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Colloquium Vitae

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ASSISTÊNCIA MATERNO-INFANTIL DE GESTANTES COM DIAGNÓSTICO DE SÍFILIS EM UMA MATERNIDADE NO INTERIOR DO ESTADO DE SÃO PAULO

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RESUMO

o objetivo desse estudo é avaliar a assistência materno-infantil de gestantes infectadas com sífilis.Foi realizado um estudo transversal retrospectivo dos casos de sífilis em gestantes atendidas em um hospital público do interior de São Paulo que apresentaram teste rápido positivo para sífilis no momento do parto no ano de 2020. A taxa de sífilis encontrada durante a gestação foi de 45,6 a cada 1000 nascidos vivos. 82% das gestantes que tiveram o diagnóstico de sífilis durante o pré-natal receberam o tratamento preconizado e 100% destas gestantes atendidas na maternidade estudada tiveram o atendimento em conformidade com as diretrizes do Centro de Referência e Treinamento DST/AIDS da Secretaria de Saúde de São Paulo. Políticas de saúde pública regionais devem priorizar as campanhas de prevenção de infecções sexualmente transmissíveis e rever os processos de assistência pré-natal para que toda a gestante infectada com sífilis receba o tratamento preconizado.

Palavras - chave: sífilis, pré-natal, sífilis congênita, gestantes.

MATERNAL AND INFANT CARE OF PREGNANT WOMEN WITH A SYPHILIS DIAGNOSIS IN A MATERNITY HOSPITAL IN THE INTERIOR OF SÃO PAULO STATE.

ABSTRACT

the objective of this study is to evaluate the maternal and infant care of pregnant women infected with syphilis. A retrospective cross-sectional study was carried out of syphilis cases in pregnant women treated at a public hospital in the interior of São Paulo who presented a positive rapid test for syphilis at delivery in 2020. The rate of syphilis found during pregnancy was 45.6 per 1000 live births. In total, 82% of the pregnant women who were diagnosed with syphilis during prenatal care received the recommended treatment and 100% of these pregnant women attended at the maternity hospital studied were treated in accordance with the guidelines of the STD/AIDS Reference and Training Center of the Health Department of São Paulo. Regional public health policies should prioritize campaigns to prevent sexually transmitted infections and review prenatal care processes so that all pregnant women infected with syphilis receive the recommended treatment.

Keywords: syphilis, antenatal care, congenital syphilis, pregnant women.

INTRODUCTION

According to the Ministry of Health, the incidence of syphilis during pregnancy has increased significantly in the last decade[1]. Reported cases of syphilis in pregnant women in Brazil increased 2.3 times from 2014 to 2018[1]. As a result, the rates of early and late congenital syphilis also increased in this period, with the highest rates observed in the Southeast and Northeast regions, reaching 9.7 and 9.6 per thousand live births, respectively[1].

Syphilis is a chronic systemic disease of bacterial origin, caused by *Treponema pallidum*. Its transmission occurs mainly through sexual

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contact, but in cases of untreated or inadequately treated maternal infections, it can be transmitted from the pregnant woman to the fetus. Of these cases, 80% are transmitted during intrauterine life, but the disease can also be acquired during vaginal delivery through contact with syphilitic lesions of the mother. Infection of the conceptus is directly related to the time of exposure and the stage of the maternal disease, with transmissibility rates of 70 to 100% in the primary and secondary phases, and around 30% in the late latent tertiary phase[2].

The consequences for the fetus include death in utero, premature birth, and neonatal death. Congenital infection can cause alterations in liver function, thrombocytopenia, anemia, and ascites. There may also be involvement of organs such as the lungs (Virchow's pneumonia alba), liver (hepatomegaly, hypertrophic cirrhosis), spleen, pancreas, and long bones.

Congenital syphilis can be early (appearance of symptoms within two years of age) or late (appearance of symptoms after two years of age). The most important changes occur in the neurological system, such as deafness, due to injury to the eighth cranial nerve. In pregnant women, the placenta may be enlarged and edematous, with signs of an inflammatory process[3].

