Prevalence and Consequences of Perinatal Substance Use—Growing Worldwide Concerns

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Perinatal substance use remains a global public health concern. Global epidemiologic surveys indicate that 8% of women smoke cigarettes during pregnancy with higher prevalence rates in the Americas (16%) and Europe (22%).[1] Up to 10% of pregnant women consume alcohol and 3% binge drink during pregnancy.[2–5] In addition, an estimated 2% of pregnant women report illicit opioid use including both prescription opioids and heroin.[3] Although many women quit or reduce substance use once pregnancy is diagnosed, a significant number continue to use throughout their pregnancy contributing to several negative outcomes for both mother and baby. Furthermore, these potential outcomes are compounded by inadequate prenatal care and other complex psychosocial factors.

Obstetrical complications include an increased risk of miscarriage, intrauterine growth restriction, premature labor, and even intrauterine fetal demise.[6] However, the risks of substance use disorders extend beyond pregnancy to the newborn. Alcohol is a known teratogen leading to fetal alcohol spectrum disorder (FASD) which is associated with numerous primary and secondary disabilities.[6] The growing trend for opioid use disorders is particularly alarming due to the associated neonatal withdrawal syndrome also known as neonatal abstinence syndrome (NAS). Recent estimates identified an increase in the rate of neonatal intensive care unit (NICU) admissions in the United States for NAS from 7 cases to 27 cases per 1000 admissions leading to an increase from 0.6% to 4% of all NICU days being attributed to NAS.[7] The long-term effects of alcohol and smoking have been well established, whereas long-term implications of in utero opioid exposure remain to be determined. Despite numerous interventions, there exist a significant proportion of substance-exposed pregnancies with possible reversible outcomes.

Current Knowledge and Challenges

We are excited to highlight advances in alcohol, nicotine, and opioid use disorders among perinatal populations from preconception to postpartum. The literature in the field of perinatal addictions consists of lower quality studies with small sample size resulting in multiple gaps in the optimal approach to these disorders. Identification of substance use disorders remains challenging. There is no single screening question or tool to diagnose all perinatal substance use disorders. Therefore, timely identification of exposures in utero can be problematic. Best practices for the management of substance use disorders are also debated especially in terms of effectiveness of psychosocial interventions and safety of pharmacotherapeutic agents. Advances in prevention and management of alcohol, tobacco, and opioid use disorders are critical in reducing negative consequences of in utero exposures.

Advances in Prevention and Management of Perinatal Substance Use Disorders

The articles in this supplement address the most prevalent substances used by pregnant women including alcohol, nicotine, and opioids. One article addresses contraception planning and prevention of unplanned substance-exposed pregnancies. Two articles address prevention of alcohol use disorders through a review of a Canadian 4-part framework for FASD prevention and approaches to becoming FASD-informed in planning community-level and system-level programs. One article is focused on a novel approach to smoking cessation for women of childbearing years. Three articles address the various management controversies of opioid use disorders.

Prevention of Substance-Exposed Pregnancies

The literature review by Black and Day[8] highlights that unintended pregnancies are high among all women but even more prevalent among women with substance use disorders. Women with risky substance use face numerous barriers to effective contraception including misconceptions and stigma at the personal and system levels. It also emphasizes mechanisms to increase contraception knowledge and uptake through efforts such as incorporating on-site family planning and contraceptive services into addiction clinics especially in opioid substitution treatment programs, and more generally, provision of preconception care. Given the growing number of cases, this review calls for integrated service delivery as an optimal model for meeting the needs of women attending drug treatment programs.

Responding to Fetal Alcohol Spectrum Disorder

Poole and colleagues report on a Canada-wide consultative process to map 4 levels of responses to FASD in Canada, from prevention to treatment.[9] This paper reflects the varying levels of service and system development across Canada and documents the many initiatives underway. However, it also highlights serious gaps and needs for future development, including the provision of more specialist treatment opportunities for pregnant women and new mothers with addiction issues.

Many individuals with FASD are undiagnosed and face serious challenges when engaging with health, social, or educational programs. Therefore, an FASD-informed approach should take into consideration the permanent neurological disability secondary to FASD by adopting several key principles. Rutman[10] documents the components of an FASD-informed approach at the individual or practitioner level and also recommends its application at a policy or system level. Finally, the development of integrated programs to support women with FASD and their families is suggested.

Advances in Smoking Cessation Interventions for Women

Better practices for smoking cessation among pregnant and postpartum women are in need of new, integrated approaches. Psychosocial interventions have documented benefits when implemented during pregnancy and postpartum; however, the most effective type of counseling for women is yet to be determined.[11] A novel behavioral strategy consisting of blogging about smoking cessation efforts was assessed by Minian and colleagues.[12] Blogging by pregnant or postpartum women was found to be an opportunity for self-reflection and distraction from cravings. Blogging also fostered support for smoking cessation. These short-term findings need to be followed to determine the benefits of this type of behavioral intervention over time and its relationship to other components of better practices.

Best Practices for Management of Opioid Use Disorders

The demographics of opioid use disorders have been changing, especially among rural populations. Specifically, increased heroin use has been found in rural areas, as well as a change from oral/intranasal to intravenous use.[13] A review by Jumah[13] of the management of opioid use in rural areas demonstrated that rural opioid-dependent pregnant women required lower doses of opioid agonist treatment (OAT). Barriers to care for rural women are unique and related primarily to access and availability of programs in these communities, as well as stigma and gendered responsibilities such as childcare. These findings highlight the desperate need for an appropriate gender-informed response to the growing rural opioid use epidemic among women.

Breastfeeding initiation rates among women on OAT are low due to multiple factors affecting feeding choices.[14] A review of the evidence by Graves and colleagues[15] points toward the safety of breastfeeding and its potential impact on reducing the severity of NAS. Education of both women on OAT and their health care providers is critical to increase breastfeeding rates among this patient population.

With a growing epidemic of NAS, best practice recommendations for the management of NAS consist of a standardized scoring tool to assess the severity of symptoms and signs. The optimal clinical assessment tool is unknown. Chisamore and colleagues[16] investigated different strategies for evaluation and treatment of NAS comparing a weight-based versus symptom-only–based approach. Results indicate that a higher proportion of newborns received morphine in the symptom-only model. However, those infants who received morphine in either models of morphine delivery had no statistical difference in their time of onset of morphine, total accumulative morphine, or length of stay. Further research is needed to determine an optimal NAS scoring tool and treatment protocol not only because of the current dearth of literature but also in gleaning recommendations from observational data that has its own limitations. Accordingly, Chisamore and colleagues also suggest a structured sharing of resources to manage the intense treatment required for NAS.

Conclusions

Several themes emerge from the studies published in this supplement. There is a focus on the need for the integration of multiple resources for childbearing women with substance use disorders and to link these services into improved systems of care. This suggestion includes primary to tertiary prevention efforts for women of childbearing age and their children as a means of reducing the short-term and long-term harm associated with perinatal substance use disorders. Furthermore, there is a call for the geographical expansion of services to increase access for rural women to appropriate, local, gendered services for pregnant and postpartum women with substance use disorders. Innovative approaches are also being investigated for augmenting smoking cessation and responding to the secondary consequences of OAT. Future research efforts should focus on preconception care, improved system design, and more optimal prevention and management of substance-using women and their infants.

Author Contributions

The first author AO produced the first draft of this manuscript. All other authors made revisions. All authors reviewed and approved the final manuscript.

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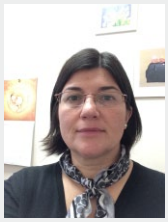

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