

Substance Abuse During Pregnancy and Repercussions in Pregnancy and in the Postpartum

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To cite this article

Antônio Chambô Filho, Emmanuel Nasser Vargas Araujo de Assis, Lorena Lemos Soares Soares, Maria de Fátima Miranda de Abreu Schettino. Substance Abuse During Pregnancy and Repercussions in Pregnancy and in the Postpartum. *Advances in Biomedical Sciences*. Vol. 4, No. 3, 2019, pp. 63-67.

Received: November 21, 2018; **Accepted:** May 4, 2019; **Published:** May 15, 2019

Abstract

The use of illicit drugs in pregnancy is a public health problem that implies multiple risks for its user. Specifically during pregnancy, this addiction causes risk to the fetus (malformation, prematurity, low birthweight, decreased head circumference, sudden death) as well as maternal risk (premature placental displacement, ischaemia, heart attack and death). In Europe, a study found that up to 7.9% of pregnant women had been exposed to these types of substances. There is little proven evidence in study describing the exposure to illicit prenatal drugs in Brazil and South America. Furthermore, omission of information during anamnesis in prenatal consultations has been making it more difficult to know the prevailing drugs used by this group of patients. Although there is no precise epidemiological data, it is known that the use of cocaine in the form of crack has been increasing due to its low cost and intense effect, being found in less favored classes and with a significant increase in female users. Further studies are necessary in order to provide new ways of conducting treatment. In this retrospective article, a sample of the population with an average age of around 25 years was studied, with a prevalence of 3 prenatal consultations. There was a 34% association with sexually transmitted infections (STIs) - Human Immunodeficiency Virus (HIV) and syphilis (VDRL). Around 83.7% of their partners were in use of some type of illicit substance. Over half the patients had failed to complete elementary school, with only around 10% having finished high school. No significant negative effect was found on 1st and 5th minute Apgar scores. Malformations were present in 5.4% of the infants.

Keywords

Pregnancy, Substance Abuse

1. Introduction

The consumption of illicit drugs has increased significantly in the world since the twentieth century. This is due to easy access, variety of substances and increased use by the female population. This is a serious public health problem since drugs can cause numerous social damages, such as trafficking, prostitution, increase in the number of robbery, legal costs and obstetric damages when consumed by pregnant women [1].

Marijuana is the most trafficked drug. Even with the increase in synthetic drugs, there is an estimation of 183 million users worldwide in 2014. Cocaine and crack are consumed by 0.3% of the world's population, with the majority of users (70 %) concentrated in the Americas. In the United States of America

(USA), the prevalence of illicit drug use among pregnant women reached 4.4%. In Europe, a study found that up to 7.9% of pregnant women had been exposed to these types of substances [2].

A pregnant woman with chemical dependency has a lower adherence to prenatal care, has a higher risk of fetal malformations and obstetric problems that can lead her to death, being then considered a high-risk pregnancy [1, 3]. The use of illicit drugs in pregnancy is a public and social health problem, implying in multiple risks for the user. Specifically during pregnancy, this use poses risk to both the mother and the fetus, which can lead to catastrophic damages such as abortion, fetal death and maternal death [4]. The use of illicit drugs such as marijuana, cocaine and crack during pregnancy has become a public health problem. The use of drugs during pregnancy can

cause malformation, prematurity, low birthweight, decreased head circumference, sudden death. It increases the incidence of complications such as placental displacement, ischemia, heart attack and death [2].

It is associated with the increase in risks of maternal-fetal diseases and long-term adverse effects of children whose mothers used drugs during pregnancy [5].

The use of cocaine, as well as crack, has increased significantly in the obstetric population over the last decades. It is estimated that 10% of US women have used cocaine during pregnancy. This fact may conceal an uneven distribution of the health impact, which in some cases is greater for women. In pregnant women, this problem is even more important, since their exposure to drugs can lead to the irreversible impairment of the mother-fetus binomial [6].

