Intrauterine mortality in women with syphilis in Aracaju/SE philanthropic maternity

Mortalidade intrauterina em mulheres com sífilis em maternidade filantrópica de Aracaju/SE

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ABSTRACT

Introduction: Congenital syphilis is part of the preventable causes of perinatal mortality. It is possible to perform effective diagnosis and treatment in pregnancy preventing vertical transmission in 97% of cases. In the absence of adequate treatment during pregnancy, the abortion rate can reach 25% and a dead fetus to 11%.

Objective: This is an analytical, cross-sectional and retrospective epidemiological study to evaluate the intrauterine mortality of pregnant women with syphilis in Philanthropic Maternity of Aracaju/SE in the years 2017 to 2019.

Material and Method: The study used data from the pregnant woman's card and the paper records of the mother/baby binomial followed at the congenital syphilis outpatient clinic. Approved by cep on May 15, 2018, CAAE:74226217.2.0000.5371. The statistics used

were descriptive by means of absolute and relative frequencies of categorical variables and numerical frequencies in mean and standard deviation, the level of statistical significance defined in $p < 0.05$. The program used was the SPSS (Statistical Package for Social Sciencies) 21.
Results: The sample consisted of 347 pregnant women's cards and paper records. The prevalence of gestational syphilis was 1.8% and the intrauterine mortality rate (abortion and dead fetus) in previous pregnancies was 28.5%. The women were young, with a mean of 24.5 years, 84.7% lived in the Urban area, mostly brown and black (85.7%), fertility rate 2.28, 2.1% illiterate and 56.6% elementary school, 61.5% had 6 or more prenatal consultations. At the time of delivery, 51.6% of the mothers had VDRL greater than or equal to 1:8 and only 2.9% were negative at 6 months after delivery. The VDRL of the partners was negative in 66.7% of the cases. In the puerperium, only 39% of the partners were treated adequately, and 75.4% of the puerpery women treated the disease.
Conclusion: Intrauterine mortality in women with syphilis in previous pregnancies was almost three times higher than in the general population. Although pregnant women had had the minimum number of prenatal consultations recommended by the Ministry of Health, less than 40% of the partners were treated after the diagnosis of syphilis in their partners.

Keywords: Congenital syphilis, prenatal care, fetal mortality

RESUMO

Introdução: a sífilis congênita faz parte das causas evitáveis de mortalidade perinatal. É possível realizar diagnósticos e tratamentos eficazes na gravidez prevenindo a transmissão vertical em 97% dos casos. Na ausência de tratamento adequado durante a gravidez, a taxa de aborto pode chegar a 25% e de feto morto a 11%.
Objetivo: Trata-se de um estudo epidemiológico analítico, transversal e retrospectivo para avaliar a mortalidade intrauterina de gestantes com sífilis na Maternidade Filantrópica de Aracaju / SE nos anos de 2017 a 2019.
Material e Método: O estudo utilizou os dados do cartão da gestante e dos prontuários do binômio mãe / bebê acompanhados no ambulatório de sífilis congênita. Aprovado pelo cep em 15 de maio de 2018, CAAE: 74226217.2.0000.5371. As estatísticas utilizadas foram descritivas por meio de frequências absolutas e relativas das variáveis categóricas e frequências numéricas em média e desvio padrão, nível de significância estatística definido em $p < 0,05$. O programa utilizado foi o SPSS (Statistical Package for Social Sciencies) 21.
Resultados: A amostra foi composta por 347 cartões e prontuários de gestantes. A prevalência de sífilis gestacional foi de 1,8% e a taxa de mortalidade intrauterina (aborto e feto morto) em gestações anteriores foi de 28,5%. As mulheres eram jovens, com média de 24,5 anos, 84,7% moravam na Zona Urbana, em sua maioria pardas e pretas (85,7%), taxa de fecundidade 2,28, 2,1% analfabetas e 56,6% ensino fundamental, 61,5% fizeram 6 ou mais consultas de pré-natal . No momento do parto, 51,6% das mães apresentavam VDRL maior ou igual a 1: 8 e apenas 2,9% eram negativos 6 meses após o parto. O VDRL dos parceiros foi negativo em 66,7% dos casos. No puerpério, apenas 39% das parceiras foram tratadas adequadamente e 75,4% das puérperas trataram a doença.
Conclusão: A mortalidade intrauterina em mulheres com sífilis em gestações anteriores foi quase três vezes maior do que na população em geral. Embora as gestantes tenham realizado o número mínimo de consultas de pré-natal preconizado pelo Ministério da Saúde, menos de 40% dos parceiros foram atendidos após o diagnóstico de sífilis em seus parceiros.

