Contribution to the study of epidemiological surveillance of congenital syphilis in a hospital of the Unified Health System located in the Baixada Fluminense region, Rio de Janeiro state, Brazil

Contribuição ao estudo da vigilância epidemiológica de sífilis congênita em um hospital da rede do Sistema Único de Saúde da Baixada Fluminense, estado do Rio de Janeiro

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ABSTRACT

Introduction: Syphilis is a sexually transmitted disease (STD) of bacterial etiology. If it is not early diagnosed and immediately treated in pregnant women, possible repercussions can occur, such as fetal deformities, miscarriages and stillborn, or syphilitic neonate with syphilis (congenital syphilis), causing serious public health problems. **Objective:** To describe the prevalence of congenital syphilis in a hospital of the Unified Health System (Sistema Único de Saúde — SUS) of the Baixada Fluminense region, Rio de Janeiro, Brazil. **Methods:** Identified cases of congenital syphilis in the Hospital Estadual da Mãe (HMAE) from January 2013 to January 2014. Retrospective and descriptive study of data collected from medical records. Descriptive analysis with categorical variables proportions. **Results:** 175 cases of congenital syphilis in 6,274 births (2.7%) were analyzed. Around 80.0% of women with syphilis received prenatal care. As for the distribution of the number of sexual partners of pregnant women with syphilis who received treatment during prenatal care, only 5 of 175 records registered that their partners also received treatment, while 16 patient records contained information that the partner did not carry out the treatment, and 154 showed no information about the pregnant women partners. **Conclusion:** The absolute majority of cases of congenital syphilis occurred in pregnant women who had undergone prenatal care. It demonstrates that it is necessary to improve the quality of basic care in order to eliminate this severe problem of Brazilian public health.

Keywords: congenital syphilis; epidemiological surveillance; sexually transmitted diseases; prenatal care; health systems.

RESUMO

Introdução: A sífilis consiste numa doença sexualmente transmissível (DST) clássica de etiologia bacteriana que, caso não seja diagnosticada em tempo hábil com tratamento imediato, pode provocar, no caso de gestantes, possíveis repercussões, como deformações fetais, aborto e natimorto sifilítico ou neonato com sífilis (sífilis congênita), caracterizando-se assim como um grave problema de saúde pública. **Objetivo:** Descrever a prevalência de sífilis congênita em um hospital da rede do Sistema Único de Saúde (SUS) da Baixada Fluminense, Rio de Janeiro. **Métodos:** Casos identificados de sífilis congênita no Hospital Estadual da Mãe (HMAE) no período de janeiro de 2013 a janeiro de 2014. Estudo descritivo e retrospectivo de dados coletados dos prontuários médicos. Análise descritiva com proporções das variáveis categóricas. **Resultados:** Foram analisados 175 casos notificados de sífilis congênita em 6.274 partos (2,7%). Cerca de 80,0% das mulheres com sífilis realizaram o pré-natal. Quanto à distribuição do número de parceiros sexuais de gestantes com sífilis que fizeram tratamento durante o pré-natal das gestantes, de 175 prontuários somente de cinco constava a informação de que parceiros das gestantes realizaram o tratamento com a gestante, enquanto 16 prontuários continham a informação de que o parceiro não havia realizado o tratamento, e em 154 prontuários não obtivemos informações sobre os parceiros das gestantes. **Conclusão:** A maioria absoluta dos casos de sífilis congênita ocorreu em gestantes que tinham realizado pré-natal. Isso demonstra que é necessário melhorar a qualidade da atenção básica, a fim de eliminar esse grave problema da saúde pública brasileira.

Palavras-chave: sífilis congênita; vigilância epidemiológica; doenças sexualmente transmissíveis; cuidado pré-natal; sistemas de saúde.

