

EPIDEMIOLOGICAL PROFILE OF CONGENITAL SYPHILIS IN THE STATE OF PARÁ/BRAZIL, IN THE PERIOD FROM 2007 TO 2017

¹Miquéias F. Rodrigues, ¹Anna Clara D. Jardim and ²Margareth Maria B.G. Imbiriba

¹Graduating in Nursing of the Center for Sciences Biological and Health (CCBS) at the University of the Amazon (UNAMA); Member of the League of Infectious-Parasitic Diseases of the Amazon (LIDIPA)

²Professor of Nursing at the Center for Biological Sciences and Health (CCBS) at the University of the Amazon (UNAMA)

ARTICLE INFO

Article History:

Received 22nd September, 2018
Received in revised form
09th October, 2018
Accepted 06th November, 2018
Published online 31st December, 2018

Key Words:

Congenital Syphilis; STD's;
Epidemiology; Nursing,
Women's Health.

ABSTRACT

Congenital syphilis is a disease caused by the bacterium *Treponema pallidum*, transmitted by hematogenous, transplacental or part-channel routes and breastfeeding. This disease affects around 930,000 people worldwide, with a gradual increase in the disease, both nationally and at the state level. The present study is a descriptive epidemiological survey with a quantitative approach, in which data available from the SINAN databases in the Data SUS was collected on cases of congenital syphilis in children younger than 4 years old between 2007 and 2017 in the state of Pará, Brazil. After this, the data passed a statistical analysis using Microsoft Excel software. There was an incidence increase in the entire state of Pará, from 3.30/100,000 inhabitants in 2007 to 10.37/100,000 inhabitants, 93% of the cases detected until the first 6 days of life, 83% brown ethnicity and Bragança as the most incident municipality in the region, with an incidence of 333.72/100,000 inhabitants (± 79.76). Congenital syphilis is a disease that has been growing in recent years. It is necessary to sensitize the population, professionals, and academics about the risks of the disease.

Copyright © 2018, Prameela Margaret. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Miquéias F. Rodrigues, Anna Clara D. Jardim and Margareth Maria B.G. Imbiriba. 2018. "Epidemiological profile of congenital syphilis in the state of Pará/Brazil, in the period from 2007 to 2017", *International Journal of Development Research*, 8, (12), 24799-24802

INTRODUCTION

Congenital syphilis is an infectious disease caused by a highly pathogenic bacterium called *Treponema Pallidum* (BRAZIL, 2010). Its transmission takes place via hematogenous in which the fetus is infected by transplacental route. Infection can occur throughout gestation, in the birth canal, or through breastfeeding. The clinical picture may vary widely since it depends on factors such as maternal treponemal load, treponema virulence, and treatment of maternal infection, maternal HIV co-infection or other immunodeficient cause. About 40% of cases can progress to spontaneous abortion, stillbirth or perinatal death (SONDA *et al.*, 2013). The disease has two stages of classification, the early or the late, and each one has different symptoms. In the early stage, syphilis may presents as features cutaneo-mucous lesions, palmoplantar lesions, periorificial

radiative fissures and pseudoparalysis of the limbs (BRASIL, 2010). Late syphilis, characterized by arising after the second year of life, may present a "Saber Blade" tibia, Clutton's joints, neurological deafness and learning difficulties (SONDA *et al.*, 2013). Congenital syphilis currently affects around 930,000 people worldwide, the most prevalent area is the African region and the least prevalent region is Europe (WIJESORIA *et al.*, 2016). In Brazil, in 2016, there were around 20,474 cases of congenital syphilis in the country and 185 deaths in Rio de Janeiro (SALGUEIRO, 2016), and this number is constantly increasing, since from 2010 to 2016 cases of congenital syphilis increased from 2.4 to 6.8 cases (per 100,000 inhabitants), respectively (BRAZIL, 2017). In the state of Pará there is a gradual increase of the disease, the most prevalent municipalities are the Tapajós, Carajás and Rio Capim macro-regions (SONDA *et al.*, 2013). To stimulate the investigation of syphilis in pregnant women, Brazil stimulated the use of serological tests such as VDRL method (Venereal Disease Research Laboratory) in the first and third trimester and RPR (Rapid Plasma Reagent), classified as non-treponemal serology and treponemics (TPHA, FTA-Abs, ELISA), cerebrospinal fluid study and imaging studies