The use of drugs that cause addiction are progressively reaching young age groups. There are studies that certify that 85% of the female consumers are in fertile ages and some of these women will continue to use the drugs during pregnancy. There is no proven evidence in study describing prenatal exposure in Brazil and South America. The omission of information related to drug use during prenatal consultations has been making it difficult to know the prevailing illicit substances used by pregnant women [4].

In general, illicit drug users have higher rates of sexually transmitted diseases, such as HIV and syphilis, hepatitis, domestic violence and depression, compared to women who are not users.

Knowing the risk factors can help in the development of

orientation programs in order to better guide the pregnant women and improve the conduct of health professionals.

2. Methods

The study was conducted using data obtained from the electronic health records at the Pro-Matre Unit of the Santa Casa de Vitória Hospital. This was a retrospective, descriptive study conducted with 100 pregnant and postpartum illicit drug users between January 2015 and December 2017. The systematic review on the subject was carried out based on Bireme, Scielo, PubMed and Lilacs databases. The consent form was dismissed since this is a retrospective research with electronic health records data analysis.

The following variables were analyzed: age, the type of substance used, the number of prenatal visits attended, the association with sexually transmitted infections (STIs), partner's drug use and the woman's education level. From the neonatal point of view, Apgar scores, fetal abstinence syndrome and fetal malformation were the variables evaluated. Continuous variables were expressed as measures of central tendency (means) and dispersion (standard deviations), while the categorical variables were expressed as percentages.

3. Results

The mean age of the women included in the present study was around 25 years and most had attended only three prenatal visits. The mean duration of illegal drug use was six years (Table 1).

Table 1. The age of the participants, duration of illegal drug use and number of prenatal visits.

	Minimum	Maximum	Mean	Median	Standard Deviation	n
Age (years)	13	40	25	24	7	98
Time of illegal drug use (years)	1	24	6	5	4	96
Number of prenatal consultations	0	11	3	1	3	97

The most common illicit drugs used in this sample of women were marijuana and crack cocaine. Alcohol consumption, when present, was always associated with substance abuse (Figure 1).

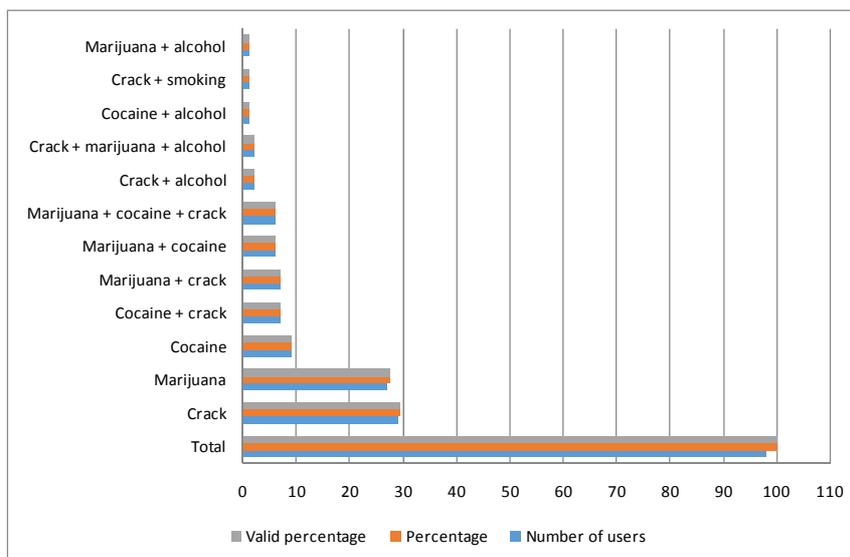


Figure 1. Distribution of the legal and illegal substances used by the study participants.

Investigation of STIs in this maternity hospital, routinely conducted using VDRL and HIV screening tests, showed positivity for at least one STI in 34% of the participants, concomitantly or not.

Table 2. Frequency of sexually transmitted infections in a sample of pregnant and postpartum users of illicit drugs.