Palavras-chave: Sífilis congênita, cuidados pré-natais, mortalidade fetal.

1 INTRODUCTION

Gestational syphilis is considered a relevant and potentially preventable cause of intrauterine mortality and other preventable perinatal outcomes with high prevalence in less developed regions of the world (NASCIMENTO et al., 2012).

Stillborn or fetal death from syphilis is defined as a dead fetus after 22 weeks of gestation or weighing 500 grams or more, whose mother with syphilis has not been treated or has been inadequately treated. Abortion by syphilis is defined as all gestational loss that occurred before 22 weeks of gestation, or weighing less than 500 grams, whose pregnant woman has syphilis without treatment or was inadequately treated during pregnancy (BRASIL, 2006).

Brazil has increased birth control by 138% and gestational syphilis by 202% in recent years due to the increase in the amount of rapid treponemal tests and VDRL in primary health care for pregnant women in the SUS network. Because it is a preventable disease in pregnancy through the use of condoms and treatable with penicillin without proven bacterin resistance, syphilis is considered a marker of development of a country and its rates serve to evaluate the quality of maternal and child care (BRASIL, 2017). However, even in the face of all the efforts of the Ministry of Health, it remains a serious public health problem with high prevalence rates increasing infant mortality and morbidity in Brazil. In 2019, 152,915 cases of acquired syphilis with a detection rate of 72.8 cases/100,000 inhabitants were reported in Sinan, with 61,127 cases of syphilis in pregnant women with a detection rate of 20.8/1,000 live births and 24,130 cases of congenital syphilis with an incidence rate of 8.2/1,000 live births and a mortality rate of 5.9/100,000 live births, totaling 173 deaths from the disease that year (BRASIL, 2020).

The World Health Organization (WHO) estimated based on prevalence data the occurrence of 6.3 million (95% CI: 5.5-7.1 million) of syphilis cases from 2009 to 2016. In view of these data, the elimination of congenital syphilis with a goal of ≤0.5 cases per 100,000 live births was determined as one of the four main objectives for 2030 (WHO, 2017).

Congenital syphilis is part of the preventable causes of perinatal mortality, and it is possible to perform effective diagnosis and treatment during pregnancy, preventing vertical transmission in 97% of cases. In the absence of adequate treatment, 25% of abortions and 11% of dead fetuses, 13% of premature births or low birth weight may

occur, among newborns (NB) 20% will present signs suggestive of congenital syphilis already at birth (BLENCOWE et al., 2011).

Even in the face of a high number of intrauterine deaths recorded in the world, special attention is still needed in relation to the relevant public policies in primary health care. Prenatal failures for appropriate treatment of gestational syphilis are directly related to increased mortality. This requires urgency in the application of appropriate and specific interventions for each region with high prevalence of the disease (NASCIMENTO et al., 2012).

In Brazil, and even in the international literature, studies addressing intrauterine mortality in women with syphilis have been little explored. In view of the above, this study aimed to evaluate the intrauterine mortality of mothers who had syphilis during pregnancy and follow up their children with congenital syphilis in the maternity of the study.

