Cardiac disease complicates only 1 to 4% of pregnancies in the United States, yet is the most important cause of nonobstetric maternal morbidity and mortality.

It was not purely the statistics that prompted us to put together this issue of Cardiology Clinics focused on Cardiovascular Disease in Pregnancy. It was the changing epidemiology of pregnant women with heart disease and the challenges that are faced by clinicians, some of whom are not very comfortable treating this special population, that prompted this issue of Cardiology Clinics. Higher maternal age of conception, survival of patients with congenital heart disease late into adulthood, and the success of assisted reproductive medicine (even in patients with Turner’s syndrome) have changed the profile of women who present to high-risk pregnancy clinics today. Racial and socioeconomic disparities in antenatal care add to the challenging statistics. The Healthy People 2000 objective for maternal mortality of no more than 3.3 maternal deaths per 100,000 live births in the United States was not achieved during the twentieth century. In fact there was worsening maternal mortality in subpopulations such as African Americans, making the latest maternal mortality rate 12.7 per 100,000 live births as of 2008 a discouraging number, with cardiovascular disease being the most important cause of nonobstetric mortality. These are numbers we need to change!

This is the era in which we are faced with the mounting conundrum of patients in whom clinical presentation could be difficult to interpret and differentiate from the normal physiological changes during pregnancy; the diagnostic procedures are either underperformed or performed with caution due to radiation and other fetal hazards; the effects of pharmacotherapeutics have not been extensively studied for teratogenic and other fetal effects; cardiovascular interventional and surgical procedures intimidate many a health care provider due to the higher risks that impact two lives during a single procedure. And what certainly does not make it easier is that this population is grossly underrepresented in clinical trials and research projects, considering that pregnancy is a 9-month condition at best! Novel therapeutics and safe procedures are harder to develop or test in pregnant women due to logistic issues, funding constraints, inadequate registries, and lack of long-term historical data.

If Hollywood has made forays into portraying male pregnancy in reel life, modern medicine is not far behind in finding improved solutions for managing pregnancy and cardiovascular disease in real life! Some plausible concepts include maternal-fetal medicine fellowships that would closely liaison with cardiology fellowship programs in order for this interdisciplinary approach to evolve early on during training. This would not only facilitate appropriate training and experience but also develop important databases for research. Developing international registries such as the Study Group on Peripartum Cardiomyopathy (supported by the European Society of Cardiology (ESC)) is
an example of international collaborative endeavors that would allow sharing of cross-cultural research and efforts. However, the concept of developing “high-risk pregnancy clinics” is key, especially in most tertiary care centers: these would comprise an ideal multidisciplinary team of experienced obstetricians, adult and pediatric cardiologists, anesthesiologists, neonatologists, genetic specialists, and preconception counselors working in cohesion for superior outcomes in pregnant women with cardiovascular diseases. A scaled down version of such clinics is very conceiv- able even in smaller community health care facilities with appropriate referrals to the tertiary care centers as necessary. Community clinicians who care for women could be educated in identifying medical conditions that pose additional risk if pregnancy occurs, be able to offer preconception counseling (including discussion of appropriate contraception), and refer high-risk patients to tertiary care centers with expertise in caring for these patients. This issue of Cardiology Clinics strives to guide clinicians to achieve this to some extent across a broad spectrum of cardiovascular diseases. The content ranges from management of hypertension and arrhythmias in pregnancy to the more complex congenital heart diseases; understanding basic drugs that are safe from a pregnancy perspective to the basic physiology of pregnancy; from newer therapies in peripartum cardiomyopathy and coronary artery disease to the difficult management of pregnancy in cardiac transplant recipients.

Hope is already on the horizon; 66 successful deliveries have been reported in heart transplant recipients as of December 2010 as per the National Transplantation Pregnancy Registry. Novel experimental therapies such as bromocriptine and pentoxyfylline have been used in patients with peripartum cardiomyopathy with promising outcomes. Organizations such as the ESC have devised specific guidelines for management of cardiovascular disease in pregnancy in 2011 with ACC/AHA addressing issues of valvular and aortic disease management in pregnancy specifically under each of the broader guidelines. A systematic review of patients with congenital heart disease from 1985–2006 showed that the majority have had successful deliveries and the major adverse cardiovascular event rate was only 2%1 with the overall cardiac complication rate ranging from 7.6 to 11%.1,2 The National Institute of Child Health and Human Development reported 13 successful pregnancies in patients with Turner’s syndrome in the period between 2000 and 2010. Maternal mortality from acute myocardial infarction in pregnancy has been reduced from a prodigious 38% prior to the year 2000 to about 5–11% in recent reviews,3,4 owing partly to the increasing use of primary percutaneous coronary intervention in pregnancy with successful outcomes.

Once again, it is not merely about the statistics; it is about extending the rapidly expanding frontiers of cardiovascular medicine to a small yet very special population, where each successful pregnancy will save not one but at least two precious lives.

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REFERENCES