*Corresponding author: Miquéias F. Rodrigues

Graduating in Nursing of the Center for Sciences Biological and Health (CCBS) at the University of the Amazon (UNAMA); Member of the League of Infectious-Parasitic Diseases of the Amazon (LIDIPA)

such as long bone radiography (BRAZIL, 2017). In primary syphilis and in other stages, Penicillin G Benzathine (Total dose: 2,400,000 IU) is used in a single dose and the cure control is given through the monthly VDRL. Secondary or latent syphilis with less than 1 year of evolution, receives treatment with two series (Total dose: 4,800,000 IU), with the interval between two of 1 week and with monthly VDRL as a cure control. Finally, for tertiary syphilis or with more than one year of evolution or duration ignored, three series are used (Total dose: 7,200,000 IU), with an interval of 1 week between them and monthly VDRL as control (BRAZIL, 2017). Because it is an old infectious contagious disease and that in the last years, it has presented a global, national and regional growth, more precisely in the state of Pará (SALGUEIRO, 2016). It is a subject of great relevance for the population, as well as for the academic community, the present study has the intention to show data on congenital syphilis, its epidemiology, in order to enrich the knowledge about this pathology. The objective of this study was to evaluate the epidemiological profile of the diagnosed cases of congenital syphilis, in the state of Pará, between 2007 and 2017.

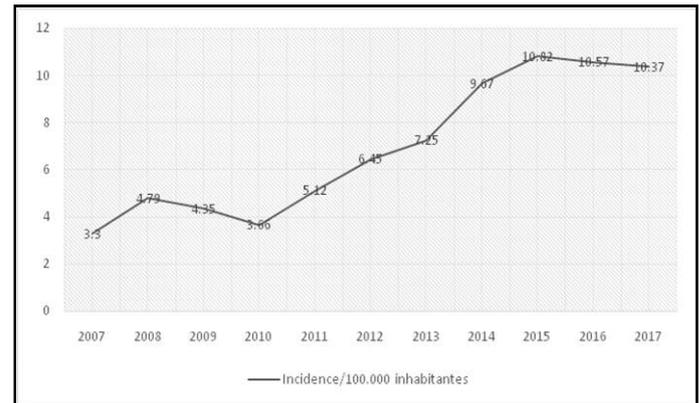
MATERIALS AND METHODS

The present study is a descriptive epidemiological research, with a quantitative approach. Information was extracted from the SINAN database (Information System for Notifiable Diseases) provided by the Department of Informatics of the Brazilian National Health System (DATASUS), at the electronic address (<http://www.datasus.gov.br>). The collected data passes by a statistical analysis, with the help of *Microsoft Excel* software. The study population consisted of all cases of children younger than 4 years of age diagnosed with congenital syphilis from 2007 to 2017. This research is supported by Resolution 466/12 of the National Health Council, which guarantees respect for human dignity and the special protection due to participants in scientific research involving human beings. Because it was a public domain data, it was not necessary to submit the project to the Research Ethics Committee.

