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Characterization of reports of Congenital Syphilis in Pernambuco from 2018 to 2019

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Abstract: Syphilis is a Sexually Transmitted Infection (STIs) caused by the bacterium *Treponema Pallidum*, which can be controlled through effective public health actions and measures, due to effective and low-cost treatment. The congenital form of syphilis is a serious outcome, since most newborns have physical, sensory or developmental sequelae, when they do not result in fetal and perinatal loss. This is a public health problem that remains an important challenge in Brazil. To characterize the prevalence of congenital syphilis in the state of Pernambuco between 2018 and 2019. This is a descriptive, observational, quantitative study, using secondary data from the Database of the Unified Health System - DATASUS/Ministry of Health. Tabbed by TABNET. Through the database of the Notifiable Diseases Information System (SINAN), notifications for congenital syphilis in the state of Pernambuco were evaluated from 2018 to 2019. The results showed that there were 2,731 reported cases of Congenital Syphilis in the state of Pernambuco from 2018 to 2019. Where the age group with the highest number of infected children are those with less than 07 days, corresponding to 96.48%, already in relation to the age group of the mother, the most affected is between 20 and 29 years. Even with a considerable number of 79.75% of pregnant women who underwent prenatal care, most partners did not have treatment, with a percentage of 38.92%. With the high number of confirmed cases of congenital syphilis, it is necessary to create strategies to reduce these numbers, it is necessary to reflect on the deficiencies in the quality of prenatal care services. It is known that vertical transmission of the disease is prevent Table, provided that the pregnant woman is diagnosed and treated appropriately.

Keywords: Prenatal. Congenital syphilis. Information System

1. Introduction

Congenital Syphilis (CS) is due to transplacental *treponema pallidum* contagion during pregnancy. This infection is transmitted to the mother sexually, contact with skin mucus lesions, blood transfusion and later to the fetus through the placenta, being it at any time of pregnancy or clinical period of the disease in pregnant woman not treated or inadequately treated. Its occurrence demonstrates failures of health services, especially prenatal care, because early diagnosis and treatment of pregnant women are relatively simple and very effective measures in the prevention of this pathology. Thus, resulting in inadequate results and severe perinatal sequelae such as deafness, blindness, mental disability, premature delivery, abortion, among others¹.

However, if the Primary Health Care network fails to treat syphilis in pregnant women, hospitalization will represent, as well as for diagnosis, a new chance to perform it. Hospitals can thus be considered as sentinel health units, whose role is strategic for the diagnosis and treatment of undiagnosed or even neglected syphilis in prenatal care. In addition, it is essential that these women be advised by health professionals and referred, after discharge, for outpatient cure control, or end of treatment, when this is the case².

The diagnosis of CS in NB can generate conflicts in marital relationships. A study pointed out the adequate non-treatment of mothers and their partners during pregnancy. Therefore, it is necessary that mothers receive guidance about the procedures to be performed in the NB, as well as the performance of periodic examinations and the expected clinical evolution. Professionals should be available, clarifying their doubts, so that the time lived in the hospital is significant, being a source of support. And the nurse should understand the repercussions of the child's hospitalization, because there is a change of routine, absence of the mother in the home, marital conflicts and tension in relation to the sick child³.

According to data presented by the State Department of Health of Pernambuco, the reduction of 12.8% in the general records of congenital syphilis (1,652 in 2019 and 1,895 in 2018) is notable, despite the increase of 3.9% among pregnant women (3,375 in 2019 and 3,248 in 2018). These data demonstrate that the discovery during pregnancy and the correct treatment, done with antibiotic (penicillin), can prevent illness and irreversible sequelae in the child. Therefore, it is essential that the pregnant woman tests for the various STIs, so that the treatment is offered in the positive cases. And with regard to syphilis, it is necessary to remember that the partners also need to be tested and treated, so that there is no reinfection in the pregnant woman and, consequently, the transmission of the bacteria to the baby⁴.