In 1993, the Ministry of Health (MOH) and the Pan American Health Organization (PAHO), in an attempt to eradicate congenital syphilis, established the right of all pregnant women to be offered the VDRL test at the first prenatal visit, in the third trimester of pregnancy, and at the time of admission for delivery[4]. Currently, there is a rapid test for syphilis available, which should be performed for the diagnosis of syphilis in pregnant women in the first, second, and third trimesters of pregnancy and also at the time of delivery, following the recommendations of the Health Department of the State of São Paulo.

The diagnosis of the newborn involves a set of clinical-epidemiological aspects, which takes into account the maternal history of syphilis and treatment during pregnancy, clinical signs and symptoms of the child, and laboratory and radiological tests such as blood count, liver profile, neurological evaluation with cerebrospinal fluid puncture, treponemal and non-treponemal tests, bone radiography, and ophthalmological and audiological evaluation[2,5]. It needs to be remembered that most newborns infected with syphilis are asymptomatic.

Syphilitic pregnant women are treated with IM benzathine penicillin. If benzathine penicillin is provided at the appropriate dose and interval for the stage of maternal infection, and started 30 days before the date of delivery, the treatment is effective for both the woman and the fetus[6].

Newborns of mothers with untreated or inadequately treated syphilis, regardless of the newborn's VDRL result, should undergo bone radiography, lumbar puncture for CSF analysis, blood count, and other tests when clinically indicated. For newborns of adequately treated mothers, VDRL should be performed in the newborn's peripheral blood; if reactive or in the presence of clinical alterations, bone radiography, lumbar puncture, and blood count should be performed[6].

Syphilis incidence rates have been used as an indicator of the quality of prenatal care, as the disease is treatable, universally accessible, and can be prevented by using condoms[7].

The objective of this study is to evaluate the maternal and infant care of pregnant women infected with syphilis.

METHODS

This is a retrospective cross-sectional study evaluating syphilis cases in pregnant women who had a positive rapid test for syphilis at the time of delivery, treated at a public hospital in the interior of the state of São Paulo from January 1 to December 31 2020, with the aim of evaluating maternal and infant care.

All pregnant women with positive results from the rapid test for syphilis performed at delivery and their respective newborns were included in this study. All pregnant women with non-reactive or reactive rapid test results for syphilis performed at the time of delivery, but for whom we were unable to access the medical records, were excluded. Pregnant women who had their deliveries performed in another service, as well as newborns in other maternity hospitals or who were referred for diagnostic investigation and specific therapy for syphilis were also excluded.

To carry out this study, we searched for the birth number from the Obstetric Center book, as well as the identification of all pregnant women who gave birth between January 1, 2020 and December 31, 2020. After identification of

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these patients, all medical records were collected to identify the results of the rapid test for syphilis at the time of delivery, and all medical records of pregnant women who presented a positive rapid test for syphilis reagent were selected. Likewise, the records of the newborns were requested, in order to collect information regarding exposure to *Treponema pallidum* and/or congenital syphilis.

Regarding the pregnant women included in the study, the following information was collected: maternal age; gestational age at delivery; number of prenatal consultations; VDRL result in the three trimesters of pregnancy and pre-delivery; treatment during pregnancy; presence or absence of prenatal care; and HIV co-infection. Regarding the newborns of these pregnant women, the following information was collected: birth weight; gestational age; VDRL result at birth; blood count; bone radiography; CSF analysis; and possible alterations.

The collected data were tabulated in Google Forms tables. Absolute and relative analysis was performed.

Finally, it is worth mentioning that this study was approved and the waiver of the Free and Informed Consent Term accepted by the Research Ethics Committee of the Universidade do Oeste Paulista (CEP-UNOESTE), whose CAAE 40426720.8.0000.5515. Every care has been taken to ensure the secrecy and confidentiality of the information.

RESULTS

The number of deliveries performed in the maternity hospital and analyzed in this study is described in Table 1.