	Frequency	Percentage	Valid percentage	Cumulative percentage
Non-reactive test	64	65.3	66.0	66.0
Syphilis	21	21.4	21.6	87.6
HIV + Syphilis	10	10.2	10.3	97.9
HIV	2	2.0	2.1	100.0
Total	97	99.0	100.0	
Missing	1	1.0		
Total	98	100.0		

Around 83.7% of the women's partners were in use of some type of illegal substance.

Table 3. Partners' drug use in a sample of pregnant and postpartum users of illicit drugs.

	Frequency	Percentage	Valid percentage	Cumulative percentage
Yes	82	83.7	83.7	83.7
No	10	10.2	10.2	93.9
Unknown	6	6.1	6.1	100.0
Total	98	100.0	100.0	

Regarding the participants' social profile, results show that most had failed to complete elementary school and only around 10% had completed high school.

Table 4. Participants' education level.

	Frequency	Percentage	Valid percentage	Cumulative percentage
Failed to complete elementary school	63	64.3	64.3	64.3
Failed to complete high school	15	15.3	15.3	79.6
Completed elementary school	10	10.2	10.2	89.8
Completed high school	10	10.2	10.2	100.0
Total	98	100.0	100.0	

With respect to neonatal outcome, 63% of the newborn infants had an Apgar score of 8 at the first minute, while 84.9% had an Apgar score of 9 at the fifth minute, as shown in Table 5 and 6, respectively.

Table 5. Neonatal outcome: Apgar score at the first minute.

First minute Apgar score		Frequency	Percentage	Valid percentage	Cumulative percentage
0	5	5.1	5.4	5.4	5.4
5	3	3.1	3.3	8.7	8.7
6	5	5.1	5.4	14.1	14.1
7	9	9.2	9.8	23.9	23.9
8	58	59.2	63.0	87.0	87.0
9	12	12.2	13.0	100.0	100.0
Total	92	93.9	100.0		
Missing	6	6.1			
Total	98	100.0			

Table 6. Neonatal outcome: Apgar score at the fifth minute.

Fifth minute Apgar score		Frequency	Percentage	Valid percentage	Cumulative percentage
0	5	5.1	5.8	5.8	5.8
7	1	1.0	1.2	7.0	7.0
8	7	7.1	8.1	15.1	15.1
9	73	74.5	84.9	100.0	100.0
Total	86	87.8	100.0		
Missing	12	12.2			
Total	98	100.0			

The incidence rate of malformations was 5.4%. The frequency of neonatal abstinence syndrome was found to be negligible (Figure 2).

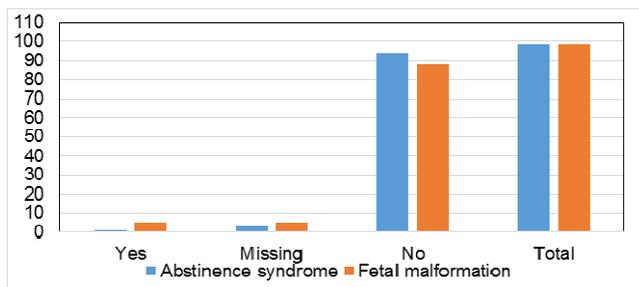


Figure 2. Neonatal outcome: Frequency of abstinence syndrome and fetal malformation.

4. Discussion

The use of illicit drugs crosses the placental barrier, thus having effects on the fetus. As the use of these substances is not allowed, the report of its use becomes hidden, in such a way that it makes prenatal care difficult. Medical screening must be more criterious, and women, who are already users, need to receive individualized and multi professional follow-up and treatment [7, 8].

In most cases, the diagnosis of drug use during pregnancy occurs only during the investigation of infections, such as viral hepatitis, human immunodeficiency virus (HIV) and syphilis, due to them being mandatory exams required during prenatal consults in Brazil, and are largely related to drug use [6].

The prevalence of illicit drug use has increased among women, as was also the case with alcohol and tobacco use previously. The moment of prenatal care should be considered as a crucial moment for the health professional to detect the use of these substances during pregnancy and may promote early intervention by reducing unfavorable repercussions at the time of delivery and puerperium [9, 10].