However, it is essential to prioritize the coping with congenital syphilis with actions appropriate to the needs of Pernambuco. It is essential to look at the early diagnosis, the capture of the partner for treatment, the proper filling of the pregnant woman's card, the active search for missing pregnant women, the construction of a notification flow in all health units and the training of professionals linked to the management of acquired syphilis and pregnancy, with the

objective of interrupting the vertical transmission chain of the infection. The use of information systems through the compulsory notification of health cases that performs the monitoring of diseases are also relevant tools for the composition of indicators capable of contributing to the targeting of the goals of elimination of CS. Thus, it allows a greater grouping of the data necessary to perform epidemiological analyses and provide support for the planning of control actions⁵.

2. Methodology

This is a comparative epidemiological study of the descriptive type of cross-sectional, whose data were collected through the secondary database of the Notifiable Diseases Information System (SINAN), provided by DATASUS/Ministry of Health. The population was constituted by the records in the notification forms for the disease "Congenital Syphilis" in the SINAN Database in Pernambuco in the year 2018 to 2019. The Informatics Department of the Unified Health System (DATASUS) provides information that can serve to support objective analyses of the health situation, evidence-based decision-making and the development of health action programs.

The tabulation of the data in the Department of Informatics of the Unified Health System (DATASUS) was performed through SINAN, which is fed by the notification and investigation of cases of diseases and injuries that are included in the national list of diseases of compulsory notification, including Congenital Syphilis, which is the target of the study. The variables studied in the Congenital Syphilis database were: age group of the individual, age group of the mother, prenatal care, the time of diagnosis and the mother's sexual partner's treatment

For the analysis of these data, percentage calculations were used to observe the dispersion among the collected variables, analyzed by simple percentage.

3. Results and Discussion

A total of 2,731 reported cases of Congenital Syphilis were observed in the state of Pernambuco from 2018 to 2019. The year with the highest number of cases in children under one year of age was 2018 with 71.38% (n = 1,941) of the cases (Table 1). Observing the age of the child according to the year of diagnosis, the age group with the highest number of infected children are those with less than 7 days, corresponding to 96.48% (n = 2,635) of the sample. (Table 2). In addition, there was a predominance of cases according to the age group of the mother between 20 and 29 years, 51.81% (n = 1,415), as shown in (Table 3).

Even with a considerable number of blank and/or ignored data regarding prenatal care (n = 304), corresponding to 11.13%, the findings showed that 79.75% of the pregnant women performed prenatal care. (Table 4). On the other hand, regarding information on the treatment of the mother's partner, the majority did not have treatment, as observed in the sample, with a percentage of 38.92% (n = 1,063) (Table 6).

Examining the moment of diagnosis of maternal

syphilis according to the years evaluated, 47.45% of the pregnant women had their diagnosis during prenatal care. (Table 5).

Table 1. Cases of congenital syphilis in children under one year of age and incidence rate (per 1,000 live births) per year of diagnosis. Brazil, 2018-2019.

Congenital syphilis in children under one year old	2018	2019
Cases	1.941	778
detection rate	14,3	-

Source: MS/SVS/DCCI - Department of Chronic Diseases and Sexually Transmitted Infections. Accessed September 19, 2020.

Table 2. Cases of congenital syphilis according to the child's age per year of diagnosis. Brazil, 2018-2019.

Age of the Child	2018	2019	Total
Less than 7 days	1.873	762	2.635
7 to 27 days	43	11	54
28 to 364 days	25	5	30
1 year	02	2	4
2 to 4 years	01	2	3
5 to 12 years	04	1	5
Ignored	--	-	-

Source: MS/SVS/DCCI - Department of Chronic Diseases and Sexually Transmitted Infections. Accessed September 19, 2020.

Table 3. Cases of congenital syphilis according to the mother's age group per year of diagnosis. Brazil, 2018-2019.

