“Maternal Cardiac Disease: Update for the Clinician”
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1. When reviewing certain cardiac conditions, it is easy to conclude that pregnancy is contraindicated. However, a conversation with an affected patient is not so easy in the clinic. How do you give this news and what key points should be emphasized during this discussion?

Response from Dr. Simpson:
It is never easy to inform a woman interested in pregnancy that pregnancy is contraindicated. This information is best communicated during an office visit when the practitioner has enough uninterrupted time to answer questions and explain why pregnancy is not recommended. The patient may wish to have her partner present, which can be beneficial in the couple’s understanding of the issues. In some cases, a multidisciplinary meeting of specialists may be helpful to convey a uniform opinion from the medical team. The key points to review during these office visits are the maternal and fetal risks associated with her specific cardiac condition. Follow-up visits may be necessary in order for the patient to fully understand these risks and recommendations for her own medical care.

2. Certain cardiac lesions or situations carry an unacceptably high mortality rate, and thus pregnancy is not advised. What do you generally consider is an acceptable mortality rate or relative risk?

Response from Dr. Simpson:
Traditionally, cardiac conditions have been categorized into one of three groups based on risk of maternal mortality: less than 1%, 5–15%, and 25–50%. In general, pregnancy is not advised when the risk of maternal death is 25–50%. However, an individualized approach is advised as many women, depending on their personal circumstances, may decide to forego pregnancy if the risk of death is 5–15%. As a practitioner, any increase in mortality rate or relative risk of
maternal death is a concern, so defining acceptable risks must be individualized for each patient depending on the expert opinions of the multidisciplinary team.

3. Do you recommend that preconception counseling be provided by a general obstetrician–gynecologist, by a maternal–fetal medicine (MFM) specialist, or by either?

Response from Dr. Simpson:

Preconception counseling can be provided by any practitioner who has expertise and experience in caring for women with cardiac disease. While both general obstetrician–gynecologists and MFM specialists may provide this service, referral to experts in other fields such as cardiology, genetics, and cardiovascular surgery may be necessary for complete counseling, particularly for patients with complicated cardiac conditions. The focus of preconception counseling should be the provision of accurate, up-to-date information by a qualified practitioner, regardless of specialization, who can then respond to the patient’s questions and concerns.

4. Do you prefer to use unfractionated heparin or low molecular weight heparin for anticoagulation in patients with mechanical heart valves? When using low molecular weight heparin, do you measure anti-factor Xa levels in all patients? With what frequency do you re-check anti-factor Xa levels after the woman has achieved the target goal?

Response from Dr. Simpson:

At our center, adjusted-dose, twice-daily low-molecular-weight heparin is preferred throughout the antepartum period for pregnant women with mechanical heart valves. However, warfarin may be a better choice in the middle of pregnancy for patients who cannot tolerate subcutaneous injections, who cannot easily maintain therapeutic anticoagulation levels, or who have a history of valvular thrombosis. Given the significant risk of thromboembolic disease in this population, all patients on therapeutic doses of low-molecular-weight heparin routinely undergo anti-factor Xa level testing with a goal of 1.0-1.2 units/mL, 4-6 h after injection. Despite the paucity of data on the use of low-molecular-weight heparin during pregnancy, monthly monitoring of anti-factor Xa levels is reasonable for surveillance of a stable patient after the target goal is achieved.

5. As you commented, sometimes recommendations from cardiology or cardiothoracic surgery consultants are not in keeping with the current recommendations from the American Heart Association regarding endocarditis prophylaxis. In your practice, how do you resolve this disparity?
Response from Dr. Simpson:

In general, the guidelines from the American Heart Association for intrapartum endocarditis prophylaxis should be followed unless there is clear rationale for an alternate approach. Direct communication with the patient’s specialist may help if his or her recommendation differs from that of the American Heart Association. The cardiologist or surgeon may be aware of a prior complication, a residual defect, or use of a prosthetic material that they feel justifies endocarditis prophylaxis. In clinical practice, an individualized approach to complicated patients is usually best and differences of opinion should be discussed and consensus reached prior to the delivery. If the consensus of the multidisciplinary team is that endocarditis prophylaxis is indicated in a particular patient, then intrapartum antibiotics should be administered regardless of published guidelines.

