Introduction

In Brazil, the vertical transmission of syphilis remains a great public health problem. Over the last years, it has increasingly become a reemerging disease, with rates of congenital syphilis of about 3 for every 12 thousand children born alive [1-3], varying in different regions of the country [5-10]. According to data from the Ministry of Health, in 2016, 87,593 cases of acquired syphilis were recorded in Brazil, 37,436 cases of syphilis in pregnant women, and 20,474 cases of congenital syphilis, and among these, 185 deaths. The larger number of cases was reported in the southeastern region (53.5% of acquired syphilis, 46.9% of syphilis in pregnant women, and 41.5% of congenital syphilis). In Brazil, the prevalence of syphilis in pregnant women is four times higher than in cases of positive acquired immunodeficiency virus (HIV) from the same group. The general region of Santos comprises 9 cities and around 1.8 million inhabitants.
The coinfection with HIV were found in 7.4% of the cases studied, and 4.32% were coinfected with hepatitis B. Some of the pregnant women were diagnosed with hepatitis C (0.61%) and tuberculosis (2.46%).

As to the pregnancy trimester, more than half (69.7%) of the cases were diagnosed with syphilis during the first trimester, 19.3% in the second, and 8.6% in the last trimester. In 4% of the medical records there was no information about it. The medication used for syphilis acquired during pregnancy was, predominantly, benzathine penicillin.

Of the pregnant women studied, 59.25% went to a few appointments for prenatal care, whereas 29.62% participated in all prenatal care established appointments. Only 11.13% of the seropositive pregnant women followed through with the VDRL assistance in all months of pregnancy. The study showed that 54 out of 162 (36.41%) of the partners received no syphilis treatment, against 59/162 (33.13%) who were treated; there is no information as to the remaining 49 pregnant women. Additionally, in non-monogamous situations there was no record of treatment of more than one sexual partner.

Five death reports were found in the 162 medical records, 1 mother and 4 newborns. There was no cause of death reported on the medical records.

Among the laboratory tests collected, VDRL was the most frequently requested, corresponding to 96.91%. The treponemic test was applied in 64.19% of the cases. To reduce risk, the pregnant women with VDRL titles 1:2 and 1:4 received treatment on the assumption that they had not been treated before.

Late in 2016, the quick test was introduced, albeit without causing any impact on sampling.

There are no reports in the medical records of after birth treatments or the outcomes. The full data of the 162 researched records are detailed on table 1 (demographic characteristics of the sampling) and on table 2 (prenatal care data). The absence of basic data or ineligible handwriting from the assistant doctors was marked as “Not applicable.”

**Discussion**

In the study, it was possible to verify the deficiencies in prenatal care, the frequent lack of specific expertise of the medical staff. The findings possibly reflect the situation in many regions of the country. Guimarães SG et al [11]. Recently evaluated the access and quality of prenatal care in different regions of Brazil and highlighted the direct correlation between good prenatal care and higher Human Development Indexes (HDI) in each state of Brazil. In the general Santos region, apart from Santos, which has the 3rd best HDI in São Paulo state, the other eight cities had low-income levels.

In the year of 2016, there were reports of 37,436 cases of syphilis in pregnant women and 20,474 cases of congenital syphilis in Brazil; among these, there were 185 deaths, according to the Ministry of Health [1,12]. Syphilis advances as a clearly neglected reemerging disease, reflected in the approach of the disease in pregnant women and its outcomes.

The assessment of prenatal care in the area studied seems to require multiple actions for adequate success, such as: medical staff training, physical structure, materials, multidisciplinary assistance, trustworthy laboratories, and patient monitoring. The deficiencies are outstanding. Medical records are often unreadable. There is a lack of basic information; in most cases, even the outcome is not reported. Demographic data is usually not recorded.

The study showed teenagers and young adult women as a higher risk group. Typically, they are single, of a low educational level, with multiple births, and without permanent jobs. In a cross-sectional study with 2,422 pregnant women undergoing prenatal care at the SUS of Rio de Janeiro, 46 had syphilis during pregnancy, resulting in 16 cases of congenital syphilis. This condition was associated with black-skinned people, teenagers, low educational levels, low social and economic conditions, late start in prenatal care, and insufficient consultations. Several other studies with similar designs confirm these sentinel events [13]. Coinfections with hepatitis B and C, HIV, and even tuberculosis were reported as well, despite more than half the records not showing notes on results, referral information, or even outcomes. It was found in the medical records of the presence of HIV in pregnant women.

---

**Table 1: Sociodemographic results found in the 162 medical records of pregnant women cared for in prenatal exams, in SUS basic attention records in São Vicente, between 2014 and 2016.**

| DEMOGRAPHIC DATA | N     | %   |
|------------------|-------|-----|
| Maternal Age (years): |       |     |
| <18 years old    | 23/156| 14.7|
| 18-30 years old  | 99/156| 63.5|
| >30 years old    | 34/156| 21.8|
| Not applicable*  | 6/162 | 3.7 |

| Educational Level: | N     | %   |
|-------------------|-------|-----|
| Illiterate        | 01/41 | 0.7 |
| Incomplete elementary school | 45/141 | 31.9 |
| Complete elementary school | 26/141 | 18.4 |
| High school       | 65/141| 46.1|
| Higher education  | 04/141| 13.0|
| Not applicable*   | 21/162|     |

| Marital status: | N     | %   |
|-----------------|-------|-----|
| Single          | 55/136| 40.4|
| Married         | 41/136| 30.1|
| Divorced        | 02/136| 1.5 |
| Widowed         | 0/136 | 0.0 |
| Common-law marriage | 38/136| 27.9|
| Not applicable* | 26/162|     |

| Occupation      | N     | %   |
|-----------------|-------|-----|
| Domestic Service| 92/120| 76.7|
| Housemaid       | 21/120| 17.5|
| Self-employed   | 07/120| 5.8 |
| Not applicable* | 42/162| 25.9|

* The absence of basic data or ineligible handwriting from the assistant doctors was marked as "Not applicable."
* Total value and its percentage for each variables it was impaired because the handwriting in the medical records was not clear enough to read or missing information. In each item is referenced in the right column.
with syphilis is worrisome because the presence of syphilis facilitates the transmissibility of HIV to the fetus [14,15]. An improvement in the control of the prenatal care would be the Family Health professionals coordinating medical staff who provide prenatal care.