INTRODUCTION

Syphilis is traditionally characterized as a sexually transmitted disease (STD) and has impact on public health, as it consists of a sentinel disease caused by *Treponema pallidum* bacterial pathogen. If it is not early diagnosed with immediate treatment, reaching the cure becomes a challenge, since there may be gradual repercussions in the patient's body. If this infection is during the pregnancy period, an even greater attention should be paid to the maternal-infant binomial, due to the possibility of fetal deformities, miscarriage and stillbirth[(1)].

The main route of transmission is the sexual contact, but it is also transmitted for the baby through the placenta, as well as by blood transfusion. The signs and symptoms of this disease can vary, be complex and reach the respiratory, cardiovascular, nervous and digestive systems. Syphilis has a slow evolution, and its periods or phases are divided into symptomatic and asymptomatic, besides classified in primary, secondary and tertiary.

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Paz et al.[2] declared that the definition of congenital syphilis cases has been undergoing different modifications in the last two decades not only in Brazil, but throughout the world.

Referring to Brazil, syphilis became a compulsory notification disease on September 22, 1986, through Ministry of Health Ordinance No. 542 along with acquired immunodeficiency syndrome (AIDS). The notification is made through diagnosis of the disease and filling in the form of notification and investigation of cases of congenital syphilis, being an attribution of the health professionals to join these data or any type of illness classified as compulsory notification[2]. Compulsory notification information is forwarded and filed in the Notifiable Diseases Information System (Sistema de Informação de Agravos de Notificação — SINAN)[3].

In order to analyze the progression of congenital syphilis (CS) in the country, the Epidemiological Bulletin AIDS/DST of 2011 reported that, from 1998 to June 2011, 62,881 CS cases were set down in children under 1 year of age. The Southeast region registered 28,724 (45.7%); the Northeast region, 19,815 (31.6%); the North region, 5,910 (9.4%); the South region, 4.622 (7.3); and the Midwest region, 3,810 (6.0%)[4].

The Epidemiological Bulletin AIDS/DST in 2010, with regard to the detection of CS in Brazil, observed a rate of 2.3 cases per 1,000 live births , and Northeast and Southeast showed the highest rates: 2.6 and 2.5, respectively[4].

In this context, according to the Epidemiological Bulletin from 2012, between 1998 and July 2012 SINAN received 80,041 cases of CS in children under 1 year of age. Just in the Southeast, 36,770 (45.9%) of CS were registered; in the Northeast, 25,133 (31.4%); the North, 6,971 (8.7%); the South, 6.143 (7.7%); and the Midwest, 5,024 (6.3%)[5].

The Southeastern region had a larger quantity of data, standing out widely among the other Brazilian regions, requiring more attention from the government on health policies and strategies, as well as the attention of health professionals regarding the disease signaling and concern about health orientation and patients education.

Through the analysis of these data, we have realized the significant CS progression around the country. All regions had changes and the number of cases has increased.

Then the following motivation arose: we do not know the type of instruction, health education and care that women participating in the study had in the end of their lives, and we do not know if the prenatal care of these patients was carried out in a complete way, with blood testing for CS, detection of positivity for the disease or not. These aspects also influence the onset of CS, because, if prenatal care is not carried out and the disease is detected in the mother and measures are not taken, the child can be born with the disease. The survey of these data through the analysis of the medical records answered these questions.

According to Rodrigues and Guimarães, 40% of pregnant women with primary or secondary syphilis (SFS) develop fetal loss, and 50% of newborns of mothers with unhealed or inadequately treatment do not show diseases symptoms at birth, which cause serious consequences in the future[6].

It is been bserved a worldwide aggravation of syphilis among individuals in general and particularly CS, making it one of the most challenging public health problems of the early millennium[7].

Lorenzi and Madi, in a research on CS in a university hospital in Southern Brazil from June 1st 2000 to May 31st 2001 reported that the prevalence of CS noticed was of 1.5%, which corresponds to 27 cases in 1,739 births. The CS level found was 15.5 per 1,000 live births, out of the standard prescribed by the Pan American Health Organization (PAHO)[7].