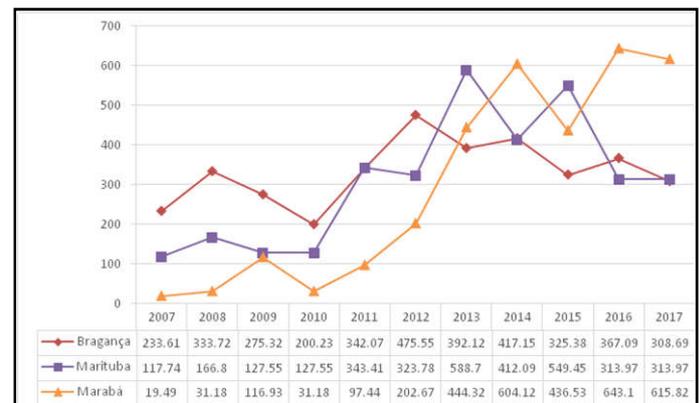
RESULTS

Between 2007 and 2017, there were approximately 6508 cases of congenital syphilis in the entire state of Pará. It is possible to observe that prevalence has been growing substantially over the years (Graph 1), as evidenced by the fact that in 2007 the incidence rate was of 3.30/100.000 inhabitants, in 2012, 6.45/100.000 inhabitants and in 2017, 10.37/100.000 inhabitants. In relation to sex, the disease was more prevalent in males; however, the distribution was very egalitarian between the sexes, with little disparity. During the whole studied period, there were 3158 male cases (48.52%), 3134 (48.16%) and in 216 cases (3.32%), the sex was ignored. Talking about age range, the data shows that the disease is most often detected early. During the whole studied period, 6135 cases (94.38%) were detected up to 6 days of life, 202 cases (3.11%) between 7-27 days, 136 cases (2.09%) between 28 days at <1 year, 18 cases (0.28%) in individuals aged 1 year and 9 cases (0.14%) between 2 and 4 years of age. Concerning ethnicity, a higher prevalence of congenital syphilis was observed in individuals declared as brown. This fact that was revealed in 5415 cases (83.21%) where the ethnicity was brown, in 434 cases (6.67%) was white, in 111 cases (1.71%) it was black, in 26 cases (0.40%) indigenous, in 8 cases (0.12%) yellow and in 434 cases (7.90%) not informed. The incidence of congenital syphilis in the municipalities of the state of Pará, Bragança was found to be the most incident, with a mean incidence rate of 333.72/100,000 inhabitants (± 79.76), followed by Marabá, Marituba, Parauapebas and Oriximiná (Graph 2). In contrast to the aforementioned data, it was observed that the municipality of Igarapé-Mirim has the lowest incidence of the

state, with a rate of 1.37/100,000 inhabitants (± 4.54), followed by Dom-Eliseu, Acará, Tucumã, and Medicilândia.



Graph 1. Incidence of congenital syphilis in state of Pará, 2007-2017



Graph 2. Municipalities with the highest incidence of congenital syphilis in the state of Pará, 2007-2017

Regarding the mother's age group, the data strangely shows that the majority of women are over 80 years old, representing 6387 cases (97.26%), while 113 cases (1.74%) did not have information on the age group of the mother. As for maternal schooling, it was evidenced that among the data: 1451 cases (22.33%) were not reported due to unspecified reasons, illiterate 87 cases (1.34%), 1st to 4th grade incomplete 787 cases (12.11%), 4th grade complete 390 cases (6.00%), 5th grade to 8th grade incomplete 1757 cases (27.03%), elementary school completed 530 cases (8.16%), incomplete secondary education 739 cases (11.37%), complete high school 644 cases (9.91%), incomplete higher education 38 cases (0.58%), complete higher education 36 cases (0.55%) and, finally, the group of those who did not apply evidencing 40 cases (0.62%). Concerning prenatal care, the data show that most of the time, adherence occurs, during which 218 cases (3.34%) were not reported, 5427 cases (83.38%), for yes and 863 cases (13.26%) for non-performance. About the maternal syphilis diagnosis, the highest incidence corresponds to the group of women who detected during prenatal care 2617 cases (40.21%), followed by diagnosis at the time of delivery/curettage (31.99%), diagnosed after childbirth 1375 cases (21.13%), unreported 338 cases (5.19%) and those who did not perform the diagnostic test 96 cases (1.48%). Regarding the treatment of the partner, after the analysis it was evidenced that the largest number of cases refers to those who did not receive treatment 3463 cases (53.21%), followed by those who chose to perform the treatment 1964 cases (30.18%), and lastly the non-notified group, which presented 1081 cases (16.61%).

DISCUSSION

The increase in the number of cases of congenital syphilis in the State of Pará shows agreement with the study of Salgueiro (2016)