Mother's Age Group	2018	2019	Total
10 to 14 years	13	11	24
15 to 19 years	473	163	636
20 to 29 years old	1.014	401	1415
30 to 39 years old	340	128	468
40 years or older	29	18	47
Ignored	79	62	141

Source: MS/SVS/DCCI - Department of Chronic Diseases and Sexually Transmitted Infections. Accessed September 19, 2020.

Table 4. Cases of congenital syphilis according to information on prenatal care of the mother per year of diagnosis. Brazil, 2018-2019.

Prenatal care	2018	2019	Total
Yes	1.554	624	2178
No	186	63	249
Ignored	208	96	304

Source: MS/SVS/DCCI - Department of Chronic Diseases and Sexually Transmitted Infections. Accessed September 19, 2020.

Table 5. Cases of congenital syphilis according to the time of diagnosis of maternal syphilis per year of diagnosis. Brazil, 2018-2019.

Time of diagnosis of maternal syphilis	2018	2019	Total
During Prenatal Care	940	356	1.296
At the time of delivery/curettage	725	343	1.068
Postpartum	124	43	167
Unrealized	17	-	17
Ignored	142	41	183

Source: MS/SVS/DCCI - Department of Chronic Diseases and Sexually Transmitted Infections. Accessed September 19, 2020.

Table 6. Cases of congenital syphilis according to information on treatment of the mother's partner per year of diagnosis. Brazil, 2018-2019.

Treated partner	2018	2019	Total
Yes	429	154	583
No	762	301	1.063
Ignored	757	328	1.085

Source: MS/SVS/DCCI - Department of Chronic Diseases and Sexually Transmitted Infections. Accessed September 19, 2020.

4. Discussion

Syphilis is a systemic and sexually transmitted infectious pathology caused by the gram-negative *bacterium Treponema Pallidum* of chronic and often asymptomatic evolution. The main forms of transmission are the vertical and sexual pathways, rarely by blood transfusion. It is presented in the acquired and congenital forms, the latter being, depending on the time of infection, to be subdivided into early and late⁶.

Depending on the time of infection, CS can be classified as early, when clinical manifestations occur in the first two years of life or late when clinical manifestations occur after the second year of life⁷.

In the world, syphilis is a reemerging infection, as observed in Italy and the United States of America, calling attention to the need for screening for all pregnant women during prenatal care and timely treatment, with the aim of containing congenital infection. In Latin America, Africa and Asia, its incidence remains excessive and its control focuses on pre-birth assistance⁸.

The Ministry of Health defined Congenital Syphilis as a burden of compulsory notification in the country in 1986, through Ordinance No. 542 of December 22. Since then, Brazil has given priority to the elimination of vertical transmission of syphilis, with the objective of reducing its incidence rate⁹.

Despite the expansion of screening programs, there are many barriers that limit maternal syphilis screening and treatment efforts around the world. Syphilis remains a major public health problem in developing countries, such as Brasil¹⁰.

The health information systems used to monitor health problems are mechanisms of paramount importance for the construction of indicators capable of contributing to the targeting of cs elimination goals. One of these strategies for health surveillance and the control of these diseases is the use of the Notifiable Diseases Information System (SINAN) used in the present study. Where it was possible to observe and analyze the number of cases of Congenital Syphilis within the state of Pernambuco in the years 2018 and 2019 in children under 1 year (Table 1) and the age group with the highest number of children affected by the pathology (Table 2).

Syphilis when not properly treated can cause damage

to the baby such as changes in bones, vision, hearing, anemia, jaundice, hepatomegaly and splenomegaly, skin and mouth sores, and difficulty gaining weight in addition to damage to the central and peripheral nervous system, and cardiovascular system. Despite presenting low-cost diagnosis and treatment, it remains a public health problem responsible for high mortality rates. CS is one of the main causes of abortion, fetal death, low birth weight, stillbirth, prematurity and congenital malformations¹¹.

