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Correcting Reproductive Health Disparities in Women: An Opportunity to Improve the Health of Future Generations

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Reproductive problems pose a significant public health problem for women across all age groups, ethnic, and socioeconomic backgrounds. Women of color, women with few resources, women with limited education, and women from groups such as immigrants, and gay and lesbian who have traditionally faced discrimination, are disproportionately affected. By whatever definition one uses for race and ethnicity, unequal access to care, differences in the pathophysiology of disease, and a disparate response to treatment are all factors that collectively contribute to health disparities in women. Even physiologic processes such as puberty, ovulation, conception, and menopause vary between different ethnic and socioeconomic groups. Of note, reproductive problems are not solely a result of issues related to access to health care. Evidence from the medical literature supports disparities in infertility treatment outcomes and an increased prevalence of problems such as preterm birth, sexually transmitted infections, unintended pregnancy, uterine fibroids, and estrogen-deficiency states.¹ In this issue of *Seminars in Reproductive Medicine*, we focus on these important disparities in reproductive health of women by considering health disparities across the lifespan of women. The guest editors believe preconception and pregnancy represent an unparalleled window of opportunity for intervention(s) that will impact not just the mother and infant but also future generations.

Epigenetics

Recent data suggest that many of these disparities can be linked to environmental exposures such as alcohol and other hazardous toxic exposures (polycarbonate, pesticides, and nicotine) in adults.^{2,3} In addition, low-socioeconomic status, behavioral risk factors, and lack of education have been linked to poor obstetric and reproductive outcomes in minority groups. Aside from these various environmental exposures later in life, there is evidence that adverse events in utero could contribute to poor reproductive outcome in specific minority groups. One possible causal mechanism for the observed health disparities in reproductive diseases is the concept that there are in utero events that result in fetal reprogramming that may persist for generations. Epigenetic effects are heritable changes in gene expression,

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which are not mediated by changes in primary DNA sequence. Available evidence supports the hypothesis that such epigenetic changes could contribute to reproductive health disparities. The role of epigenetics and the potential impact of in utero fetal programming are reviewed by Sauerbrun-Cutler and Segars in the article entitled “Do In Utero Events Contribute to Current Health Disparities in Reproductive Medicine” of this issue.

Puberty

There are differences in the physiologic reproductive processes as well as differences in disease states. Much attention has been drawn to the issue of earlier onset of puberty in children in the United States, as supported by several recent studies. Despite the wide diversity of racial/ethnic groups in the United States, racial differences in pubertal timing were not assessed until the 1970s, when the first data were collected on pubertal development in African American girls.⁴ In the article entitled “Racial Disparities in Pubertal Development,” Ramnitz and Lodish review the studies in the area, their limitations, and the role of obesity and nutrition in the decreasing age of pubertal onset.

Obstetrics

Disparities in obstetrical outcomes have been the area of reproductive health most extensively studied. African American, Hispanic, and Asian women all have demonstrated poorer obstetric and neonatal outcomes with both in vitro fertilization and spontaneous conception. Higher rates of intrauterine growth restriction and lower rates of live births have been reported in these patient populations. Multiple studies have shown an association with lower socioeconomic status and poor pregnancy outcomes. Even when controlling for these factors, some groups continue to have worse outcomes.⁵⁻¹³ Plowden, Novak, and Spong examine these disparities and the possible etiologies of disparate obstetrical outcomes in the article entitled “Disparities in Obstetrical Outcomes in ART Pregnancies Compared with Natural Conceptions.”

Contraception

The role played by access to care is significant in many areas. The disparate ability to obtain needed medical care is very evident in the area of contraception. In addition to economic barriers to effective contraception, women face hurdles imposed by legal, religious, and societal restrictions. These barriers disproportionately impact groups such as adolescents, multiple minority groups, obese women, gays and lesbians, HIV-infected women, disabled women, homeless women, and women with various medical conditions. In the case of women with chronic medical illness, they may have an even greater need for effective contraception because they have been prescribed teratogenic drugs as part of their medical treatment. Dr. Casey and Dr. Gomez-Lobo, in the article entitled “Disparities in Contraceptive Access and Provision,” provide an extensive review of the literature on this topic, with a special emphasis on at-risk populations.

Assisted Reproductive Technologies

Although patients who access assisted reproductive technologies (ARTs) belong to higher socioeconomic groups, there are significant outcome disparities within this population. In the past 30 years, increasing numbers of women have utilized reproductive technologies to conceive. Approximately 4 million children have been born with the assistance of these technologies.¹⁴ The large numbers of patients undergoing ART and the tremendous cost of this care make it important to investigate potential etiologies or poor outcomes. The Society for Assisted Reproductive Technologies provide data from hundreds of thousands of cycles, but the information from this source is limited to the data available from the required fields of the database. Spitzer and Fujimoto share their experiences as part of the large-scale ART investigation at the University of California San Francisco in the article entitled “Ethnic Differences in Assisted Reproductive Technologies Outcome.”

Polycystic Ovary Syndrome and Leiomyoma

In addition to disparities involving infertility and obstetrical outcomes, there are common gynecologic disorders such as polycystic ovary syndrome (PCOS) and leiomyoma, which have differences in prevalence, disease course, and outcomes. Wang and Alvero review differences in the incidence, diagnosis, pathophysiology, and management of the common endocrine disorder of PCOS. Then, Catherino, Eltoukhi, and Al-Hendy examine both the clinical disparities that characterize uterine fibroids and the molecular mechanisms that may explain the ethnic difference seen in this disease that has profound, life-long adverse health consequences for so many women throughout the world.

Menopause

Menopause is a physiologic process, and like puberty, there are ethnic and racial differences in the physiology of menopause. Richard-Davis and Wellons examine data from Healthy Women Study, the Study of Women Across the Nation, and the Pennsylvania Ovarian Aging Study to review disparities among older women.

In conclusion, as is evident in this issue of *Seminars in Reproductive Medicine*, significant reproductive health disparities confront many women across their lifespan. If allowed to persist, these health disparities not only extract a toll on the individuals but also on society and the health-care system. The reduction and elimination of reproductive health disparities in women requires an understanding of the underlying causes and development of effective strategies aimed at prevention and correction of the root causes. The guest editors believe that reproduction is the key lynchpin for many health disparities. For instance, poor nutrition *in utero* may result in higher cardiovascular disease later in life for all offspring, men, and women. The guest editors envision reproduction as a tractable nexus that brings together the ability to influence the health of future generations with the dedication of women to their health. While current understanding is incomplete, it is crucial to address these health disparities and to begin interventions aimed toward improving the health of future generations.

Biography

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