dx.doi.org/10.5380/ce.v26i0.75035 Cogit. Enferm. 2021, v26:e75035

Cogitare Enfermagem

ORIGINAL ARTICLE

CLINICAL-EPIDEMIOLOGICAL SITUATION OF GESTATIONAL SYPHILIS IN ANÁPOLIS-GO: A RETROSPECTIVE ANALYSIS

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ABSTRACT

Objective: to describe the clinical and epidemiological situation of gestational syphilis in Anápolis, Goiás, Brazil, between the years 2012 to 2018.
Method: descriptive, cross-sectional study of a quantitative nature. As a collection instrument, data from the gestational syphilis notification form registered in the Epidemiological Surveillance Department were used. For statistical analysis, the chi-square test was used, with a 5% significance level ($p<0.05$).
Results: an increase in gestational syphilis cases was evidenced. Care was offered to 522 women, aged between 19 and 29 years (58.1%), with brown ethnicity (69.1%) and incomplete high school education (24.5%); latent syphilis predominated (58.1%), followed by primary syphilis (30.8%) and a high rate of non-treatment of the partner (57.1%).
Conclusion: within the period studied, there was an increase in cases of gestational syphilis and non-treatment of the partner. This study may contribute to the planning of primary and secondary prevention actions, aiming to decrease the incidence of the disease and its consequences.

DESCRIPTORS: Syphilis; Pregnant Women; Epidemiology; Prenatal Care; Serological Tests.

SITUACIÓN CLÍNICA Y EPIDEMIOLÓGICA DE LA SÍFILIS GESTACIONAL EN ANÁPOLIS-GO: UN ANÁLISIS RETROSPECTIVO

RESUMEN:

Objetivo: describir la situación clínica y epidemiológica de la sífilis gestacional en Anápolis, Goiás, Brasil, entre los años 2012 y 2018. Método: estudio descriptivo y transversal de carácter cuantitativo. Se utilizaron como instrumento de recogida los datos de la ficha de notificación de sífilis gestacional registrada en el Departamento de Vigilancia Epidemiológica. Para el análisis estadístico se utilizó la prueba de chi-cuadrado con un nivel de significación del 5% ($p<0,05$). Resultados: se evidenció un aumento de los casos de sífilis gestacional. La asistencia se ofreció a 522 mujeres, con edades comprendidas entre los 19 y los 29 años (58,1%), de etnia parda (69,1%) y con estudios secundarios incompletos (24,5%); predominó la sífilis latente (58,1%), seguida de la sífilis primaria (30,8%) y un alto índice de no tratamiento de la pareja (57,1%). Conclusión: dentro del período estudiado, hubo un aumento de los casos de sífilis gestacional y no tratamiento de la pareja. Este estudio puede contribuir a la planificación de acciones de prevención primaria y secundaria, con el objetivo de disminuir la incidencia de la enfermedad y sus consecuencias.
DESCRIPTORES: Sífilis; Mujeres Embarazadas; Epidemiología; Atención Prenatal; Pruebas Serológicas.

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INTRODUCTION

Syphilis is a systemic, preventable, sexually transmitted infection (STI) caused by the spirochete *Treponema pallidum*. When not treated early, it can evolve to a chronic condition with irreversible sequelae, first described in 1905 by Schaudinn and Hoffmann. It is transmitted by sexual and vertical routes, and rarely via blood transfusion, and it is a disease that must be reported[1-2]. The vertical transmission of syphilis can occur at any gestational period or during childbirth, being called congenital syphilis[3].

There are several pathologies that can be transmitted during the gestational period, but syphilis has the highest rates of infection, ranging from 70% to 100% in the primary and secondary phases, and reducing to 30% in the late latent and tertiary phases of maternal infection[4].

The low income of the population with gestational syphilis is a risk factor for the onset of congenital syphilis, associated with factors such as low birth weight, infant mortality and increased number of deliveries[5]. The average age among pregnant women who acquire syphilis is 20 to 24 years, besides being associated with low education[6].

The tests used for the diagnosis of syphilis are divided into two categories: direct tests and immunological tests. Among the direct tests, the main one is the direct search for the bacterium under dark-field microscopy, which can diagnose the disease in its primary and secondary stages. The immunological tests - in practice the most used - are divided into treponemal tests (TT) and non-treponemal tests (TNT). The treponemal tests detect specific antibodies produced against the bacteria antigens and are the first to become reagent, being important for the diagnosis confirmation, and the non-treponemal tests detect non-specific anti-cardiolipin antibodies and can be qualitative or quantitative[7].

The definition of positive tests, treponemal or not, in the serum of newborns is limited due to the passive transfer of maternal Immunoglobulin G (IgG) type antibodies, which, however, tend to progressively decrease until they become negative within a few months. In the case of congenital syphilis, on the contrary, the titers are maintained or rise, characterizing an active infection. Ideally, the confirmatory treponemal test should be performed in pregnant women after every reagent non-treponemal test (after titers of 1:1, the non-treponemal test is considered reagent). The effective treatment against the bacterium is penicillin, which is the drug of choice during pregnancy[8].

Worldwide, it is estimated that there are more than 11 million new cases of syphilis per year, with high percentages of incidence in Latin American, African and Asian countries[9]. In Brazil, where the disease persists as a serious public health problem, there was an increase in the number of notifications and epidemiological rates of gestational and congenital syphilis between the years 2007 and 2016. Regarding gestational syphilis, the detection rate was 2.5 cases/1,000 live births in 2007 to 12.4 cases/1,000 live births in 2016[10].