Epidemiological studies aimed at identifying the social profile of these patients and the neonatal outcomes are few in Brazil. An explanation for the scarcity of studies is the poor compliance of these women with prenatal care. This may be related to the individual's state of psychosocial vulnerability or, often, because of difficulties in accessing the public healthcare services. The present findings high light the participants' poor compliance with prenatal care, with most of the participants having attended only three prenatal visits [11].

When prenatal care is adequate, the attending physician will be able to find the right time to emphasize the risk to the fetus of exposure to illegal drugs and will be able to recommend a reduction in his/her patient's use of these substances. Pregnant women tend to be more amenable to suggestions to change harmful habits as a means of protecting their fetus [12]. The American Academy of Pediatrics, the American College of Obstetricians and Gynecologists and the World Health Organization consider questions on the pregnant woman's possible alcohol and drug addiction to be part of adequate prenatal care in view of the current prevalence of this practice in society and its

progressive and alarming growth [13-15].

The harm that results from the use of illegal substances is not confined only to the pregnant woman, since drugs cross the placental and blood-brain barriers without first metabolizing, leading to abnormal development in the fetus [9]. In the present study, the incidence of fetal malformations was 5.4% and could be directly related to psychoactive substance abuse during pregnancy.

Wendel identified a correlation between illicit substance abuse and multiple risk factors such as past or current chemical dependency on any substance, a history of sexual or physical abuse, younger age (more specifically late adolescence and early adulthood), difficult access to information and lack of knowledge on the harmful effects of the use of illicit substances on fetal development. In agreement with the present paper, that study reported that many of the participants were concomitantly using a variety of illegal substances, with a frequency of drug dependency of around 33.4%. In addition, education levels were poor, with 64.3% of participants having failed to complete elementary school [11].

The educational profile of patients in this study was characterized by only 10% of pregnant women with full secondary education. A series of interviews conducted in 2003 in the United States showed a pattern of drug use that is similar to that found in the present study, with users ranging in age from 15 to 44 years. In addition, many were in use of more than one illegal substance [16].

Furthermore, a meta-analysis published in 2016 showed that marijuana, the most commonly used drug among the patients evaluated in the present study, when used during pregnancy, tripled the rates of neonatal morbidity and mortality [17].

Crack, cocaine and marijuana were the most common drugs used by the participants of the present study. A quantitative study conducted by Ribeiro *et al.* reported that vulnerability to urban violence contributes towards the perpetuation of drug use, and these isolating psychosocial circumstances may lead women to try a variety of substances and may also explain the substantial association with STIs. Overall, 21.6% of the patients tested positive for syphilis alone, 2.1% for HIV alone and 10.3% for both syphilis and HIV. Positivity for syphilis, diagnosed when the woman was admitted to hospital for obstetric care, is a clear consequence of poor compliance with prenatal care. Indeed, adherence with the recommended prenatal care schedule would have allowed earlier diagnosis to be made and timely treatment to be implemented, probably minimizing harmful repercussions to the child. This study observed that there is a 34% incidence rate of sexually transmitted diseases (HIV and VDRL), simultaneously or not [18].

A study published by Hwang *et al.* in 2017 found that in the United States the number of adverse events affecting the development of newborn infants in the first year of life increased proportionally as a function of the increase in the number of women using illegal substances during pregnancy.

Accordingly, the present study found a rate of malformations of 5.4%, highlighting the harmful effects of substance abuse on fetal development.

5. Conclusion

The finding that substance abuse during pregnancy is associated with sexually transmitted infections in the pregnant woman may serve as a warning that prenatal care has been inadequate. Therefore, healthcare policies aimed at improving unfavorable outcomes should be encouraged.

It is challenging and necessary to fully understand the profile of drug users. In Brazil little is known yet. Nationwide, due to the low cost and intense effect, drug use had been found in less favored classes, with a greater impact in female users, including pregnant women. However, it is necessary to further the studies, thus enabling new multiprofessional strategies in order to conduct follow-up and treatment.

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