2 MATERIAL AND METHODS

This is an analytical, cross-sectional and retrospective epidemiological study to evaluate the intrauterine mortality of women with syphilis, in previous pregnancies, in Aracaju/SE Philanthropic Maternity in the period 2017 to 2019. Data from the pregnant woman's card and paper records of the mother/child binomial were used in the congenital syphilis outpatient clinic. Maternal syphilis was defined as the reactivity of VDRL any titration, and that have not been treated or inadequately treated during pregnancy, whose children have a diagnosis of congenital syphilis, according to the Protocol of the Ministry of Health, 2019. The inclusion criteria were the parent to present positive VDRL at the time of delivery and follow-up of the mother and baby binomial for six months in the congenital syphilis outpatient clinic, and exclusion: medical records without the relevant data for the research and not having follow-up. It was approved on May 15, 2018, CAAE:74226217.2.0000.5371.

The demographic variables collected were: maternal age; skin color, schooling, place of residence. Reproductive history was analyzed as categorical variables considering: the number of pregnancies, parity, history of abortion and fetal death. The characteristics of the current pregnancy were analyzed by the conditions of admission and delivery and the number of consultations. The results of the VDRL test and the treatment of the puerperal and partner were extracted from the prenatal card and from the outpatient records in the follow-up of the mother/baby binomial.

The statistics used were descriptive by means of absolute and relative frequencies of categorical variables and numerical frequencies in mean and standard deviation, the level of statistical significance defined in $p < 0.05$. The program used was the SPSS (Statistical Package for Social Sciencies) 21.

3 RESULTS

We analyzed 380 cards of pregnant women and paper records of women with gestational syphilis who follow up infants in an outpatient clinic specialized in the maternity of the study. Excluded 33 medical records that did not have information on fetal death in previous pregnancies. In the maternity of the study were born alive, in the years 2017, 2018 and 2019, 28,536 babies and 516 mothers had syphilis (prevalence of 1.8% of gestational syphilis). Table 1 shows that the puerpery women were young, with an average of 24.5 years, 84.7% live in an Urban area, with 47.8% living in Aracaju, the other ones living in the interior. They were mostly brown and black (85.7%), 2.1% were illiterate and 56.6% attended elementary school, the fertility rate was 2.28. 6 or more prenatal consultations were performed in 61.5% of the pregnant women.

Table 1- Characteristics of positive VDRL puerperal women in Philanthropic Maternity in the period 2017 to 2019

Features	Percentage
Maternal Zone	
Urban	87,4%
Rural	12,6%
Maternal Education	
Illiterate	2,1%
Fundamental	56,6%
Middle	38,2%
Top	3%
Type of delivery	
Normal	77,1%
Cesarean section	22,9%
Race	
White	14,1%
Brown/Black	85,7%
How Many Children	
1 and 2	67,3%
3 or more	30,7%
Prenatal consultations	
< 6 queries	34,6%
≥ 6 queries	65,4%

Source: Own authorship

Table 2 shows the rates of mothers who had intrauterine mortality (abortion and dead fetus) in previous pregnancies of women with vdrl reagent of the study.

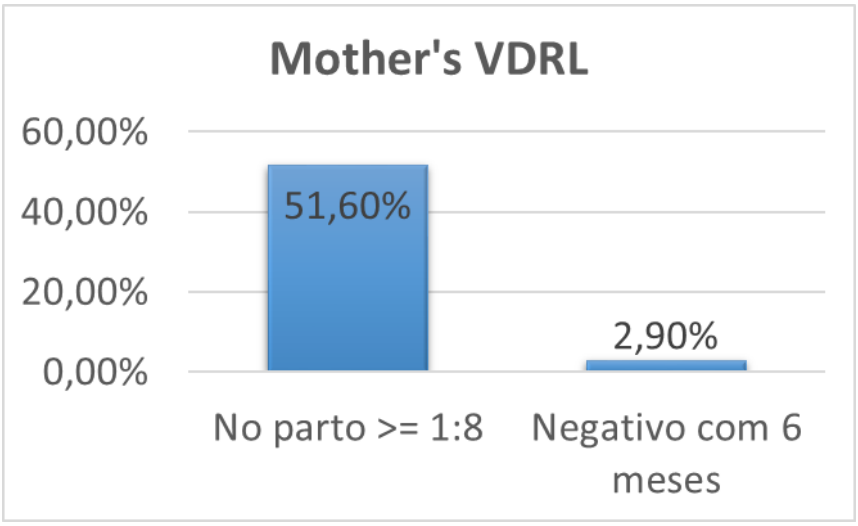
Table 2- Rates of positive VDRL mothers who had intrauterine mortality in previous pregnancies in the maternity of the study in the years 2017 to 2019

