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Proceedings from the Conference on Reproductive Problems in Women of Color

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Abstract

The purpose of the National Institutes of Health conference on Reproductive Problems in Women of Color that convened on July 25, 2009 was to bring investigators together to examine data related to reproductive health care access and ethnic disparities in reproductive problems, fertility treatments, and pregnancy outcomes. One of the goals discussed at this conference was to initiate a research network of investigators interested in studying these problems through the development of an American Society of Reproductive Medicine special interest group and Society of Assisted Reproductive Technology writing groups.

Keywords

Women of color; reproductive health disparities; infertility access to care; racial and ethnic disparities in IVF outcomes; leiomyomata prevalence

Over the past decade, the number of assisted reproductive technology clinics and the number of IVF cycles performed annually in the United States have been steadily increasing. In 2007, there were 430 fertility clinics in the United States performing 142,415 IVF cycles. Despite the availability and increasing use of IVF treatment, significant disparities exist in

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access to care (1–3). Furthermore, evidence supports disparities in infertility treatment outcomes and the increased prevalence of reproductive problems such as uterine fibroids and estrogen deficiency states. The proceedings of this conference are summarized. Because it is a summary of conference proceedings without the original data that were published, Institutional Review Board approval was not required nor obtained.

Reproductive Problems that Disproportionately Impact Women of Color: Access to Infertility Care Disparities

The primary barrier to access remains the cost of IVF treatment. In the United States, IVF is primarily self-pay, with most health insurance plans excluding coverage. In contrast, other developed countries have made provisions in their national health policies to cover IVF. The mean cost per IVF cycle in 2002 was estimated to be \$9547 in the United States, which is 271% higher than the mean cost in 25 other countries (\$3518) (4). This cost is substantial relative to the 2002 gross national income per capita in the United States of \$33,360 (5). In 1985, Maryland became the first state to mandate private health insurance companies to provide infertility services (including IVF) to residents. To date, 10 states have laws mandating some form of coverage for IVF, but only five states mandate comprehensive coverage for their residents (Connecticut, Illinois, Massachusetts, New Jersey, and Rhode Island) (3).

National IVF data analysis revealed a nearly three-fold higher use of IVF services states with comprehensive insurance coverage compared with in states without mandated coverage (4). The use rates are also higher in countries that subsidize IVF expenses (6). These findings suggest that a large number of women who might benefit do not use IVF services, probably owing to financial constraints. Even in states with mandated insurance coverage, the individuals who access IVF services tend to be predominantly Caucasian, highly educated, and wealthy (5, 7, 8).

Hispanic women face a greater obstacle of financing infertility as they are more likely to be in a lower socioeconomic situation, where the cost of IVF will absorb a significant portion of the couple's disposable income (9, 10). Language barriers also limit access for Hispanic women who wish to use infertility treatments (10). Finally, many of these women are recent immigrants to the United States, living in insular communities and less likely to pursue medical treatment, resorting to nontraditional methods instead (9). In an "equal access" military IVF program, Caucasian and African American women sought infertility services in similar proportion to the Department of Defense population, while Hispanic women sought these services in lower proportions (11, 12). In the National Survey of Family Growth study, both Hispanic and African American women sought infertility services in reduced proportions to Caucasian women but not independent of socioeconomic status (13, 14). Cultural barriers may reduce access to infertility care in minority groups such as Arab Americans, Asians, Hispanics, and African Americans (7, 9, 10, 12, 15, 16).

Infertility Treatment Outcomes

During the first two decades of IVF, it was presumed that infertile populations were generally homogenous, with maternal age identified as the primary predictor of clinical outcomes. The first insight into the possible negative influence of Indian ethnicity occurred in a 1977 letter to the editor as an anecdotal observation to explain lower IVF pregnancy rates (17). Two subsequent controlled studies produced conflicting results, with lower pregnancy rates in Indian women in one study but not in the other compared with Caucasian women in the United Kingdom (18, 19). The first U.S. studies were published comparing African American and Caucasian women outcomes in 1999–2000 (20–22). Again, one study demonstrated a lower African American pregnancy rate in an inner-city Baltimore IVF clinic (22), while other studies did not find such a disparity (20, 21). In 2005, a study from the Boston area assessing a majority Caucasian cohort and three minority cohorts, African American, Asian, and Hispanic, found no ethnic differences in clinical pregnancy or live-birth rates, but study power was limited by small sample sizes in the minority cohorts (23).

These earliest studies established a precedent for further investigation to better understand potential racial and ethnic disparities in IVF outcomes. Feinberg et al. demonstrated an ~20% reduction in live-birth rates and ~50% increase in miscarriage rates within the African American cohort in an equal access setting, suggesting that uterine fibroids may be a contributing factor (11), but this observation has been disputed (24). However, three Society of Assisted Reproductive Technology (SART) database studies have all demonstrated significant reductions (25%–38%) in African American live-birth rates after IVF when compared with Caucasian cohorts (8, 25, 26). Similar to the Feinberg et al. study, these studies all demonstrated increased pregnancy losses in African American IVF pregnancies (8, 25, 26). Increased rates of uterine fibroids, tubal disease, and increased body mass index in the African American infertile population present potential confounding variables during analysis (1, 2, 8, 11, 21–26).

