

Pregnant women with teratogenic risk due to alcohol consumption in a health area of la Havana

Gestantes con riesgo teratogénico por consumo de alcohol en un área de salud de la Habana

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ABSTRACT

Introduction: alcohol consumption during pregnancy represents a current problem. Damage in the first trimester is more severe because very rapid formation and development of organ systems is occurring.

Objective: characterize pregnant women at risk for alcohol consumption in a health area.

Method: descriptive and longitudinal study of pregnant women from the Mártires del Corynthia polyclinic, Havana. 2019 - 2023. The sample consisted of those classified as having increased risk due to teratogenicity who consumed alcohol and consented to participate. The information was collected in a semi-structured interview and the child was assessed between one and three months. Qualitative variables were studied that were dichotomized into yes and no. The results were described through descriptive statistics.

Results: 35,5 % of the total pregnant women consumed alcoholic beverages. 11,8 % were classified as having increased risk due to alcohol use. 89,5 % did not plan pregnancy. It was difficult to obtain accurate information on alcohol consumption. Only 3,4 % were aware of the actual harm to the fetus and infant. 70,7 % of those studied were at optimal ages to procreate. 17,2 % of the children of pregnant women had minor Congenital Defects (CD).

Conclusions: the number of pregnant women with increased risk of teratogenicity due to alcohol consumption who did not plan their pregnancy and who drank during the embryogenesis period was high. It was not common to find alterations in the prenatal and peripartum periods. There were few CDs in the children of mothers who consumed alcohol.

KEYWORDS

Alcohol, Teratogens, Pregnancy, Congenital Abnormalities, Family Planning, Pregnancy, High-Risk.

RESUMEN

Introducción: el consumo de alcohol en el embarazo representa una problemática actual. Los daños en el primer trimestre son más severos porque está ocurriendo una muy rápida formación y desarrollo de los sistemas de órganos.

Objetivo: caracterizar las gestantes con riesgo teratogénico por consumo de alcohol en el policlínico Mártires del Corynthia

Método: estudio descriptivo y longitudinal de las gestantes del policlínico Mártires del Corynthia, de La Habana. 2019 - 2023. La muestra estuvo constituida por las clasificadas como riesgo incrementado por teratogenicidad

que consumieron alcohol y consintieron en participar. Se recogió la información en entrevista semi estructurada y se valoró al hijo entre uno y tres meses. Se estudiaron variables cualitativas que se dicotomizaron en si y no. Se describieron los resultados a través de estadística descriptiva.

Resultados: el 35,5 % del total de gestantes consumió bebidas alcohólicas. El 11,8 % se clasificaron como riesgo incrementado por uso de alcohol. El 89,5 % no planificaron el embarazo. Fue difícil obtener información veraz del consumo de alcohol. Solo 3,4 % tuvieron conocimiento del daño real al feto y al infante. El 70,7 % de las estudiadas estaba en edades óptimas para procrear. El 17,2 % de los hijos de las embarazadas presentaron Defectos Congénitos menores.

Conclusiones: fue elevado el número de las gestantes con riesgo incrementado de teratógenicidad por consumo de alcohol que no planificaron la gestación y que bebieron en el periodo de embriogénesis. No fue frecuente encontrar alteraciones en el período prenatal y el parto. Fueron pocos los DC en los hijos de madres que consumieron alcohol.

PALABRAS CLAVES

Alcohol, Teratógenos, Gestante, Anomalías Congénitas, Embarazo Planeado, Embarazo De Alto Riesgo.

INTRODUCTION

It is increasingly certain that a human being's behaviour results from dynamic and complex interactions between his genes and environment. The consumption of certain substances, such as alcohol in pregnancy, is one of the examples of this. Few researchers treat environmental adversity in early and critical stages of development (embryogenesis) as a risk factor or a position of vulnerability.⁽¹⁾

Alcohol consumption in the female population has increased markedly in recent years and represents a particular problem because it affects the health of the mother and her child.