Rates	%	N
Rate of mothers who have already aborted	21%	73/347
Rate of mothers who have already had dead fetus	7,5%	26/347
Rate of mothers with intrauterine mortality	28,5%	99/347

Source: Own authorship

At the time of delivery, 51.6% of the mothers' VDRL had rates greater than or equal to 1:8 and only 2.9% were negative at 6 months after delivery. The VDRL of the partners was negative in 66.7% of the cases, as shown in Figure 1.

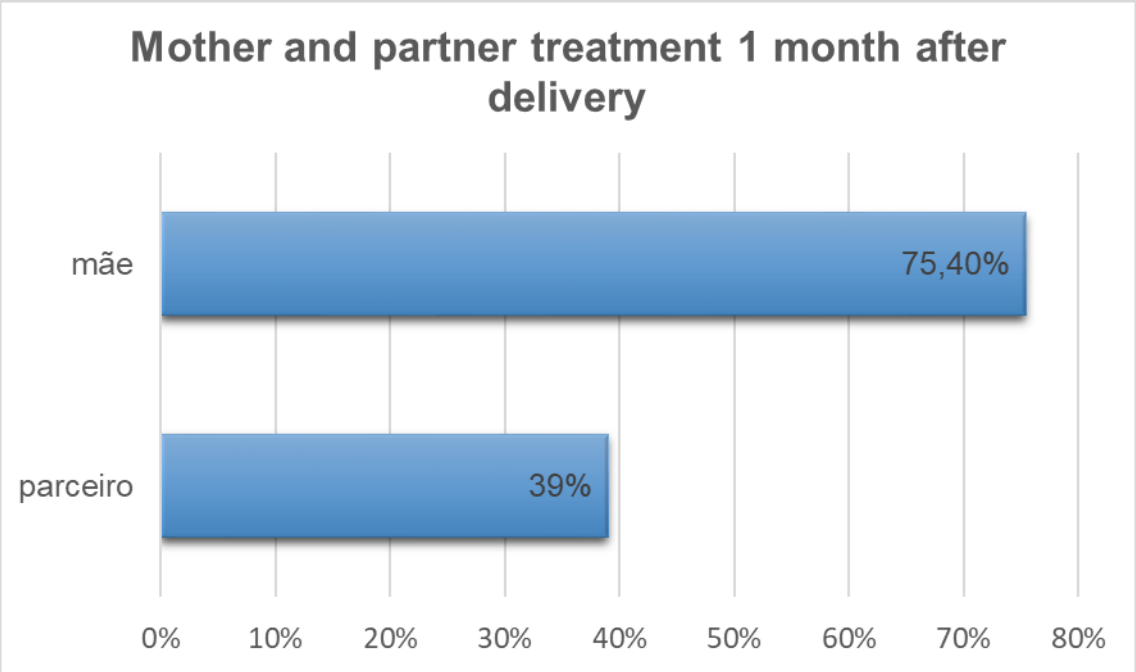
Figure 1- VDRL rates of puerperal women hospitalized in Philanthropic Maternity in the years 2017 to 2019



Source: Own authorship

Figure 2 shows that at 1 month after delivery only 39% of the partners were treated adequately, and 75.4% of the mothers were treated.