The absence of a program focused specifically on the man, like the important Women’s Health, program is remarkable as well. Prenatal care training programs have proved effective [16], but not very proactive in many regions of Brazil. Informatization of medical records will certainly bring welfare improvement and epidemiological efficacy.

“To be born without syphilis is a universal right”.

Conclusions

Prenatal care in pregnant women with syphilis in the studied area showed numerous flaws in relation to the guidelines of the Brazilian Ministry of Health and International Organizations, requiring a set of technical adjustments.

References

1. Ministério da Saúde - Secretaria de Vigilância em Saúde (2017) Boletim Epidemiológico Sífilis 48: 36. Link: https://goo.gl/1DLhek
2. Norwitz ER, Hicks CB, Lockwood CJ, Barss VA, Mitty J (2017) Syphilis in pregnancy. 1-15.
3. Szwarzwald CL, Barbosa Junior A, Miranda AE, Paz LC (2007) Resultados do Estudo Sentinelia-Parturiente, 2006: desafios para o controle da sífilis congênita no Brasil. DST J Bras Doenças Sex Transm 19: 128-33. Link: https://goo.gl/1H5rm1
4. 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. 15. Link: https://goo.gl/eLB6i
5. Cardoso ARP, Araújo MAL, Andrade RFV, Saraceni V, Angelica E. et al. (2016) Underreporting of Congenital Syphilis as a Cause of Fetal and Infant Deaths in Northeastern Brazil. PLoS One 11: e0167255. Link: https://goo.gl/NyVE5L
6. Saraceni V, Miranda AE (2012) Coverage by the Family Health Strategy and diagnosis of syphilis in pregnancy and congenital syphilis. Cad. Saúde Pública, Rio de Janeiro 28: 490-496. Link: https://goo.gl/7LdUth
7. Vargas L, Amaral S, Arriaga M, Sarno M, Brites C (2018) High prevalence of syphilis in parturient women and congenital syphilis cases in public maternities in Salvador-Bahia, Brazil. BJOG 125: 1212-1214. Link: https://goo.gl/TGnQz3
8. Teixeira SRS, Queiroz AP (2015) Prevalência de sífilis em gestantes no município de Chapadão do Sul-MS. Visão Universitária 13-26.
9. Szwarcwald CL, Barbosa Junior A, Miranda AE, Paz LC (2007) Resultados do Estudo Sentinelia-Parturiente, 2006: desafios para o controle da sífilis congênita no Brasil. DST J Bras Doenças Sex Transm 19: 128-33.
10. Guimarães WSG, Parente RCP, Guimarães TLF, Garnelo L (2018) Acesso, infraestrutura, cuidado e gestão. Cad. Saúde Pública, Rio de Janeiro, apr 30: 715-723. Link: https://goo.gl/rgglLn
11. Guimarães WSG, Parente RCP, Guimarães TLF, Garnelo L (2018) Acesso e qualidade da atenção pré-natal na Estratégia Saúde da Família: infraestrutura, cuidado e gestão. Cad. Saúde Pública 34. 34: e00110417. Link: https://goo.gl/1mEL3H
12. Benzaken A (2017) O desafo da Sífilis. Boletim da Sociedade Brasileira de Infectologia. Outubro 6-10.
13. Domingues RM, Saraceni V, Hartz ZM, Leal Mdo C (2013) Congenital syphilis: a sentinel event in antenatal care quality. Rev Saúde Pública 47: 147-156. Link: https://goo.gl/1h1Nhg
14. Yeganeh N, Watts HD, Camarca M, Soares G, Joao E, et al. (2015) NICHD HPTN 040P1043 Study Team. Syphilis in HIV-infected mothers and infants: results from the NICHD/HPTN 040 study. Pediatr Infect Dis J 34: e52-57. Link: https://goo.gl/BE5QCv
15. Ramos MV, Figueiredo EM, Succi RCM (2014) Barrier to control Syphilis and HIV vertical transmission in the health care system in the city of São Paulo. Rev Bras Epidemiol 17: 887-898. Link: https://goo.gl/uo2UEJ
16. Lazarini FM, Barbosa DA (2017) Intervenção educacional na Atenção Básica para prevenção da sífilis congênita. Rev. Latino-Am. Enfermagem 25: e2845. Link: https://goo.gl/qtbN1X

Discover a bigger Impact and Visibility of your article publication with Peertechz Publications

**Highlights**
- Signatory publisher of ORCID
- Signatory Publisher of DORA (San Francisco Declaration on Research Assessment)
- Articles archived in worlds’ renowned service providers such as Portico, CNKI, AGRIS, TDNet, Base (Bielefeld University Library), CrossRef, Scilit, J-Gate etc.
- Journals indexed in ICMJE, SHERPA/RoMEO, Google Scholar etc.
- DAI-PMH (Open Archives Initiative for metadata Harvesting)
- Dedicated Editorial Board for every journal
- Accurate and rapid peer-review process
- Increased citations of published articles through promotions
- Reduced timeline for article publication

Submit your articles and experience a new surge in publication services (https://www.peertechz.com/submission).

Peertechz journals wishes everlasting success in your every endeavours.