In a large study on alcohol consumption conducted in the United States (US) in 2000, it was found that 30 % of pregnant women had used alcohol. One in ten did so in the first trimester. It is there where the damage is more severe because a very rapid formation and development of organ systems is occurring.⁽²⁾ PAHO calculated the prevalence of alcohol consumption during pregnancy in the Americas and Cuba; it was 4,8 % in 2017.⁽³⁾

The true frequency of substance abuse during gestation is very difficult to know since personal recognition is unreliable, among others, because of the cultural perception involved. This makes it difficult to study the repercussions of pregnancy, delivery, and child development.

The habitual practice of exposure to alcohol in the first weeks of pregnancy represents uncertainty, especially in couples who have not planned to have offspring. It is known that in Cuba, 80 % of pregnancies are not planned,⁽²⁾ and usually, women confirm their pregnancy after eight weeks, after embryogenesis has already taken place.

The consequences of alcohol use in children are very varied and may be present at birth or much later.

It is necessary to increase promotion and prevention efforts in Primary Health Care (PHC) to reduce alcohol consumption during pregnancy and to reduce fetal alcohol spectrum disorders that can cause problems in the way children and adolescents grow, learn and act. Considering that these disorders are 100 % preventable if the woman does not drink alcohol during pregnancy.^(4,5)

This study aims to characterize pregnant women with teratogenic risk due to alcohol consumption at the Mártires del Corynthia polyclinic.

METHODS

A qualitative, descriptive, longitudinal study of pregnant women was conducted from the first prenatal genetic risk classification consultation at the Mártires del Corynthia polyclinic, Plaza de la Revolución municipality, Havana, from January 2019 to December 2023. The sample consisted of pregnant women who were classified as having an increased risk of having a child affected with a congenital disability (CD) due to a history of exposure to a teratogen such as alcohol, according to the Manual of Standards and Procedures of the Medical Genetics Services in Cuba.⁽⁶⁾

Data were taken from the pregnancy card and prenatal genetic medical history. A semi-structured interview was conducted, which inquired about behavioural variables and knowledge regarding alcohol consumption. After delivery, their children were seen at the post-natal genetic risk assessment consultation between one month and three months after birth, where they underwent a clinical genetic examination, and their birth certificate was reviewed. In both cases, the genetic counsellor collected the data. When necessary, the information was

corroborated with the family physician.

Three qualitative variable groups were studied and dichotomized into yes and no.

Behavioural and knowledge: gestation planning, safe pregnancy diagnosis (by ultrasound or pregnancy test) before week 8, uptake after week 14, frequency, cessation of consumption during pregnancy, knowledge of the harm of drinking alcohol in pregnancy and children.

Prenatal: age of genetic risk for pregnancy (under 20 and over 35 years) unfavourable pre-birth results: any alteration in the result of alpha-fetoprotein, ultrasound or other studies indicated in the genetics service of the municipality and unfavourable evolution of the same.

Peripartum and postpartum: delivery before 37 weeks and cesarean section occurring for the first time, fetal weight less than 2500g. In the newborn, any clinical and genetic alteration during the first trimester of life and unfavourable evolution. Presence of congenital disabilities. The latter were classified according to their magnitude (major and minor) and also isolated and associated with other congenital disabilities.

The results were described using descriptive statistics.

The pregnant woman's consent to participate in the research was requested, and confidentiality was respected in each case. The research was presented and approved by the institution's ethics committee and scientific council.

RESULTS

As shown in Table 1, of the 490 pregnant women studied, 174 consumed alcoholic beverages in the first trimester (35 %); of the total, it was concluded that 69 had an increased genetic risk of teratogenicity (14,1 %), with alcohol being the most frequent teratogen (11,8 %).

Table 1. Pregnant women studied at the Mártires del Corynthia polyclinic between 2019 and 2023 about alcohol consumption and risk of teratogenicity.

| Years | Views in consultation * | Consume alcohol | | Increased risk for teratogenicity | | Alcohol as a teratogen | |
|--------|-------------------------|-----------------|------|-----------------------------------|------|------------------------|------|
| | | N | % | N | % | N | % |
| 2019 | 129 | 63 | 48,8 | 15 | 11,6 | 12 | 9,3 |
| 2020 | 125 | 36 | 28,8 | 18 | 14,4 | 15 | 12,0 |
| 2021 | 94 | 28 | 29,8 | 13 | 13,8 | 10 | 10,6 |
| 2022 | 74 | 25 | 33,8 | 11 | 14,9 | 11 | 14,9 |
| 2023 | 68 | 22 | 32,4 | 12 | 17,6 | 10 | 14,7 |
| TOTALS | 490 | 174 | 35,5 | 69 | 14,1 | 58 | 11,8 |

*The pregnant women were seen in the first consultation, during which the prenatal genetic risk classification was performed.