Table 1. Number of deliveries performed in a maternity hospital in the interior of the state of São Paulo, from January 1 to December 31, 2021

Months	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
Normal deliveries	60	68	68	54	41	39	31	27	37	38	49	59	571
Cesarean deliveries	35	39	34	41	29	21	23	28	26	29	40	38	383
TOTAL	**95**	**107**	**102**	**95**	**70**	**60**	**54**	**55**	**63**	**67**	**89**	**97**	**954**

A total of 954 deliveries were performed in the maternity ward of a hospital in the interior of the state of São Paulo, from January 1 to December 31, 2020, with 571 normal deliveries and 383 cesarean deliveries. The cesarean delivery rate in 2020 was 40%.

Of the total number of deliveries performed in this Service, it was possible to access and review data from 901 medical records of pregnant women.

Among the 901 medical records of pregnant women analyzed in this study, we identified 43 pregnant women who presented a positive result of a rapid test for syphilis at the time of delivery, who were included and analyzed in this study.

The detection rate of syphilis during pregnancy found in the analyzed population was 45.6 cases per 1000 live births in 2020. The estimated prevalence of syphilis during pregnancy in the population analyzed in 2020 in this maternity hospital was 4.5%.

The data of the pregnant women are presented in Table 2.

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Table 2. Main characteristics of the pregnant women with a positive rapid test for syphilis at the time of delivery.

MATERNAL DATA		
Age	**n**	**%**
<18 years	6	13,9
18-21 years	17	39,5
22-25 years	9	20,9
26-30 years	4	9,3
>30 years	7	16,3
Prenatal care	**n**	**%**
Yes	40	93
No	3	7
Consultations	**n**	**%**
4 or more	35	81,4
Less than 4	2	4,6
Did not have prenatal care	3	7
No available records	3	7
Diagnosis	**n**	**%**
During prenatal care	33	76,7
Time of delivery	5	11,6
No available records	5	11,6
Treatment	**n**	**%**
Done	31	72,1
Not done or inappropriate	8	18,6
No available records	4	9,3
Gestacional age at delivery	**n**	**%**
Full term	35	81,4
Pre term	8	18,6
Coinfection sífilis-HIV	**n**	**%**
Yes	0	0
No	43	100

Of the 43 pregnant women analyzed, 6 (13.9%) were younger than 18 years of age, 17 (39.5%) were between 18 and 21 years of age, 9 (20.9%) were between 22 and 25 years of age, 4 (9 .3%) between 26 and 30 years of age, and 7 (16.3%) over 31 years of age.

More than 90% of the pregnant women included in this study (n = 40; 93%) reported receiving prenatal care. An average of 7 consultations per pregnant woman was identified, ranging from 1 to 10 consultations. Among the pregnant women who underwent prenatal care, 35 (81.4%) reported having had 4 or more prenatal consultations, 2 (4.6%) had less than 4 consultations, 3 (7%), did not have prenatal care, and for 3 women (7%) there were no available records.

In 76.7% of the analyzed pregnant women (33/43), the diagnosis of maternal infection by *Treponema pallidum* was performed during prenatal care. In 5 pregnant women (11.6%) the diagnosis of syphilis was made at the time of delivery.

