Pregnancy in Patients with Tetralogy of Fallot: Invited Commentary

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Over the past decade, our ability to predict the risk of maternal and fetal complications during pregnancy for women with congenital heart disease has been greatly advanced.¹⁻⁵ Optimal management of such patients with moderate and complex congenital heart disease appears facilitated by a team approach that includes high-risk obstetrical, anesthesiology, and adult congenital heart disease care.⁶,⁷ Accessibility of, and communication among, care providers, coupled with a flexible delivery management plan, are central to this team approach, as are patient education, prepregnancy counseling, and access to appropriate contraception prior to pregnancy.

In this current issue, Kaur and colleagues provide a descriptive analysis of pregnancies in 10 women with tetralogy of Fallot. Although there have been much larger studies describing pregnancy outcomes in women with moderate and complex congenital heart disease, this cohort includes 16 pregnancies in 7 patients with unrepaired tetralogy of Fallot. This experience, in and of itself, adds a unique contribution to the published record of pregnancies in adults with unrepaired heart disease. Although no formal analyses can be derived, given the small sample size, maternal and fetal/neonatal complications were noted as frequent among this cohort at this center; this recapitulates similar experiences in pregnant women with cyanotic congenital heart disease.⁸⁻¹⁰ Only 56% (9/16) of these pregnancies resulted in a live birth (1 stillborn, 6 spontaneous abortions); premature delivery (40%) and “small for gestational age” childbirths (40%) were common. Maternal obstetric complications were frequent and included placenta previa (n = 1), placenta abruption (n = 3), antepartum hemorrhage (n = 4), and postpartum hemorrhage (n = 2). Maternal cardiac complications were present in 18% of pregnancies, including cerebrovascular accident (n = 1) and 2 instances of congestive heart failure in the postpartum period.

Patients with cyanotic congenital heart disease due to intravascular shunting present substantive management challenges during pregnancy. In addition to hemodynamic changes of pregnancy that worsen right to left shunting and have the potential to increase cyanosis, these patients are also more likely to have liver and renal impairment, coagulopathy, neurological insult, and structural lung disease.¹⁰⁻¹² In a prospective study of completed pregnancies in 599 patients with heart disease, Siu and colleagues determined 4 risk factors associated with the development of cardiac complications (cardiac death, stroke, pulmonary edema, or arrhythmia) during pregnancy, including poor functional class (New York Heart Association functional class III or IV) or cyanosis, left ventricular dysfunction, left heart obstruction, and presence of a cardiac event prior to pregnancy (arrhythmia, stroke, transient ischemic attack, or pulmonary edema). From these risk factors, a risk index was determined, suggesting the risk of cardiac complications in patients with no prior risk factors to be about 5%, increasing to 25% in patients with one risk factor and significantly increasing to 75% in those with more than one risk factor. Applying these data to the cohort presented by Kaur and colleagues, pregnant patients with unrepaired tetralogy of Fallot had at least a 25% risk of having an adverse cardiac event surrounding pregnancy, with such risk markedly worsening if adverse cardiac events occurred prior to pregnancy; there is little surprise that adversity was as common as experienced.

Improvement in surgical management and extension of access to both cardiovascular care as well as to contraception in most developing countries have all dramatically decreased the number of women with congenital heart disease presenting for pregnancy care in a cyanotic, unrepaired state. Kaur and colleagues remind us that this experience is not uniform. As we develop the pregnancy literature for this population, we must ensure that a diverse international experience be included, so as to best understand the wide spectrum of management strategies required around the globe to ensure optimal maternal and fetal survival for pregnant women with congenital heart disease.

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References