A total of 89,5 % did not plan the pregnancy, and only 20,7 % had confirmation of being pregnant by safe methods. The 8,6 % were captured after the 14th week.

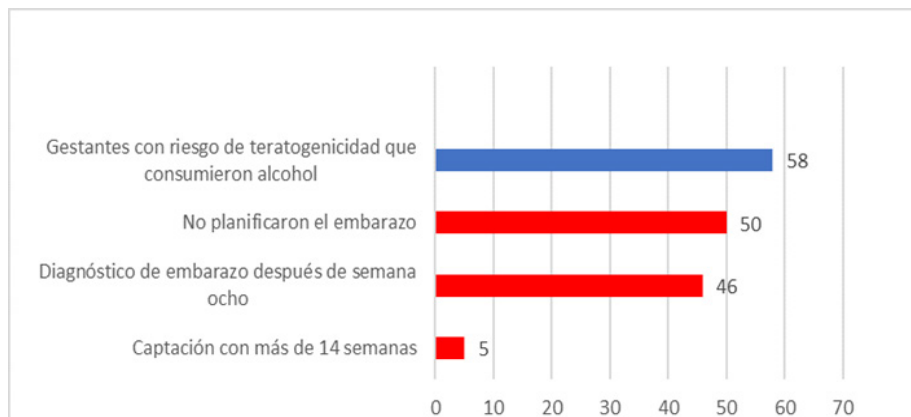


Figure 1. Planning, diagnosis and pregnancy detection in patients at risk of teratogenicity due to alcohol.

98,3 % reported having finished drinking when they confirmed they were pregnant. Only 3,4 % were aware of the real harm to the fetus and infant. The rest, in addition to not knowing, had erroneous beliefs about using this substance. Of the women studied, 70,7% were of optimum age to procreate. The average age was 27,6 years, and the most repeated was 26 years.

During the prenatal pregnancy follow-up, two pregnant women 6,9 % had alterations detected in the ultrasound in the ductus venosus and physiological alterations of the digestive and renal systems. All of them had a favourable evolution.

Delivery at 37 weeks was 8,6 %, and cesarean delivery for the first time had the highest frequency, 25,9 %. Live births of less than 2500g represented 6,9 %.

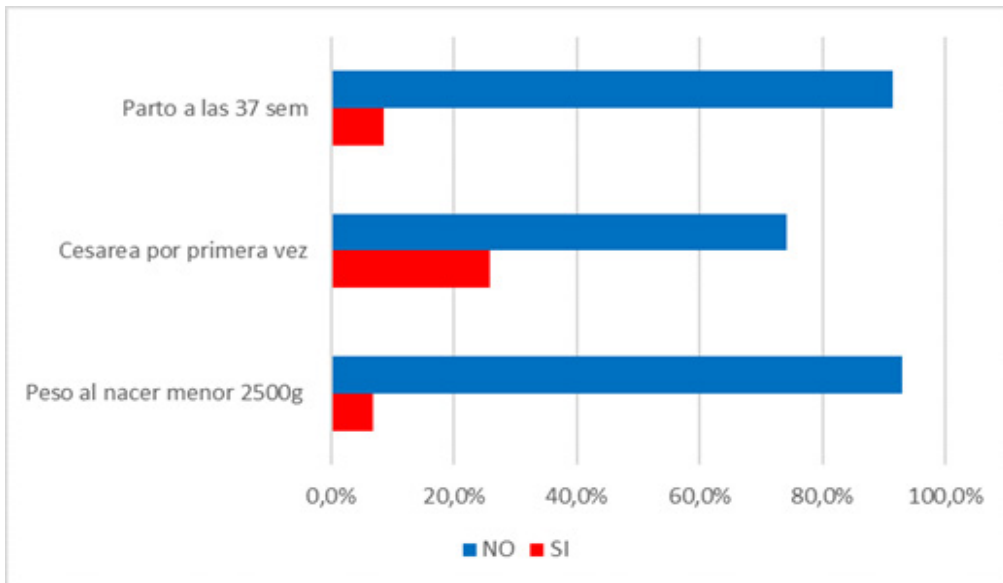


Figure 2. Perinatal outcomes and alcohol consumption in Martires del Corynthia polyclinic between 2019 and 2023.