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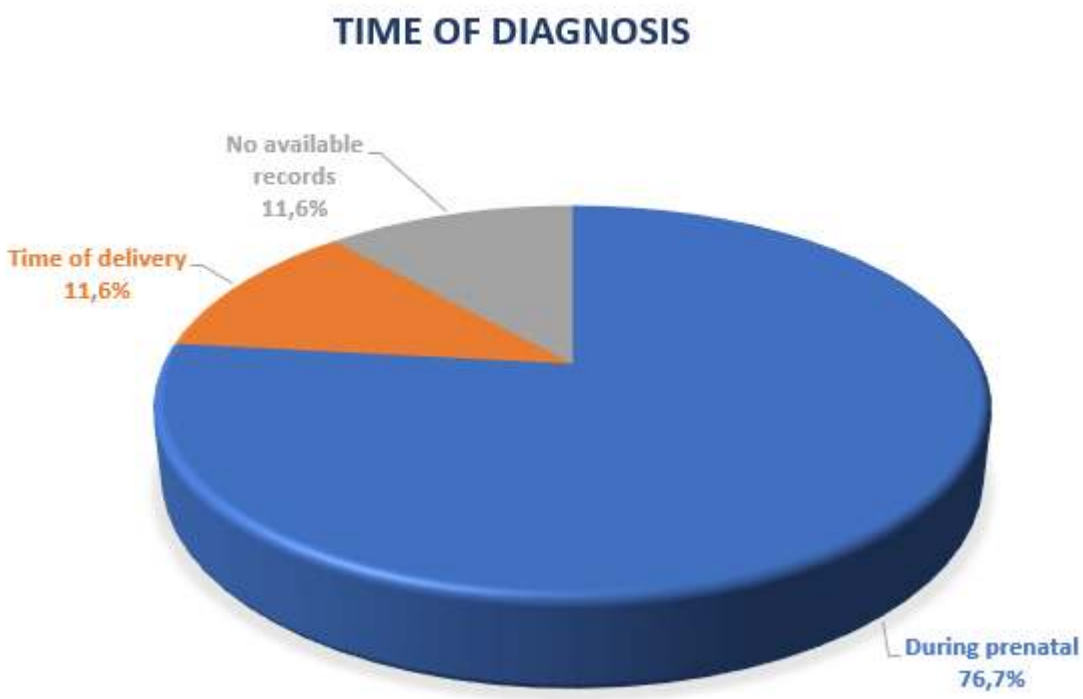
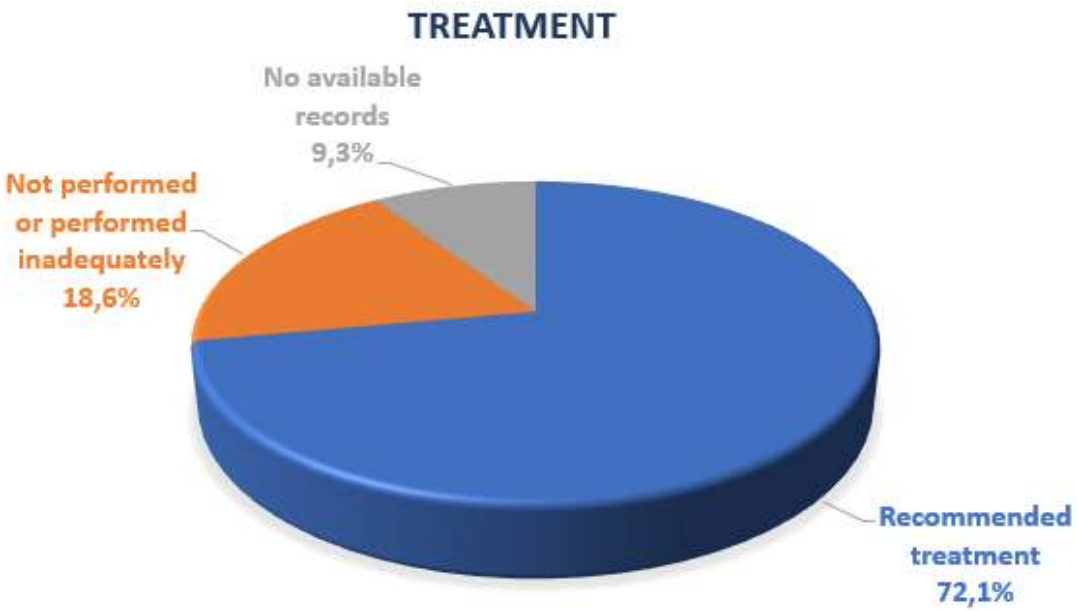


Figure 1. Percentage distribution of the time of diagnosis of syphilis in the pregnant women.

Regarding the 5 pregnant women diagnosed at delivery, 2 did not undergo prenatal care. Of the 3 pregnant women who reported prenatal care, 1 had no information about tests performed and 2 had two non-reactive serology results during prenatal care, performed in the 2nd and 3rd trimesters in one woman and the 1st and 2nd trimesters in the other.

