

Cardio-obstetrics: Recognizing and managing cardiovascular complications during pregnancy



Richard Smiley

Washington University in St. Louis School of Medicine, St. Louis, Missouri.

Abstract (600 word limit)

There are several known cardiovascular disorders that may be exacerbated by pregnancy, as well as previously undetected problems. A collaborative interdisciplinary team including a cardiologist with obstetrical specialty training is required for patients with congenital heart defects, valvular disease, primary pulmonary hypertension, hypertensive disorders of pregnancy, and acquired peripartum cardiomyopathy. The cardiovascular risk of pregnancy is increasing due to several trends. During her pregnancy, a woman who wishes to continue should have at least monthly visits with her doctor. Pregnancy-related contraindications include angiotensin-converting enzyme inhibitors, angiotensin II receptor blockers, and direct renin inhibitors. Physiologic anemia results from an increase in red blood cell mass that is not proportional to the increase in plasma volume. Pregnancy-induced metabolic and physiological changes can be considered a failed stress test when new cardiovascular complications occur during pregnancy and can increase the risk of cardiovascular disease in the future. After pregnancy, women need to be monitored closely in order to prevent cardiovascular disease and improve maternal outcomes. During pregnancy, plasma volume expands, resulting in increased stroke volume, which may increase cardiac output by 30% to 50%. During labor, heart rate increases by 15% in the first stage, and up to 50% in the second stage, due to pain, anxiety, and

"autotransfusion" of blood into the bloodstream during uterine contractions. Many family clinicians, obstetricians, and cardiologists are uncomfortable managing pregnant women with cardiovascular conditions because of this. In this review, we discuss the most common types of preexisting and incident heart disease among pregnant women, with a focus on recognition, risk assessment, and management.

Biography (200 word limit)

Richard Smiley with a PhD in Gynecology. My experience includes managing projects, conducting research, and teaching. Obstetrics has been a focus of my expertise. In addition, I have contributed to the development of biotechnology programs in both public and private companies. Currently, I am working at Washington University, Missouri. I am studying the role of the Cardio-obstetrics: Recognizing and managing cardiovascular complications during pregnancy.

About Research Topic (200 word limit)

Despite the increasing incidence of cardiovascular complications during and after pregnancy, traditional training programs in cardiology and

obstetrics fail to address this issue adequately. Cardiovascular risk is on the rise in pregnancy in several ways. Maternal ages are increasing at first pregnancy, survival rates for congenital heart disease have improved, and cardiovascular risk factors are developing at a younger age. Regardless of the severity of the cardiovascular complications in pregnancy, many women desire additional pregnancies. As much information as possible should be shared with the patient as part of shared decision-making. To conclude, better after-delivery maternal health care systems need to be developed. There is a tendency for medical attention to focus on the baby, resulting in missed opportunities for education, surveillance, and intervention for women at risk.

About Institution (200 word limit)



Washington University in St. Louis (WashU, or WUSTL) is a private research university in Greater St. Louis with its main campus (Danforth) mostly in unincorporated St. Louis County, Missouri, and Clayton, Missouri. It also has a West Campus in Clayton, North Campus in the West End neighborhood of St. Louis, and Medical Campus in the Central West End neighborhood of St. Louis. Founded in 1853 and named after George Washington, the university has students and faculty from all 50 U.S. states and more than 120 countries. Washington University is composed of seven graduate and undergraduate schools that encompass a broad range of academic fields. To prevent confusion over its location, the Board of Trustees added the phrase "in St. Louis" in 1976. Washington University is a member of the Association of American Universities and is classified among "R1: Doctoral Universities – Very high research activity".

References (Minimum 15)

1. [MacDorman MF, Declercq E, Cabral H, Morton C. Recent increases in the US maternal mortality rate: disentangling trends from measurement issues. Obstet Gynecol 2016; 128\(3\):447–455. doi:10.1097/AOG.0000000000001556](#)
2. [Berg CJ, Callaghan WM, Syverson C, Henderson Z. Pregnancy-related mortality in the United States, 1998 to 2005. Obstet Gynecol 2010; 116\(6\):1302–1309. doi:10.1097/AOG.0b013e3181fd11](#)
3. Creanga AA, Berg CJ, Syverson C, Seed K, Bruce FC, Callaghan WM. Pregnancy-related mortality in the United States, 2006–2010. Obstet Gynecol 2015; 125(1):5–12. doi:10.1097/AOG.0000000000000564

4. Freedman RL, Lucas DN. MBRRACE-UK: saving lives, improving mothers' care—implications for anaesthetists. *Int J Obstet Anesth* 2015; 24(2):161–173. doi:10.1016/j.ijoa.2015.03.004
5. Burlingame J, Horiuchi B, Ohana P, Onaka A, Sauvage LM. The contribution of heart disease to pregnancy-related mortality according to the pregnancy mortality surveillance system. *J Perinatol* 2012; 32(3):163–169. doi:10.1038/jp.2011.74
6. Hameed AB, Lawton ES, McCain CL, et al. Pregnancy-related cardiovascular deaths in California: beyond peripartum cardiomyopathy. *Am J Obstet Gynecol* 2015; 213(3):379.e1–e10. doi:10.1016/j.ajog.2015.05.008
7. Williams RA. Cardiovascular disease in African American women: a health care disparities issue. *J Natl Med Assoc* 2009; 101(6):536–540. pmid:19585921
8. Creanga AA, Bateman BT, Kuklina EV, Callaghan WM. Racial and ethnic disparities in severe maternal morbidity: a multistate analysis, 2008–2010. *Am J Obstet Gynecol* 2014; 210(5):435.e1–e8. doi:10.1016/j.ajog.2013.11.039
9. Harper M, Dugan E, Espeland M, Martinez-Borges A, McQuellon C. Why African-American women are at greater risk for pregnancy-related death. *Ann Epidemiol* 2007; 17(3):180–185. doi:10.1016/j.annepidem.2006.10.004
10. Nelson A. Unequal treatment: confronting racial and ethnic disparities in health care. *J Natl Med Assoc* 2002; 94(8):666–668. pmid:12152921
11. Ventura SJ, Mosher WD, Curtin SC, Abma JC, Henshaw S. Trends in pregnancies and pregnancy rates by outcome: estimates for the United States, 1976–96. *Vital Health Stat* 21 2000; (56):1–47. pmid:10740440
12. Mathews TJ, Hamilton BE. Mean age of mothers is on the rise: United States, 2000–2014. *NCHS Data Brief* 2016; (232):1–8. pmid:26828319
13. Martin JA, Hamilton BE, Osterman MJ, Driscoll AK, Mathews TJ. Births: final data for 2015. *Natl Vital Stat Rep* 2017; 66(1):1. pmid:28135188
14. Martin JA, Hamilton BE, Osterman MJK, Driscoll AK, Drake P. Births: final data for 2017. *Natl Vital Stat Rep* 2018; 67(8):1–50. pmid:30707672
15. Central Intelligence Agency. The World Factbook. Mother's mean age at first birth. <https://www.cia.gov/library/publications/the-worldfactbook/fields/352.html>. Accessed December 10, 2019.

Andrology & Gynecology: Current Research

ISSN: 2327-4360

Volume 6, Issue 4

10th International Conference on

Gynecology and Obstetrics

November 07-08, 2022 Madrid, Spain