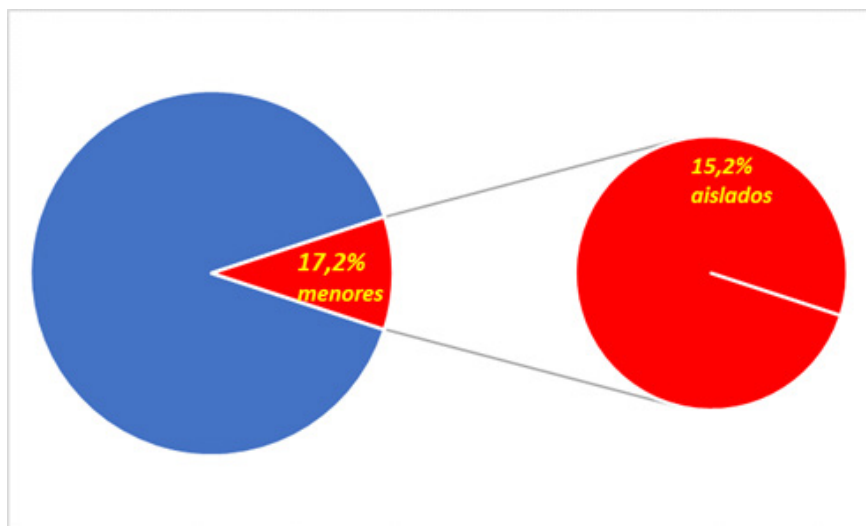


Figure 3. Congenital disabilities in children of alcohol consumers at the Martires del Corynthia polyclinic between 2019 and 2023.

Only 17,2 % of the children of pregnant women who consumed alcohol presented minor congenital disabilities, and 94,8 % of them were isolated.

DISCUSSION

Alcohol is one of the most consumed drugs in the history of mankind. Drinking is an act with a social value that differs in its essence between both sexes. In Cuba, 45,2 % of the population over 15 years of age consumes alcoholic beverages. In recent years, consumption has increased notably; 90,4 % of the population starts drinking before the age of 20 years.⁽¹⁾

Women who consume alcohol during gestation are in higher figures than in studies referenced in the United States.⁽³⁾ In the period, three out of 10 pregnant women declare having consumed ethanol; similar results have been obtained in other research.^(4,7) In Cuba, few studies on the subject cover large population groups that allow for the establishment of reliable statistics.

Among the prenatal evaluation criteria is the risk due to a history of exposure to a known teratogen or with the potential danger of being one, six which includes high temperatures, radiation, medications, infections and toxic habits, among others. Alcohol is the main cause of teratogenic risk in the pregnant women evaluated in this study. It is noteworthy that the time studied coincides with the COVID-19 pandemic, and it could be expected that the action of teratogens such as fever, medications and infections would constitute a higher frequency of risk in this group. Few pregnant women in this health area were diagnosed with infection in the first trimester. This differs from many investigations conducted where medications predominated.^(8,9)

The authors consider the possibility of an underreporting of classification for Increased Risk (IR) due to alcohol consumption, taking into account that, according to the Cuban manual of norms and procedures, the classification is based on the risk of greater magnitude for the appearance of CD. This justifies the number of pregnant women who consume alcohol without being classified in this group. We agree with Taboada⁹ in that many studies include alcohol consumption during gestation within the toxic habits, which does not allow us to clearly define the particular incidence of this substance in the risk of teratogenicity.

The number of women confirming pregnancy after eight weeks, after the embryogenesis period, where the consequences of consumption of substances such as alcohol have repercussions on organic and functional alterations of multiple organs and systems, was high.