and accesses with its increase in national level (BRAZIL, 2011), which it is attributed to prophylaxis actions deficit through the occurrence of the disease, especially with regard to prenatal care. Although the data shows that prenatal care is most often performed, also evidenced in another study conducted in the southeastern region of Brazil, (Padovani; Oliveira; Peloso, 2018), it has proved to be insufficient, since, according to the syphilis manual (2010) published by the Brazilian Ministry of Health, it is a disease of easy detection and treatment. This shows that the professionals involved are supposedly neglecting one of the most important parts of prenatal care, which is a major aggravating factor in the health of women and children. The data shows that the treatment of the partner for syphilis is not being performed, also been verified in other studies (DE LORANZI; MADI, 2001; DONALÍSIO, FREIRE, MENDES, 2008; FIGUEIRÓ-FILHO *et al*, 2007; TREVISAN *et al*, 2002). Some of the reasons for the refusal of treatment are the lack of acceptability of the companion because it is a sexually transmitted infection allied to the behavior of the individual and the positive result can lead to conflicts within the relationship, which hinders its capture. Another preponderant factor it is the negligence of professionals in capturing these partners. The lack of treatment of the partner certainly contributes to the growth of the disease, even though the mother and the fetus carry out the proper treatment, if the partner does not perform it, a reinfection invalidates it totally. It is up to health professionals to sensitize the partner and the family, exposing the risks of this lack of treatment. Another factor that justifies the incidence increase in the State of Pará, is regarding the lack of information on sexually transmitted infections. This information deficiency end up having as a result the increase in cases of maternal syphilis and consequently the increase in congenital syphilis cases, since the lack of information leads the individual to ignore the signs and symptoms. This fact is evidenced in the studied data, because the majority of the mothers who transmitted the disease did not have even completed elementary education. A study conducted in the period 1999-2000 with a sample of 3047 women showed that maternal age, family socioeconomic income and schooling are factors that have a great impact on the disease mortality (RODRIGUES and GUIMARÃES, 2004). The municipalities of Bragança, Marabá, and Marituba are among the most incidents of the state, a fact that is paid when compared to the Salgueiro study (2016), in which the Carajás region (meso-region of the municipality of Marabá) is one of the most prevalent in congenital syphilis in the state. Although Bragança and Marituba have the highest average incidences, this has been shown to be stable; on the other hand, the municipality of Marabá showed a rapid and progressive advance, and in 2017 (the most recent year of the study) showed the highest incidence in the state. These are regions where the health services are not as effective, dealing daily with lack of infrastructure. Not to mention, these municipalities are some of the focuses of prostitution in the state, one of the leading risk groups for sexually transmitted infections such as AIDS and syphilis (SILVA, 2017).

On the other hand, municipalities that presented a very low incidence are even more worrisome, since this may represent underreporting of the disease, which impairs their visibility, leading to a deficit of actions against the disease progression in that region. This fact has also been observed in other studies (CARDOSO *et al*, 2018; ARAÚJO, 2006; MILANEZ; AMARAL, 2008; ARAÚJO *et al*, 2008). This underreporting is also evidenced in other results of the present study, having as main example the data referring to the mother's age group, where it was recorded that women over 81 are the only age group to transmit syphilis to their offspring, this data possibly were misplaced, since women are out of the fertile age range. This evidence once again the negligence of health professionals

towards age notification, which restricts actions directed at a specific age range. Although there is a majority of negative data in the study, there are some positive points to be highlighted, such as the early diagnosis of maternal syphilis, since most were diagnosed in prenatal, concordant with other studies (Cardoso *et al*, 2018; Padovani; Oliveira; Peloso, 2018). Early congenital syphilis diagnosis, in most cases, leads to children being diagnosed up to 6 days old, corroborating to diminish the mortality of the disease. Late diagnosis of syphilis is detrimental to the fetus, exposing it to the bacterium for longer, increasing perinatal death rates, stillbirth, and perinatal death.

Conclusion

The results of this study demonstrate that congenital syphilis is a disease that has grown in an overwhelming way in recent years, mainly demonstrating the inefficiency of the health system, especially in the less favored regions of the state, as well as the less favored population. This results in higher morbidity and mortality rates. These data shows that there is still a lot to work to achieve the WHO goal elimination of congenital syphilis. In order to reduce the spread of the disease, it is necessary to raise awareness among health professionals, who are responsible for the health of millions of people, especially those working in the most deprived areas of the state. This awareness should be started even in the academy, so that more competent and conscious professionals will be trained and, in the near future, we will achieve the elimination of the disease.

Acknowledgement

We would like to express our special thanks of gratitude to Prof. Margaret Maria Braun Guimarães Imbiriba for accepting to guide us in this study.