Figure 2- Treatment of the puerperal and partner with one month after delivery in Philanthropic Maternity in the period 2017 to 2019



Source: Own authorship

4 DISCUSSION

The WHO estimate in 2016 was that 900,000 maternal infections with active syphilis occurred. 661,000 were born with congenital syphilis and of these 306,000 were children without clinical signs of the disease and 355,000 resulted in adverse events in pregnancy with 143,000 fetal/stillbirth deaths, 61. 000 neonatal deaths, 41. 000 preterm infants/low birth weight and 110,000 infected children (KORENROMP et al., 2019).

In the present study, an intrauterine mortality rate (abortion and dead fetus) was observed of 28.5% in previous pregnancies. Padovani *et. al.*, 2018, found an intrauterine mortality of 40.8% in VDRL positive women; Macêdo *et. al.*, 27.6% and through data from the Ministry of Health, 2016, this mortality is around 25%. According to data from the tabnet datasus, fetal deaths in the general population are around 10% of pregnancies.

In pregnant women with positive VDRL in which fetal or stillbirth death occurs, the diagnosis of congenital syphilis should be established through the clinical and epidemiological history of the mother and the presumptive clinical diagnosis when the fetus shows signs of the disease (BRASIL, 2006).

The WHO has established the elimination of congenital syphilis as the fourth Millennium Development Goal (MDGs), which assesses the reduction of fetal and infant mortality and has congenital syphilis as an important factor to reduce this mortality. The

goal of eliminating congenital syphilis for 2030 is that ≤ 0.5 cases per 100,000 live births occur in 80% of countries with high prevalence rates of the disease (WHO, 2017).

Data from the study showed a prevalence of syphilis during pregnancy of 1.8% (28,536 were born alive and of these 516 were mothers with syphilis). These data corroborate the researches of: Padovani *et al.*, 2018; Lopes *et al.*, 2016; Cardoso *et al.*, 2018. Domingues *et al.*, 2016 found a prevalence between 1.4 and 2.8%. Every pregnant woman should be tested for syphilis in the first and third trimester with VDRL dosage and when positive it should be treated with benzaycin penicillin at intervals and doses according to the clinical phase of the disease, start treatment 30 days before delivery and treat the partner(s). After appropriate treatment, the VDRL of the pregnant woman should be performed monthly and the pregnant woman should have a drop of two dilutions within 6 months of the end of treatment and 4 dilutions within 12 months (BRASIL, 2019).

However, even in the face of so many opportunities for the detection of gestational syphilis, the disease remains a challenge for managers and health professionals leading to the transmission to the fetus and the death of millions of innocent people in Brazil and worldwide. This is probably due to several factors such as: dismay when treating syphilis as a health problem; ignorance of the population of the signs and symptoms, the severity and complications of the disease; reduction of condom use; non-compliance with established programs and non-keeping of a quality of prenatal care (WHO, 2016).

In the present study, the women with syphilis followed in the outpatient clinic of the maternity of the study were young, with an average of 24.5 years, 84.7% lived in an urban area, with 47.8% living in Aracaju, the other lived in cities in the interior of the state. They were mostly brown and black (85.7%), 2.1% illiterate and 56.6% elementary school, the fertility rate of the study was 2.28. According to Macêdo, *et al*, 2017, low schooling and lack of access to prenatal care are associated with a higher chance of syphilis. Cardoso *et al* (2016) reported that women with syphilis in 56.6% were between 20 and 29 years old, 85.1% were considered brown and black, 65.1% had incomplete elementary school and 5.7% were illiterate. Nascimento *et. al.* (2012) observed that pregnant women with syphilis with fetal death had a mean of 22.7 years (SD=0.9 years) and half of the patients under eight years of schooling.