Research carried out in the country indicates that even with information, family planning services and free access to contraception, there is still a high number of couples, especially the younger ones, who do not avoid pregnancies or assume them once they appear in their lives, without having planned them.^(2,6,10) Figures of around 80 % are reported in fertile women who do not plan their pregnancies.⁽⁶⁾ Similar results are obtained in our pregnant women who were classified at risk of teratogenicity due to alcohol.

It was difficult to obtain accurate information on the frequency and amounts ingested, which undoubtedly constitutes a limitation of this research. There are no clear references to amounts and times. All reported having finished drinking when they confirmed they were pregnant.

The identification of women who are consuming alcohol and drugs is especially difficult because most tend to hide this history. The woman usually denies or minimizes use in a first interview, especially if the question is asked directly. If it is possible to generate an atmosphere of trust with a friendly interviewer beforehand, more and better information can be obtained. A prospective study shows how to obtain actual drinking information with the help of proxy items suggesting alcohol use in pregnancy. In this case.^(10,11) Proxy questions and situation histories allowed a better understanding of the reality of drinking.

Adverse perinatal outcomes had a low frequency. The most important was cesarean section for the first time, without being able to establish a significant relationship with consumption. It would be interesting to consider quantity, frequency, and other variables in future studies to establish the cause-effect relationship between these outcomes and CD.

Women who drink alcohol during pregnancy may have offspring with congenital disabilities; however, not every woman who consumes alcoholic beverages during pregnancy has a child with traces of specific congenital damage visible at birth. This is due to several factors, such as the dose consumed, the time the consumption was maintained, the critical period of organogenesis during the embryonic development stage, and the genetic susceptibility of the woman and the fetus.⁽¹²⁾

Therefore, consuming just one drink could leave an unfortunate mark on embryo-fetal development and the function of the Central Nervous System in the later stages of life. Damage to neuronal functions may be subclinical and become evident later with manifestations such as mental retardation of varying degrees of clinical severity.⁽¹³⁾

Fetal alcohol exposure is the leading cause of congenital disabilities and developmental disorders. Recent estimates of the number of U.S. children affected by fetal alcohol exposure range from 1 per 2000 to 1 in 100 live births.⁽¹⁴⁾

This is different from the results obtained.

It is difficult for the mother to report the intake for early identification of the exposed child. This is consistent with this research. The incidence of Fetal Alcohol Syndrome (FAS) has been estimated to be 0,3 to 3,0 per 1000 live newborns (LNB), but the number of exposed children with less severe effects may be much higher (up to 1 in 300

LNB).⁽¹⁴⁾ The study design does not allow comparison with previous results, perhaps because the frequency of CD found was very low.

In addition to producing FAS, which is the more severe end of the spectrum, drinking during pregnancy can result in a wide range of disorders that, until recently, were grouped under the name Fetal Alcohol Effects and are now preferred to be called Fetal Alcohol Spectrum Disorders.⁽¹⁵⁾ Many defects are not visible at the early stages of life, and cohort studies are needed to diagnose them early.

The availability of genetic services in the research municipality facilitates the development of new strategies for personalized follow-up of these cases.

In the investigation, it was found that most women are not aware of the unfavourable effects of alcohol on pregnancy. This encourages the authors to create future preventive communication activities. Nowadays, easy access to social networks and online messaging services stimulates a quick dialogue with the users and the dissemination of the content with family and community members.

Promoting and implementing a communication channel through the Telegram platform is recommended to create a safe and participatory educational space where genetics specialists share truthful information. Topics include regional statistics, fetal consequences in the medium and long term, and what to do when suspecting some of the alterations are also included. The subscription includes all pregnant women in the municipality and their families and friends.

Another activity is optimizing time in the waiting rooms of the genetic service of the municipality to allow exchanges and discussions on the subject.

The authors consider that much remains to be studied on the consumption of toxic substances, embryogenesis, and epigenetics to improve preventive programs that favour personalized medicine based on scientific evidence. It can be concluded that the number of pregnant women with increased risk of teratogenicity due to alcohol consumption who did not plan their gestation and who drank during the embryogenesis period was high. It was not common to find alterations in the prenatal and peripartum periods. There were few congenital disabilities in the children of mothers who consumed alcohol.

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CONFLICT OF INTEREST

The investigators declare no conflict of interest.

FINANCING

None.

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