In the pregnant women who underwent prenatal care, the treatment of syphilis was not performed or was performed inadequately in 6 cases, that is, 72% (33/38) received the recommended treatment according to the recommendations of the Health Department of the state of São Paulo.

Figure 2. Percentage distribution of the treatment profile performed for syphilis in the pregnant women.



The mean gestational age observed in these pregnant women with syphilis was 38

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weeks and 2 days, with a percentage of prematurity (Capurro index <37 weeks) of 18.6%. (n = 8).

None of the pregnant women were diagnosed with syphilis - HIV co-infection.

Regarding newborns, 42 newborns born to mothers with a positive rapid test result for syphilis reagent at the time of delivery were analyzed. The main characteristics of these newborns are described in Table 3.

Table 3. Main characteristics of newborns born to mothers with a positive rapid test for syphilis at delivery.

NEWBORN DATA		
Birth weight	**n**	**%**
AGA	33	78,6
SGA	5	11,9
LGA	4	9,5
VDRL underwent at birth	**n**	**%**
Yes	42	100
No	0	0
VDRL result at birth	**n**	**%**
Reactive	23	54,8
No reactive	19	45,2
Blood count result	**n**	**%**
Normal	32	76,2
Alteration	10	23,8
CSF result	**n**	**%**
Normal	23	54,8
Alteration	4	9,5
No available records	15	35,7
Bone radiography result	**n**	**%**
Normal	25	59,5
Alteration	3	7,2
No available records	14	33,3

AGA – Appropriate for gestational age; SGA – Small for gestational age; LGA – Large for gestational age; CSF – Cerebral Spinal Fluid; VDRL – Venereal Disease Research Laboratory (test for the diagnosis of Syphilis).

Among the newborns of mothers with a positive rapid test (RT) for syphilis reagent, 5 (11.9%) were born weighing less than the 10th percentile of the expected weight distribution for gestational age, and 3 of weighed less than 2,500 grams.

All newborns born to mothers with a positive rapid test for syphilis at delivery underwent VDRL shortly after birth; of these, 23 were reactive.

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Figure 4. Percentage distribution of the VDRL results at birth.

All conceptuses with a reactive peripheral blood VDRL underwent a complete blood count, bone radiography, and CSF. Three (13%) newborns demonstrated radiological alterations and 4 (17%) CSF alterations. The CSF alterations were characterized by increased cellularity and/or increased protein, characterizing a possible diagnosis of neurosyphilis. There were no reactive VDRL results in cerebrospinal fluid of these newborns, that is, confirmed cases of neurosyphilis.

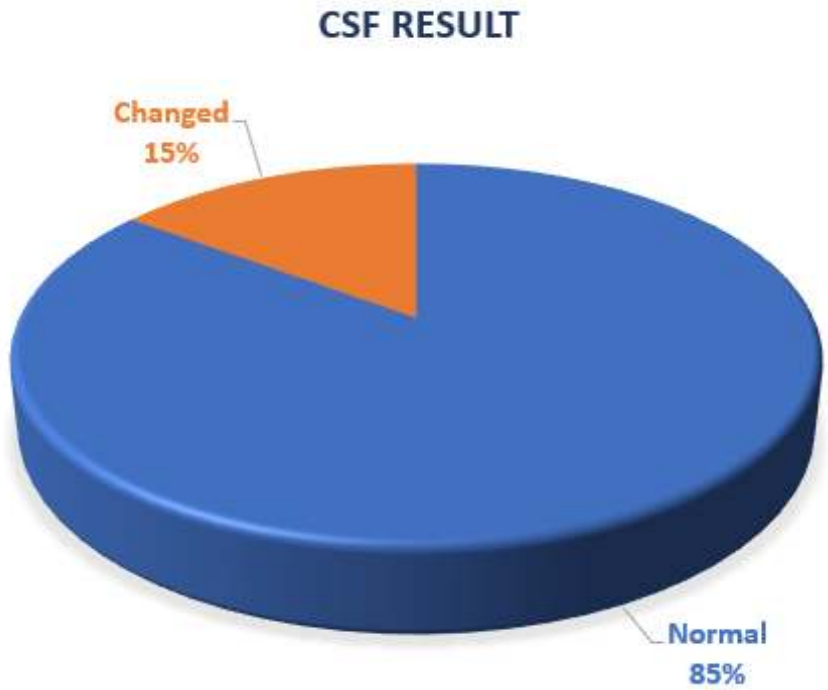


Figure 5. Percentage distribution of the CSF result of newborns.

