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Arch Med Res Health Sci. 2020;1(1):01-04.
ISSN: 2994-6379

Archives of Medical Research and Health Sciences Review Article

Understanding the Perils of Alcohol Consumption During Pregnancy: Fetal Alcohol Spectrum Disorders and Maternal Health Risks

Katherine Dejong*

Department of Obstetrics and Gynecology, Oregon Health and Science University, Portland

Correspondence to: Katherine Dejong, Department of Obstetrics and Gynecology, Oregon Health and Science University, Portland. E-mail: katherine_d@hotmail.com

Received: September 12, 2020; **Accepted**: September 28, 2020; **Published**: October 06, 2020

Citation: Dejong K. Comprehending the Dangers of Alcohol Intake While Pregnant: Fetal Alcohol Spectrum Disorders and Risks to Maternal Health. Arch Med Res Health Sci. 2020;2(1):01-.

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ABSTRACT

Excessive alcohol consumption during pregnancy can lead to severe consequences, including miscarriage, premature birth, stillbirth, low birth weight, and a spectrum of lifelong disorders collectively referred to as fetal alcohol spectrum disorders (FASDs). Alcohol stands out as one of the most hazardous teratogens, posing a significant threat to the developing fetus.

Like carbon monoxide from cigarettes, alcohol easily traverses the placenta from the mother's bloodstream into the baby's blood, placing the fetus at an increased risk of developing FASDs with every instance of maternal drinking. This exposure during pregnancy may result in cognitive, social, and motor deficiencies, presenting distinctive and lasting challenges for the child.

The use of alcoholic beverages by pregnant women is associated with potential outcomes such as abortion, fetal mortality, and prematurity. The primary goal of this review is to educate women on the risks associated with alcohol consumption during pregnancy, emphasizing the potential harm to both the child and the mother. The intention is to raise awareness, encouraging pregnant women to abstain from alcohol entirely to protect their children from various defects and themselves from unexpected health challenges.

Arch Med Res Health Sci. 2020;1(1):01-04.
ISSN: 2994-6379

Keywords: Alcohol; Consumption; Fetus; Pregnancy; Risk; Fetal alcohol spectrum disorders (FASDs); Teratogens; Maternal health.

INTRODUCTION

Alcohol consumption during pregnancy poses significant risks to both the fetus and the expectant mother, leading to potential adverse outcomes such as miscarriage, premature birth, low birth weight, stillbirth, and disorders related to high blood pressure. These risks collectively fall under the category of Fetal Alcohol Spectrum Disorders (FASDs). Pregnant women engaging in excessive alcohol consumption may face consequences such as abortion, fetal mortality, and prematurity. FASDs result from alcohol exposure during pregnancy, potentially causing irreversible physical and mental health issues, behavioral disturbances, and learning disabilities in the newborn [1-5].

The higher bioavailability of alcohol in women, compared to men, is attributed to lower levels of the alcohol dehydrogenase enzyme. This enzyme is crucial for alcohol elimination. Consequently, alcohol easily crosses the placenta, affecting the fetus. The detrimental impact of alcohol extends to cognitive, social, and motor deficiencies, posing lifelong challenges. Binge drinking, characterized by consuming a substantial amount of alcohol in a short period, can significantly compromise overall well-being.

Alcohol's influence on the fetal central nervous system is evident, especially during the first five weeks of pregnancy. The consequences include decreased brain growth, leading to conditions such as microcephaly and/or microencephaly. Maternal alcohol consumption correlates with various damaging outcomes, as indicated by the impairments observed in FAS. The risk of diabetes and having a small baby is also associated with alcohol usage during pregnancy [6-9].

Fetal Alcohol Spectrum Disorders encompass FAS, Partial Fetal Alcohol Syndrome (PFAS), and alcohol-related neurological and birth anomalies. FAS is the most severe form, characterized by specific developmental disorders, facial abnormalities, and central nervous system dysfunction. The prevalence of FASD in the global child population is estimated at 7.7 cases per thousand, with higher rates observed in the European region. FASD can result in physical challenges, behavioral issues, and learning difficulties in affected neonates.

Three types of FASDs Include

- Fetal Alcohol Syndrome (FAS): Caused by high alcohol consumption (over 48 to 60 grams of ethanol/day) during pregnancy, resulting in distinct developmental and cognitive impairments.
- Alcohol-Related Neurodevelopmental Disorders: Characterized by learning and behavioral problems in children exposed to alcohol in the womb.
- Alcohol-Related Birth Defects: Involves abnormalities in the heart, kidneys, bones, and hearing, among others, due to prenatal alcohol exposure.

Various specific outcomes, such as cardiac anomalies, orofacial clefts, atopic dermatitis, renal anomalies, neural tube defects, and behavioral and developmental changes, are associated with FASDs. Maternal alcohol consumption during pregnancy is linked to an elevated risk of psychiatric disorders in adults.

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Understanding these risks is crucial for raising awareness among pregnant women, emphasizing the need to abstain from alcohol completely to safeguard the health and development of both the child and the mother [12,13].

DISCUSSION AND CONCLUSION

Alcohol stands out as a common human teratogen, capable of inducing a diverse range of fetal complications when consumed by a pregnant woman. The developing brain of the fetus appears particularly vulnerable to Prenatal Alcohol Exposure (PAE), leading to alcohol-related brain damage that ranges from microcellular and neurochemical aberrations to macroscopic anomalies. The impact of PAE manifests in neurological, cognitive, and behavioral issues, displaying a wide spectrum of severity and diversity [14-18].

It is essential to recognize that other prenatal factors, including genetic influences or exposure to specific teratogens resulting in conditions such as ADHD or learning disabilities, can further shape the developmental outcomes of a child prenatally exposed to alcohol. Fetal Alcohol Syndrome (FAS) is characterized by distinct abnormalities in growth, facial features, and central nervous system functioning.

Moreover, alcohol abuse and addiction during pregnancy can lead to damage to the heart muscle and contribute to heart deformities in the offspring. Understanding the intricate nature of these consequences emphasizes the importance of raising awareness about the risks associated with alcohol consumption during pregnancy. It underscores the need for preventive measures to ensure the well-being of both the developing child and the expectant mother. Education and support can play a crucial role in mitigating the potential harm caused by prenatal alcohol exposure and fostering healthier outcomes for future generations.

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