In low-income sites syphilis is the most common infection, accompanied by fetal or stillbirth loss. This intrauterine mortality is found in up to 40% of pregnancies in infected women who are treated inappropriately or untreated. Syphilis has a defined etiological agent, known mode of contamination and transmission, inexpensive

diagnostic means, with simple and easy-to-interpret technology. Its treatment is effective, low cost, whose medication is found in the SUS network, and for which drug resistance has not been found so far (BRASIL, 2019).

Congenital syphilis is part of the preventable causes of perinatal mortality, as it is possible to perform effective diagnosis and treatment during pregnancy, preventing vertical transmission. The countries that achieved this control were based on general guidelines for the elimination of the disease with qualification of prenatal care. The control would lead to a reduction in the prevalence of syphilis during pregnancy and elimination of congenital syphilis, reducing infant mortality and morbidity (WHO, 2016).

In this study, women presented at the time of delivery in 51.6% VDRL with rates greater than or equal to 1:8 and only 2.9% were negative at 6 months after delivery. Lopes *et. al.*, 2016, found 54.67% of VDRL greater than or equal to 1:8 at delivery and 6.1% of the women had negative VDRL at 6 months after treatment. They are considered therapeutic failures and require new treatment with benzathine penicillin, VDRL titides that did not have a drop in two dilutions after 6 months and four dilutions after 12 months (Brazil, 2019).

The VDRL of the partners was negative in 66.7% of the cases, which is another major challenge to be overcome for the reduction of gestational syphilis and consequently intrauterine mortality. This low positivity in relation to VDRL increases the partner's difficulty in treatment. Cardoso *et al* (2016) found statistical significance between untreated partners and perinatal and neonatal death.

In the present study, although 65.4% of the women had performed 6 or more prenatal consultations, 25% of the postpartum women and 61% of the partners had not undergone adequate treatment for syphilis on their return to the outpatient clinic one month after delivery. Brazil (2017) stated that 82.3% of the partners in the state of Sergipe were not treated. Cavalcante *et al.* (2017) found 81% of untreated sexual partnerships. When the pregnant woman is adequately treated, as early as possible, even in the first trimester of pregnancy, transmission to the fetus can occur around 3% of pregnancies leading to a reduction in intrauterine mortality from this disease. It is not enough to have a number of prenatal consultations, it is necessary to have quality in these consultations with early testing for syphilis and insertion of the sexual partner already in prenatal care.

Untreated gestational syphilis significantly increases intrauterine mortality if the pregnant woman is in the primary or secondary phase of the disease, vertical transmission can occur in up to 100% of cases (SARACENI et al., 2017). The WHO considers that one

country has achieved the elimination of congenital syphilis when the incidence is ≤0.5 cases per 100,000 live births (WHO, 2017). To achieve this goal, it is necessary to face challenges such as: expanding the coverage of rapid tests for syphilis and VDRL reaching 100% of pregnant women; improve the quality of prenatal care starting as early as possible, in the first three months of gestation, with the laboratory diagnosis of Treponema pallidum of the pregnant woman and partner(s) immediately started the appropriate treatment with repetition of VDRL monthly to evaluate the therapeutic response (GONÇALVES; MATIDA, 2010). Even non-reactive VDRL partners should receive treatment for syphilis (BRASIL, 2019).

5 CONCLUSION

Intrauterine mortality in women with syphilis in previous pregnancies was almost three times higher than in the general population. Although pregnant women had had the minimum number of prenatal consultations recommended by the Ministry of Health, less than 40% of the partners were treated after the diagnosis of syphilis in their partners.

6 STUDY LIMITATIONS AND PERSPECTIVES FOR NEW RESEARCH

The study evaluated only maternal clinical and epidemiological history in previous pregnancies in relation to the occurrence of fetal death. Further prospective studies with placental analysis and clinical characteristics of the disease present in fetuses should be carried out to accurately assess intrauterine mortality due to congenital syphilis.

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