2014, and subsequently agreed by email. They are followed by the list of participants in the meeting, and a photograph of them on the steps of the Royal College of Surgeons.

Definitions

1. Multidisciplinary Team (MDT). The core members of the MDT should be appropriately trained obstetricians, cardiologists, and anesthetists, and the wider team who should also be involved in care when appropriate may include midwives, neonatologists, intensivists, obstetric physicians, hematologists, specialist nurses and geneticists.
2. A tertiary unit is defined as a hospital (or group of hospitals) able to provide combined obstetric, cardiological, anesthetic and cardiac surgical expertise in the care of women with heart disease. Any tertiary center caring for pregnant women with heart disease should have facilities for prolonged high-level maternal surveillance with direct access to adult critical care facilities.

Overarching consensus views

General

1. There should be national and international registries for the collection of data on pregnancy in women with heart disease. These data should be collected centrally to enable a more detailed analysis of risk factors for poor pregnancy and long-term outcomes (including maternal survival and infant disability). Such information would greatly improve the counseling of women with heart disease.
2. There should be recognized networks for the provision of care for women with both acquired and congenital heart disease and appropriate referral links should be established. These will need to be specifically funded as the care of these women cannot be provided from routine obstetric and cardiac resources.
3. If any pregnant or postpartum woman has unexpected and persistent cardiorespiratory symptoms she should have thorough evaluation of possible cardiovascular causes such as cardiomyopathy, acute coronary syndrome, aortic dissection and pulmonary embolism.

Preconception

1. A proactive approach to preconception counseling should be started in adolescence (at age 12–15 years, depending on individual maturity) and should include advice on safe and effective contraception. Comprehensive advice should be given at the appropriate age and not delayed until transfer to the adult cardiological services.
2. All women of reproductive age with congenital or acquired heart disease should have access to specialized multidisciplinary preconception counseling with regular reevaluation to enable them to make a fully informed choice about pregnancy.
3. When assisted conception is being planned, the advice of the MDT should be sought before any such treatment is commenced.
4. In counseling women about motherhood, alternatives to the woman carrying the baby herself can be considered (for example surrogacy or adoption).
5. Women with a family history of inherited cardiac conditions should be screened before pregnancy.

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Frontmatter
More information

6. Any cardiac surgical interventions in women of childbearing age should take into account the effect they may have on pregnancy. For example, because of the risks associated with prosthetic mechanical valves in pregnancy, consideration should be given to valve repair or using tissue valves for valve replacement.
7. Contraceptive choice for women with heart disease should be tailored to the particular patient, taking into account any increased risks of thrombosis or infection associated with the various contraceptive methods and their interaction with the various heart lesions or drugs being taken.

Antenatal care

1. Once women with heart disease are pregnant, they should be referred to the MDT as soon as possible. The timing and frequency of follow-up visits should be determined by the MDT. Direct self-referral should also be allowed, to avoid delays.
2. Medication should be reviewed and adjusted as necessary.
3. The threshold for starting thromboprophylaxis should be determined by the MDT.
4. Thrombolysis may cause bleeding from the placental site but should be given in women with life-threatening thrombotic disease.
5. Following assessment by the MDT, care can be arranged at a local hospital or tertiary unit (where the MDT is based), according to the complexity of the heart disease, the risk assessment and the locally available facilities and expertise. Shared care between the local and tertiary hospitals may be appropriate, in which case a detailed plan of care should be documented and accessible to all care providers.
6. A copy of the plan should be carried by the woman herself, so it is available in an emergency to care providers other than her usual team.
7. Women with congenital heart disease should be offered fetal echocardiography.
8. Tertiary units should offer a hotel facility to enable women who live some distance from the hospital to stay on site, to avoid (a) a delay in receiving appropriate care when they go into labor and (b) the need to induce labor solely to avoid this risk.

Intrapartum care

1. Management of intrapartum care should be supervised by a team experienced in the care of women with heart disease (obstetrician, anesthetist and midwife), with a cardiologist or appropriately experienced obstetric physician readily available.
2. A clear plan for management of delivery and the puerperium in women with heart disease should be established in advance, be well documented and be distributed widely (including to the woman herself) so that all personnel likely to be involved in the woman's intrapartum and postpartum care are fully informed. It is recommended that the woman should carry her own notes (or at least a copy of them) at all times. There should be clear arrangements for contacting the MDT in case of an emergency.
3. Vaginal delivery is the preferred mode of delivery over cesarean section for most women with heart disease—whether congenital or acquired—unless obstetric or specific cardiac considerations determine otherwise. This can be facilitated where appropriate by the use of regional anesthesia and assisted vaginal delivery.
4. Induction of labor may be appropriate, to optimize the timing of delivery in relation to anticoagulation and the availability of specific medical staff or because of deteriorating maternal cardiac function.
5. In the management of the third stage of labor in women with heart disease, low-dose oxytocin infusions are safer than bolus doses of oxytocin, which can cause hypotension. Ergometrine is best avoided if systemic hypertension is a concern. Misoprostol is an effective uterotonic although it can cause problems such as hyperthermia.
6. When planning care, specific instructions should be recorded regarding intrapartum antibiotic prophylaxis. There is no evidence that prophylactic antibiotics prevent endocarditis in an uncomplicated vaginal delivery. However, prophylactic antibiotic cover should be given to women undergoing an operative delivery, and to women at increased risk of infectious endocarditis, such as those with mechanical valves or a history of previous endocarditis and to women before any intervention that is likely to be associated with significant or recurrent bacteremia. The possibility of endocarditis should always be borne in mind.

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Frontmatter
More information

Postpartum care

1. High-level maternal surveillance is required until the main hemodynamic challenges following delivery have passed. Multidisciplinary surveillance should be maintained until it is judged the woman is well enough to leave hospital. Follow-up assessment should be arranged by the MDT. Contraceptive advice must be given.

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More information

Picture of the participants in the consensus meeting

Figure X.1. Front row, left to right

Michael Gatzoulis, Philip Steer, Mandish Dhanjal, Bernard Clarke, Margaret Ramsay, Natali Chung, Sarah Vause, Jolien Roos-Hesslink, Cathy Nelson-Piercy, Stephanie Curtis

Behind, from left

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