The actions to prevent CS are related to the care of pregnant women in prenatal care, with the performance of serological tests for syphilis in the first trimester, the correct and timely treatment of infection, with penicillin, whose efficacy is around 95% to 100%, instituted as early as possible, both that of the woman and that of the partner, as recommended by Ordinance No. 1,459 of June 24, 2011 of the Ministry of Health¹².

Regarding maternal variables, the predominance of cases according to the mother's age group between 20 and 29 years was verified, corresponding to 51.81%, as shown in (Table 03). In a similar study conducted in the municipality of Sobral-CE, from 2008 to 2013, there was an incidence of children with CS, whose mothers were between 20 and 25 years old, showing that these women are in the young adult phase¹³.

Despite the efficient result of women's participation in prenatal consultations, (79.75%), isolated studies on prenatal care for patients with syphilis have a deficiency in the approach to this theme, leading to reflection the quality of prenatal care services, which contributes to the high incidences of syphilis and congenital syphilis¹⁴. Therefore, it implies that the quality of prenatal care is an indispensable aspect for diagnosis and therefore improves the control of syphilis¹⁵. Studies by Silva *et al*, 2019, although the diagnosis of syphilis is confirmed during prenatal care, many women do not go to treatment or re-infect, leading once again to reflect on the quality of care¹⁶, since the timely diagnosis of syphilis of a pregnant woman is the first step towards the prevention of Congenital Syphilis¹⁷.

When the partner's treatment was adhered to, it was observed that most of them did not adhere to the treatment, equating to the cross-sectional and descriptive study conducted at the 16th Regional Health Of Apucarana state of Paraná, where half of the pregnant women with syphilis who had their NEWBORNS notified with CS did not have the sexual partner treated, as well as observed in other localities of the country¹⁸, studies conducted by Ferro *et al*, 2020, reinforce that in order to eliminate the risks of transmission of syphilis to the fetus, it is recommended to perform correctly the treatment of both the pregnant woman and the sexual partner, since the non-performance of the partner's treatment hinders the proper treatment of the pregnant woman¹⁹.

In view of the above in this study, Primary Health Care has an important challenge in coping with Congenital Syphilis, since from this analysis we can understand that it is necessary to improve prevention actions in health services, early

detection of pregnant women, timely treatment, as well as in the capture of partners. The importance of the recognition of syphilis as a public health problem in all spheres of government, by professionals and the general population. In order to implement public health policies aimed at its control and create new more efficient policies.

5. Limitations of the study

Because it is a study of the use of secondary data, there are some limitations once the possibility of underreporting is given, and may underestimate the actual epidemiological situation of Congenital Syphilis in the state. However, the results found help to point out the challenges of the state of Pernambuco in front of CS.

Taking into account these aspects, it is necessary to prioritize the confrontation of CS with appropriate actions to the real needs. The identification of the epidemiological profile of CS in Pernambuco can help in the elaboration and implementation of actions aimed at reducing the incidence. It is essential to look at the early diagnosis, the capture of the partner for treatment, the proper filling of the pregnant woman's card, the active search for absentees, the construction of a notification flow in all health units, and the training of professionals, with the objective of ceasing the vertical transmission chain of the disease.

6. Conclusions

The study data indicate the relevance of the holistic and biopsychosocial view that nurses should adopt in the planning of their actions. The prevention of CS is done as long as the infected pregnant woman and her sexual partner are diagnosed and treated as soon as possible during prenatal care. Health promotion, as well as early diagnosis, influence the reduction of CS incidence rates, thus evidencing the importance of the effectiveness of these types of actions. With regard to maternal characteristics, the analyzed data indicate that syphilis is still a disease that affects especially the socially disadvantaged, with a predominance of women with little study. In addition, there is a greater highlight of cases in the group of young adults, evidencing that educational actions should have a greater focus for this group in view of their greater vulnerability.

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