An ~30% reduction in clinical pregnancy and live-birth rates have been demonstrated in Asian women undergoing IVF and IUI (16, 27, 28). The etiology of this disparity is not known as there appear to be similar blastocyst formation rates between Asian and Caucasian IVF cycles, despite lower pregnancy rates in the Asian cohort (29). A recent SART database analysis confirmed reduced clinical pregnancy and live-birth rates in Asian women and demonstrated for the first time reduced live-birth rates in Hispanic women (25). A recent study demonstrated lower pregnancy rates in non-Caucasian women but higher blastocyst formation rates with IVF compared with Caucasian women (30). Further studies are needed to verify these differences.

Estrogen Deficiency Disparities

Recent evidence has demonstrated significant health disparities with regard to the effects of estrogen deficiency on the bone health of minority women with primary ovarian insufficiency compared with a Caucasian cohort (31). African American women with primary ovarian insufficiency have three-fold lower bone density measurements, while Asian women have four-fold lower bone density measurements compared with Caucasian

women (31). Hispanic women with primary ovarian insufficiency were not at increased risk compared with Caucasian women (31). Interestingly, the increased risk for reduced bone density in minority women is fully attributable to lower calcium intake and lower serum vitamin D levels in African American and Asian women, with lower estrogen therapy compliance in Asian women (31).

Obesity and Metabolic Syndrome Disparities

In the United States, National Health and Nutrition Examination Survey data showed that the prevalence of obesity increased threefold from 6.1% in 1976–1980 to 17.4% in 2003–2004, with the highest prevalence in African American women (32). Multiple studies have suggested an association between obesity and cardiovascular morbidity, diabetes, and reproduction in adults (32–38). In contrast to weight disparities, age-specific metabolic syndrome prevalence is lowest in African American women but highest in Mexican American women (39). Despite these statistics, our current knowledge of how obesity interacts with other metabolic parameters and impacts the reproductive health of women is limited.

Leiomyoma Prevalence Disparities

Although data support racial differences in leiomyoma prevalence, evidence remains sparse, with the vast majority of publications coming from the United States (32%), Europe (28%), and Japan (19%). Studies evaluating population prevalence outside of the United States are limited to North London, United Kingdom (40), Lund, Sweden (41), and Seveso, Italy (42, 43). However, there are data from the African continent demonstrating that leiomyomas arise in the early reproductive years, grow dramatically, and disrupt fecundity (44–46). In North America, sampling studies have been conducted in the eastern United States. These studies indicate nearly twice the risk of uterine leiomyomas in women of African descent (20/1000 of African American women-years versus 10–15/1000 women-years of Asian, Caucasian, or Hispanic descent), which further doubles with age (45.6/1000 African American women-years aged 40–44 years) (47, 48).

While the paucity of data suggests an increased prevalence in women of African descent, there is much we do not know about virtually every other ethnic group. Additional investigation worldwide on prevalence would be a valuable addition to our current knowledge, providing further insight into the origins of uterine leiomyoma development.

Conclusion

One of the fundamental questions in addressing these problems is, How do we engage the community? In research, community engagement is a process of inclusive participation that supports mutual respect of values, strategies, and actions for authentic partnership of people affiliated with or self-identified by geographic proximity, special interest, or similar situations to address issues affecting the well-being of the community of focus (49, 50).

It is well-recognized that physician-patient trust is important for successful research among minority populations. One of the best examples of a successful community partnership is the

Jackson Heart Study, the largest prospective, epidemiological single-site study of cardiovascular disease among African Americans (51–53). The study's novel capacity-building, minority training, and community participation components deepen the study's impact through enhanced recruitment and retention. Similarly, efforts to sensitively conduct reproductive research have far-reaching benefits, improving the chance that the fruits of such research can be used to resolve reproductive health disparities in the United States. There are clear indications that ethnic minorities are less likely to participate in reproductive research (54–56), and special attention by investigators on improving ethnic research participation is an important goal for this network.

A special interest group (SIG) through the American Society of Reproductive Medicine (ASRM) has been formed to bring investigators interested in racial and ethnic disparities in reproductive medicine together to share information and formulate strategies for research development. The mission statement of the health disparities SIG is as follows: “The purpose of the ASRM Health Disparities SIG is to identify disparities in access and outcomes of women of color seeking reproductive health services and to identify strategies to address these disparities and other reproductive problems in women of color.” Specific networking goals include marketing the concept of mandating race and ethnicity as a required field in SART and establishing a universal classification system to be used by SART members. The need for increasing research participation among vulnerable populations and establishment of a uniform classification system are goals that arose from this conference addressing the reproductive disparities that exist in women of color.

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