OBJECTIVE

To evaluate the prevalence of CS in the hospital subject of the study, between 2013 and 2014 (January to January, respectively), and to verify if the numbers are beyond the recommended by the PAHO of 1 case per 1,000 live births, and if there was epidemiological surveillance of these cases.

METHODS

A descriptive and observational research of quantitative and retrospective nature was carried out. The purpose of this study was to verify the reality by analyzing data collected through vehicles (instruments) that then provided the description of the phenomenon analyzed through the frequency distribution, its correlation with possible variables that best characterize and explain it. It can occur through field research using theoretical evidence as the basis of its construction, in order to answer to the study objective through data collected from the participants who express the analyzed phenomenon[8].

The research scenario was the Hospital Estadual da Mãe (HMAE), in Mesquita, Rio de Janeiro state, Brazil, selected as a reference in the care of pregnant women in the Unified Health System (Sistema Único de Saúde — SUS) network. It covers low-income individuals, promoting middle-level care in the Baixada Fluminense, in the metropolitan Region I of the state of Rio de Janeiro, and attending about 600 births per month. The institution was inaugurated in June 2012 and offers 70 beds in joint accommodation, eight beds for intermediate neonatal unit and 12 pre-partum, childbirth and postpartum rooms. The hospital also offers post-anesthesia room (PAR), newborns assistance, surgical center, post-natal care and maternity, as well as joint accommodation and neonatal intensive care unit (ICU).

The following data were collected: number of cases of congenital syphilis reported; age of the patients during gestation; number of women who underwent prenatal care; number of Venereal Disease Research Laboratory (VDRL) examinations carried out by women analyzed during this period; number of patients who had their sexual partners treated for syphilis; number of women diagnosed during gestation who underwent syphilis treatment during the study period; number of cases of stillbirths by syphilis, abortion and death in the years selected for collection; and results of the serological tests for syphilis collected in the babies' peripheral blood.

The inclusion criteria was women admitted to the HMAE and who had previously prenatal care in the same location and were submitted to natural childbirth or caesarean section, as well as those cases arising from labor, even without the patient having performed prenatal care in the hospital in the months of January 2013 to January 2014; medical records with a completed gynecological anamnesis form (a maximum of five blank data); and the medical records that met the definition criteria for CS of the National STD/AIDS Program of the Brazilian Ministry of Health.

The exclusion criteria were: women who received the first care at the HMAE gynecological nursing consultation outside the studied

period; gynecological anamnesis records with more than five blank answers; and medical records without gynecological anamnesis.

Concerning statistical analysis, the data were treated by measures of simple frequency (absolute and relative).

This research covered all ethical aspects of human research in accordance with Resolution no. 196 of October 10, 1996. The present work is part of the project entitled "Results of the National Program of Humanization of Delivery and Childbirth in a maternity hospital of Baixada Fluminense" and was approved under no. CAAE 51591815.9.0000.5103, opinion no. 1,370,513 of the Research Ethics Committee of the Faculdade de Ciências Médicas e da Saúde Juiz de Fora (FCMS) Suprema. This project was developed at the HMAE, unit of the Hospital e Maternidade Therezinha de Jesus.

RESULTS

The total of 175 cases of notified CS were analyzed. Some women who had their data collected during delivery were affected by syphilis during pregnancy and undergone prenatal care. This data is described in **Table 1**, in which it is observed that prenatal consultations have increased in frequency in August and September 2013, with 14 and 17 cases, respectively. About 80.0% of women with syphilis performed prenatal care (**Table 1**), but 16 (three without a prenatal consultation and 13 without a documented report) were not documented in the present study.

The total of 276 women were tested (VDRL) for syphilis at the HAME, 104 (59.42%) of which during prenatal care and 172 (98.28%), concerning 175 patients, at the time of delivery (**Table 2**).

Table 3 shows the number of women who underwent human immunodeficiency virus (HIV) testing during prenatal or at the time of delivery, in which 87 (49.71%) of them underwent prenatal and 171 (97.71%) concerning the 175 patients at the time of delivery.