REFERENCES

- Araújo, EC. 2006. Importância do pré-natal na prevenção da sífilis congênita. *Rev Para Med*; 20:47-51.
- Araújo, MAL; Silva, DMA; Silva, RM; Gonçalves, MLC. 2008. Análise da qualidade dos registros nos prontuários de gestantes com exame de VDRL reagente. *RevAPS*; 11:4-9.
- Brasil, M.S. 2010. Secretaria de Vigilância em Saúde. Departamento de Vigilância Epidemiológica. Doenças infecciosas e parasitárias: guia de bolso / Ministério da Saúde, Secretaria de Vigilância em Saúde, Departamento de Vigilância Epidemiológica. – 8. ed. rev. – Brasília: Ministério da Saúde, 444 p.: Il. – (Série B. Textos Básicos de Saúde)
- Brasil, M.S. 2011. Secretaria de Vigilância Em Saúde. Sistema Nacional de Vigilância em Saúde: Relatório de Situação, Pará. 5. ed. Brasília-DF: [s.n.], 45 p. v. 1.
- Brasil, M.S. 2017. Secretaria de Vigilância Em Saúde. Sífilis: Boletim Epidemiológico. 1. ed. [S.l.: s.n.], 44 p. v. 1.
- Cardoso, ARP; Araújo, MAL; Cavalcante MDS, Frota M A, Melo SPD. 2018. Análise dos casos de sífilis gestacional e congênita nos anos de 2008 a 2010 em Fortaleza, Ceará, Brasil. *Ciênc. saúde coletiva*.
- De Loranzi, DRS; Madi, JM. 2001. Sífilis congênita como indicador da assistência pré-natal. *Rev Bras Ginecol Obstet*; 23:647-52.
- Donalísio, MR; Freire, JB; Mendes, ET. 2007. Investigação da sífilis congênita na microrregião de Sumaré, Estado de São Paulo, Brasil desvelando a fragilidade do cuidado à mulher gestante e ao recém-nascido. *Epidemiol Serv Saúde*; 16:165-73.
- Figueiró-Filho, EA; Gardenal, RVC; Assunção, LA; Costa, GR; Periotto, CRL; Vedovatte, CA. 2007. Sífilis congênita como

- fator de assistência pré-natal no município de Campo Grande MS. DST J Bras Doenças Sex Transm; 19:139-43.
- Milanez, H; Amaral, E. 2008. Por que ainda não conseguimos controlar o problema da sífilis em gestantes e recém-nascidos? *Rev Bras Ginecol Obstet*; 30:325-7.
- Padovani, C; Oliveira RRD; Pelloso, SM. 2018. Syphilis in during pregnancy: association of maternal and perinatal characteristics in a region of southern Brazil. *Rev. Latino-Am. Enfermagem* [Internet]. ;26:e3019. 2018. <http://dx.doi.org/10.1590/1518-8345.2305.3019>.
- Rodrigues, CS, Guimarães MDC. 2004. Grupo Nacional de Estudo sobre Sífilis Congênita. Positividade para sífilis em puérperas: ainda um desafio para o Brasil. *Rev Panam Salud Pública*; 16:168-75.
- Salgueiro, SAL. 2016. Tendência da sífilis congênita no estado do Pará até 2025. 2016. 67 p. Dissertação (Mestrado em Doenças tropicais) - Núcleo de Medicina Tropical, Universidade Federal do Pará, Brasil.
- Silva, RCD. 2017. A territorialidade da prostituição travesti nos espaços públicos de marabá: o caso da praça monsenhor Baltazar Jorge. Publicado nos Anais do I Simpósio de Produção Científica. Realizado pela PROPIT em 09 e 10 de fevereiro.
- Sonda, EC.; Richer, FF.; Boschetti, G.; Casasola, MP.; Krumel, CF.; Machado, CPH. 2013. Sífilis Congênita: uma revisão de literatura. *Revista de Epidemiologia e Controle de Infecção, Santa Cruz do Sul/RS*, v. 3, n. 1, jan.
- Trevisan, MR; De Loranzi, DRS; Araújo, NM; Ésber, K. Perfil da assistência pré-natal entre usuárias do Sistema Único de Saúde em Caxias do Sul. *Rev Bras Ginecol Obstet* 2002; 24:293-9.
- Wijesooriya, NS; Rochat, RW; Kamb, ML. 2016. Global burden of maternal and congenital syphilis in 2008 and 2012: a health systems modelling study. *Lancet Glob Health*; 4:e525-33.