DISCUSSION

The detection rate of syphilis during pregnancy found in the analyzed population was 45.6 cases per 1000 live births, higher than the syphilis detection rate in pregnant women in the state of São Paulo, which was 18.9 cases per 1000 live births, and also higher than that of Brazil which was 20.8 cases per 1000 live births[1].

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Among the capitals, Porto Alegre presents the highest rate of detection of syphilis during pregnancy in Brazil, with 54 cases for every 1000 live births in 2019. An interesting phenomenon is that practically all capitals of states of the federation have a higher detection rate of syphilis in pregnancy than the average in their respective states[1]. We believe that the same phenomenon occurred in the analyzed maternity hospital as it is located in a reference city for the region.

More than half of the infected pregnant women (52.4%) are younger than 21 years of age, which identifies a vulnerable population, and that public policies on sex education and prevention of sexually transmitted diseases for young people are needed in the region studied.

It was found that the prenatal care of pregnant women with syphilis in the region studied included an average of 7 consultations, as recommended by the Ministry of Health[8]. The Ministry of Health also recommends the routine request of two serological tests for the diagnosis of syphilis (VDRL), in the first and third trimesters of pregnancy. We identified that only 35.7% of the pregnant women diagnosed with syphilis underwent the VDRL test in the first and third trimesters of pregnancy.

Despite prenatal follow-up, 19% of the pregnant women analyzed in the current study were not treated or were inadequately treated for syphilis.

The incidence of premature births in pregnant women diagnosed with syphilis was higher than the average of premature births in Brazil. According to data from the Information System on Live Births (Sinasc), between 2012 and 2019 Brazil had an average of 10% of premature births and in the study population of pregnant women with syphilis, the prematurity rate was 18.6%[9].

National studies show a rate of HIV and syphilis co-infection in pregnant women of around 10%, whereas in the 43 pregnant women infected with syphilis in the current study, none presented HIV co-infection[10].

The effort to eradicate congenital syphilis is due to its consequences: mortality, prematurity, low birth weight, neonatal disease, and sequelae in the newborn. These outcomes can be prevented with effective prenatal care including screening and treatment, both available to the entire Brazilian population through the SUS.

Congenital syphilis, in turn, has a more complex diagnosis and treatment than maternal syphilis and often involves prolonged hospitalization as well as more expensive tests, which can lead to damage to the individual and family, as well as additional costs to the health system. According to the CRT-DST AIDS of São Paulo, a non-treponemal test needs to be performed at birth, in peripheral blood of all newborns of mothers with syphilis, regardless of the treatment performed.

Newborns of mothers adequately treated for syphilis, but with a reagent non-treponemal test, or with any titration, or newborns of mothers not treated or inadequately treated, should undergo bone radiography, blood count, and CSF collection for investigation[11].

This routine was used for all newborns evaluated in the current study, which demonstrates the compliance of care for newborns of pregnant women infected with syphilis in the analyzed maternity hospital.

It should be highlighted that syphilis acquired during pregnancy and congenital syphilis are notifiable diseases. Notification contributes to measuring the problem and is an important tool to assist in the design and implementation of programs and measures to control the disease.

Regional public health policies should prioritize campaigns to prevent sexually transmitted infections and review prenatal care processes so that all pregnant women infected with syphilis receive the recommended treatment. The maternal and infant hospital care of these patients complies with the guidelines of the São Paulo State Health Department. The importance of continuous monitoring is highlighted so that health analyses can support interventions and updates in public health policies.

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