Regarding the distribution of the number of sexual partners of syphilitic pregnant women who were treated during prenatal care (**Table 4**), only five records of 175 showed the information that partners also carried out the treatment, while 16 related that partner

Table 1 – Number of women affected by syphilis during gestational period who underwent prenatal care during the studied period at Hospital Estadual da Mãe, Mesquita (RJ), Brazil.

Month of the prenatal care	Yes n (%)	No n (%)	Total
January 2013	13 (7.42)	0 (0.00)	13
February 2013	10 (5.71)	1 (0.57)	11
March 2013	6 (3.42)	1 (0.57)	7
April 2013	10 (5.71)	1 (0.57)	11
May 2013	9 (5.14)	1 (0.57)	10
June 2013	11 (6.28)	0 (0.00)	11
July 2013	10 (5.71)	3 (1.71)	13
August 2013	14 (8.00)	3 (1.71)	17
September 2013	17 (9.71)	3 (1.71)	20
October 2013	8 (4.57)	1 (0.57)	9
November 2013	9 (5.14)	1 (0.57)	10
December 2013	10 (5.71)	0 (0.00)	10
January 2014	13 (7.42)	4 (2.28)	17
Total	140 (80.00)	19 (10.85)	159

Table 2 – Number of women who underwent Venereal Disease Research Laboratory (VDRL) in prenatal care or in delivery during the study at Hospital Estadual da Mãe, Mesquita (RJ), Brazil.

Month of the VDRL	Prenatal n (%)	Delivery n (%)	Total
January 2013	9 (5.14)	14 (8.00)	23
February 2013	11 (7.42)	14 (8.00)	25
March 2013	4 (2.28)	9 (5.14)	13
April 2013	7 (4.00)	12 (6.85)	19
May 2013	5 (2.85)	12 (6.85)	17
June 2013	5 (2.85)	11 (7.42)	16
July2013	9 (5.14)	13 (7.42)	22
August 2013	11 (7.42)	19 (10.85)	30
September 2013	9 (5.14)	20 (11.42)	29
October 2013	8 (4.57)	10 (5.71)	18
November 2013	8 (4.57)	12 (6.85)	20
December 2013	6 (3.42)	10 (5.71)	16
January 2014	12 (6.85)	16 (9.14)	28
Total	104 (61.65)	172 (99.36)	276

Table 3 – Number of women who underwent anti-human immunodeficiency virus (HIV) testing during the gestation period during the study at Hospital Estadual da Mãe, Mesquita (RJ), Brazil .

Month of the anti-HIV	Prenatal n (%)	Delivery n (%)	Total
January 2013	9 (5.14)	14 (8.00)	23
February 2013	6 (3.42)	14 (8.00)	20
March 2013	5 (2.85)	9 (5.14)	14
April 2013	7 (4.00)	12 (6.85)	19
May 2013	5 (2.85)	12 (6.85)	17
June 2013	5 (2.85)	12 (6.85)	17
July2013	7 (4.00)	13 (7.42)	20
August 2013	4 (2.28)	18 (10.28)	22
September 2013	8 (4.57)	19 (10.85)	27
October 2013	7 (4.00)	10 (5.71)	17
November 2013	7 (4.00)	11 (7.42)	18
December 2013	6 (3.42)	10 (5.71)	16
January 2014	11 (7.42)	17 (9.71)	28
Total	87 (50.8)	171 (91.94)	258

Table 4 – Number of sexual partners of pregnant women with syphilis who had received treatment.