6. Are the indications for induction of labor in the third trimester any different for a woman with cardiac disease compared with indications for women with normal cardiac structure and function?

Response from Dr. Simpson:

The indications for induction of labor in a woman with cardiac disease are similar to those for any pregnant woman, such as preeclampsia, premature rupture of membranes, and intrauterine fetal growth restriction. However, a timed induction of labor may be preferred in some cases in order to coordinate intrapartum and immediate postpartum care. For example, a fully anticoagulated patient with a mechanical heart valve would benefit from a coordinated plan of care for delivery. Patients who may require therapies unfamiliar to the obstetric provider, such as inhaled nitric oxide and aerosolized iloprost for pulmonary hypertension, would also benefit from a scheduled induction of labor. With careful planning, the majority of cardiac patients can undergo a trial of labor and experience a vaginal birth.

7. During labor, when should women with cardiac disease be managed in an intensive care unit (ICU) setting rather than on a Labor and Delivery suite?

Response from Dr. Simpson:

Depending on available resources, most women with cardiac disease can be managed on a Labor and Delivery suite, and in many centers, are best managed there. However, if invasive cardiovascular monitoring or continuous noninvasive cardiac monitoring are not possible, then certain patients who require this level of monitoring are best managed in an appropriate ICU setting with trained nursing and medical staff. This management decision is best made in advance by the multidisciplinary team. Acute deterioration of any cardiac patient during the
intrapartum period may require transfer to an ICU, and most patients that require prolonged intubation and ventilation will be managed outside of a Labor and Delivery suite. In rare circumstances, for example a patient with dilated aortopathy or a left ventricular assist device, labor and delivery may be managed in an operative room equipped for cardiopulmonary bypass and prepared for open heart surgery. Planning and preparation for the intrapartum period are key when caring for pregnant cardiac patients.

8. In women with cardiac disease there are certain situations where the recommendation for cesarean delivery is clear-cut; however, there are circumstances where this recommendation is debatable. When this situation arises, who is involved in developing the recommendation for route of delivery? If a consensus on route of delivery cannot be reached, what would you do?

Response from Dr. Simpson:
The multidisciplinary approach works well in most situations and each member of the team should have the opportunity for input on critical issues. The best route of delivery for a particular patient can be controversial and her own opinion about the delivery should also be considered. If a consensus cannot be reached, the obstetric provider ultimately must make the final recommendation to the patient based on best available evidence and expert opinion. Fortunately, the best route of delivery for most patients with cardiac disease is vaginal and usually both patients and providers desire to avoid unnecessary surgical interventions unless clearly indicated.

9. Are there any special considerations when choosing between forceps and vacuum-assisted vaginal delivery to shorten the second stage of labor in women with cardiac disease?

Response from Dr. Simpson:
If an operative vaginal delivery is considered to reduce the patient’s cardiac stress, the practitioner should choose an instrument that they have familiarity, experience, and confidence in using to safely shorten the second stage of labor. The instrument of choice may be a vacuum or forceps and in the majority of cases, both are acceptable if the patient is a candidate for an operative delivery. The one exception is the patient on therapeutic anticoagulation, particularly if recent warfarin use or if therapeutic heparin must be maintained during or restarted shortly after delivery. Individualized neonatal and maternal bleeding risks must be considered when determining whether shortening the second stage of labor with forceps or vacuum should be advised or avoided in this subset of patients.
10. So many pregnancies are unintended, and pregnancies in patients with cardiac disease are no exception. How can we improve the unintended pregnancy rate in this population, especially when many of the women are not seen by an ObGyn until they are pregnant? What is your preference for contraception in women with cardiac disease?

Response from Dr. Simpson:
All reproductive age women with cardiac disease should have routine gynecologic care whether provided by an ObGyn or other knowledgeable care practitioner, and part of this care should include counseling about contraception. Early use of effective contraception can reduce unplanned pregnancies in this high-risk population. For most women with cardiac disease, pregnancy is riskier than the chosen method of contraception. However, estrogen-containing contraceptives should be avoided in patients at increased risk for thromboembolism. Progestin-only contraceptives and intrauterine devices are often preferred for women with cardiac disease, as they do not increase the risk of thromboembolic disease. Women with complex cardiac disease or complicated reproductive histories may benefit from referral to experts in family planning before deciding on the optimal method of contraception.