Month	Treated n (%)	Not Treated n (%)	Total
January 2013	0 (0.00)	1 (0.57)	1
February 2013	1 (0.57)	1 (0.57)	2
March 2013	0 (0.00)	0 (0.0)	0
April 2013	1 (0.57)	0 (0.0)	1
May 2013	0 (0.00)	1 (0.57)	1
June 2013	0 (0.00)	2 (1.14)	2
July2013	0 (0.00)	1 (0.57)	1
August 2013	1 (0.57)	2 (1.14)	3
September 2013	0 (0.00)	2 (1.14)	2
October 2013	1 (0.57)	1 (0.57)	2
November 2013	0 (0.00)	3 (1.71)	3
December 2013	0 (0.00)	0 (0.00)	0
January 2014	1 (0.57)	3 (1.71)	4
Total	5 (2.85)	17 (9,69)	22

did not receive the treatment and in 154 medical records we did not obtain information about the pregnant women partners.

The number of cases of CS/month, the number of deliveries/month and percentage are presented in **Table 5**.

DISCUSSION

In addition to the data collected in the HMAE, the scenery of this survey, CS data of the municipality of Mesquita were also studied through Epidemiological Surveillance of the Health Department of the mentioned municipality, taken from the SINAN[3]. The data for diseases and damages reported in each municipality are sent to the municipality's Secretary of Health, and then sent to the State Health Department and finally to the Ministry of Health, which analyzes, reviews, separates cases eventually retried, and feeds the national, regional and state statistics[3].

Cases of syphilis in pregnant women, CS, adult syphilis (excluding the primary form), and unspecified syphilis were recorded by the Ministry of Health to date. In Mesquita, the following descriptions were informed:

- syphilis in pregnant women in 2013: 20 cases; 2014 with 17 cases. In a total we have 37 cases reported;
- CS in 2013: 22 cases; and 2014 with 25 cases, totaling 47 notifications;
- syphilis in adults (excluding primary form) in 2013: one case only. No cases were recorded in 2014 to date;
- not specified syphilis in 2013: 47 cases; 2014 a total of 31 notifications. So, the total of 78 notifications for this type of syphilis.

Adding all the categories of separated and reported syphilis in Mesquita between 2013 and 2014 (up to October), there is the total of 163 cases registered in the Ministry of Health. It is worth mentioning that, according to the guidance of the Epidemiological Surveillance of the municipality, the data for 2014 were not updated by the Ministry of Health due to delays in the analyzes, and may have suffered constant changes in the sum of the cases.

Table 5 – Cases of congenital syphilis (CS)/month and deliveries/month.

Month	CS cases	Deliveries	% of CS/ deliveries*
January 2013	14	460	3.0
February 2013	14	439	3.1
March 2013	9	514	1.7
April 2013	12	521	2.3
May 2013	12	514	2.3
June 2013	12	483	2.4
July 2013	13	488	2.6
August 2013	19	461	4.1
September 2013	21	467	4.4
October 2013	10	471	2.1
November 2013	12	464	2.5
December 2013	10	461	2.1
January 2014	17	532	3.1
Total	175	6,275	35.7
Média aritmética	13.4	482.6	2.7

*Normal, forceps and cesareans.

As determined by data from the Brazilian Institute of Geography and Statistics (Instituto Brasileiro de Geografia e Estatística — IBGE) and Baixada Fluminense website, there is the total of 13 municipalities in the Baixada Fluminense region and Mesquita is the sixth city with the highest number of inhabitants: 168,376. The city with the most inhabitants is Duque de Caxias, with 855,048 inhabitants, and Paracambi has the lowest number, 47,124 inhabitants. It would be of great value if syphilis and CS rates were obtained from all the municipalities of Baixada Fluminense region, so that a syphilitic profile of the entire area could be described[9].

During the period delimited for research (January 2013 to January 2014), there was a large number of deliveries at the HMAE. According to data provided by the administrative management of the hospital, including normal deliveries, forceps and cesarean sections, 6,275 deliveries occurred during the 13 months mentioned for data collection.

The combination of the data described raises the possible occurrence of facts that deserve attention due to their discrepancy, since the case numbers pointed out in this study are from the only public maternity in Mesquita. There may have been underreporting of cases, or irregular database feeding on reported cases, generating a moving value of the number of cases. However, this study, as observed by Schetini et al. in a study in the city of Niterói, Rio de Janeiro, observed the occurrence of an embarrassing and similar situation regarding the number of cases in the municipality and the hospital unit[10].

Since 2003, Saraceni and Leal[11] related that Rio de Janeiro distinguishes as the state with the highest number of CS cases in the Southeast of Brazil. Schetini[10] data also confirmed the information, in addition to the study by Souza et al.[12], both developed in maternity hospitals in Rio de Janeiro. Our study meets these findings confirming this high aggravating casuistry as it is a disease sentinel.

The high incidence of CS in the present study therefore may indicate a bias in the quality of prenatal care classified as an efficient and preventive event and, when it does not occur in an appropriate way, generates the need for a careful evaluation of the health system for the approach used[10,13]. For this reason, Brazil is one of the countries that expressed its support for the fight against CS, with the goal of reaching the target of 1 per 1,000 live births[14]. However, Saraceni and Leal[11] pointed out that, within the very expressive number of cases in our country, Rio de Janeiro is the state that has one of the highest rates of CS, followed by São Paulo, both located in the Southeast region.

Table 5 shows the study's number of births per month and the number of cases found in CS every month. The arithmetic average of 13.4 CS cases was observed per month, or 2.6%, considering the average of 482 births per month[11].

Souza et al.[12] described the neonatal repercussions of CS in newborns notified as a CS case in a hospital in the SUS in Niterói, Rio de Janeiro state, from January 2005 to June 2006, observing birth weight and serology of newborns with CS notification and treatment. The sample was formed from 35 records of notification of CS of the Surveillance Center of Hospital Universitário Antônio Pedro (HUAP). Using data from the notification, Souza et al. carried out a home visit for blood collection. The population consisted of 29 live births, four stillbirths and two abortion patients. Only two cases in the study (6.9%) showed CS bone alterations. The VDRL test performed on cerebrospinal fluid (CSF) was shown to be non-reactive for all patients evaluated.

Still in the same study, the VDRL result of the newborn serum at birth was positive for 23 (79.31%) patients. Crystalline penicillin G (PGC) was administered in 26 (89.65%) cases, procaine penicillin G (PGP) in two (6.9%), and one patient used crystalline penicillin G and procaine penicillin G, requiring great effort to treat these cases. Fetal death and miscarriage were the worse outcomes reverberated around CS. VDRL was negative in all cases, although the use of antibiotic schemes were not in accordance with the protocol proposed by the Ministry of Health[12].

Based on the references described in the manual on the control of STD, the Epidemiological Bulletin[14], cases of CS should reach a target of one or less cases for 1,000 live births. In all months of this study, the results were especially high, since the average of 482 cases per month did not allow us to obtain the average of 13 CS cases per month in only one hospital. For a better understanding, matching the total number of cases (175) with the ratio of 1/1,000 live births, we would have to have a total of 174,825 births distributed in the 13 months of study. Nevertheless, we have 6,275 births, giving us a total of only six CS cases.

At the end of this study, we verified that, even though the Ministry of Health has established with the World Health Organization (WHO) the goal of reducing the number of cases of CS, this target has not yet been reached. I.e., syphilis is still perpetuating and there are some possible situations that cause it to persist. Among them, we have low prenatal care, absence of effective screening programs and follow-up of pregnant woman, many pregnant women that arrive at the hospital only at the time of delivery without prenatal care, women who are treated during pregnancy and their partners are not, inadequate treatment in pregnancy, due to disregard for the pregnant woman as penicillin G benzathine (PGB) treatment is painful and injections cause discomfort.

CONCLUSION

The CS findings at the HMAE in Mesquita in the months chosen for investigation were considered very high (more than five times) in relation to the proposal established by the Ministry of Health. The absolute majority of cases of CS occurred in pregnant women who had undergone prenatal care. It demonstrates that it is necessary to improve the quality of basic care in order to eliminate this serious problem in the Brazilian public health CS numbers.

Conflict of interests

The authors declare no conflict of interests.

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