Gestational syphilis is treatable and, consequently, congenital syphilis can be prevented. The occurrence of gestational syphilis is indicative of failures in prenatal care, diagnosis, or treatment. In the absence of treatment, vertical transmission of syphilis is high, and can reach values close to 100% in recent forms of the disease. However, timely diagnosis and treatment are highly effective and reduce vertical transmission in up to 97% of cases[11].

It is observed that syphilis has become a major public health problem, being of extreme value that municipalities know the reality of the disease within the population so that prevention and control actions are adopted. Therefore, the present study aimed to describe the clinical-epidemiological situation of gestational syphilis in Anápolis, Goiás, Brazil between the years 2012 to 2018.

METHOD

This is a descriptive, cross-sectional study, quantitative in nature. The study was conducted between May 06, 2019 to September 30, 2019, as a collection instrument, the notification forms of gestational syphilis of the Information System of Notifiable Diseases (SINAN), linked in the Department of Epidemiology of the Municipal Health Department of Anápolis, regarding the period from January 2012 to December 2018, were requested. This period was chosen due to the large number of suspected cases raised by the health systems, in order to perform a more detailed analysis of the case.

The characteristics evaluated were sociodemographic data regarding the pregnant woman/mother: age range, ethnicity and education, and clinical-epidemiological characteristics regarding the pregnant woman/mother: when the diagnosis of maternal syphilis occurred, clinical classification, whether TNT and TT were performed along with their results, if the partner(s) were treated concomitantly with the pregnant woman and which treatment scheme was used by the pregnant woman and her partner.

Inclusion criteria were cases of gestational syphilis reported in SINAN in Anápolis-GO, Brazil, in the years 2012 to 2018, whose forms provided sufficient information for case analysis and study follow-up. Exclusion criteria were cases not resident in the municipality, duplicate notifications, and illegible forms.

The Excel 2007 program was used for data tabulation and statistical analysis was performed using the Statistical Package for Social Sciences (SPSS®) version 16.0. For the descriptive statistical analysis, the chi-square test was adopted. A 5% significance level ($p<0.05$) was used for all analyses.

The research followed the criteria of ethics and research with human beings, having opinion number 2.572.947 approved by the Research Ethics Committee.

RESULTS

Between 2012 and 2018, 522 cases of syphilis in pregnant women were reported, with growth in the number of notifications: from 34 cases (6.5%) in the year 2012 to 132 cases (25.3%) in 2018 (Figure 1).

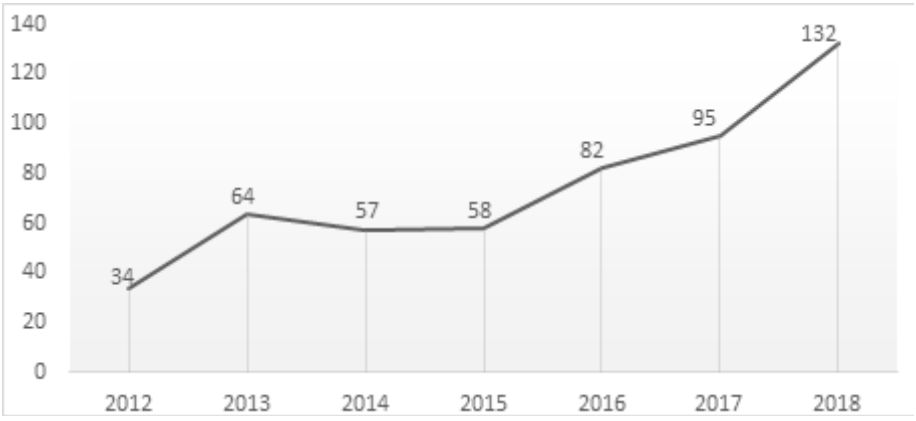

Figure 1 - Distribution of the number of reported cases of gestational syphilis between 2012 and 2018. Anápolis, GO, Brazil, 2020. Source: Authors (2021)

According to the sociodemographic profile of the pregnant women, there was a higher occurrence in the 19-29 age group, with 58.1% (p= 0.607) of the notifications, brown women (69.1%, p=0.059), and with incomplete high school education (24.5%, p=0.001), as shown in Table 1.

Table 1 - Distribution of reported cases of gestational syphilis from 2012 to 2018 by age group, ethnicity and education. Anápolis, GO, Brazil, 2020

Characteristics	**n**	**%**	**p**
Age group			
12 to 18 years old	95	18,2	0,607
19 to 29 years old	303	58,1	
30 to 39 years old	103	19,7	
40 to49 years old	21	4	
Ethnicity			
White	107	20,5	0,059
Black	36	6,9	
Asian	8	1,5	
Brown	361	69,1	
Indigenous	2	0,4	
Ignored	6	1,2	
No data	2	0,4	
Education level			
Illiterate	0	0	0,001
1st to 4th grade incomplete	27	5,2	
4th grade complete	19	3,6	
8th grade incomplete	68	13	
Elementary school complete	47	9	
High school incomplete	128	24,5	
High school complete		24	
Higher education incomplete	9	1,7	
Higher education complete	11	2,1	
Ignored	58	11,1	
No data	30	5,8	
Total	522	100	

Source: Authors (2021)

The year of notification of cases was compared with the gestational age of women, showing a great change in the profile of gestational age in relation to the years of study

(p=0.002). In 2012, 2014 and 2015, there was a greater notification during the third trimester of gestation, already in the year 2013 it was the second trimester and from the year 2016, cases notified in the first trimester took the first position, remaining so until 2018 (Figure 2).

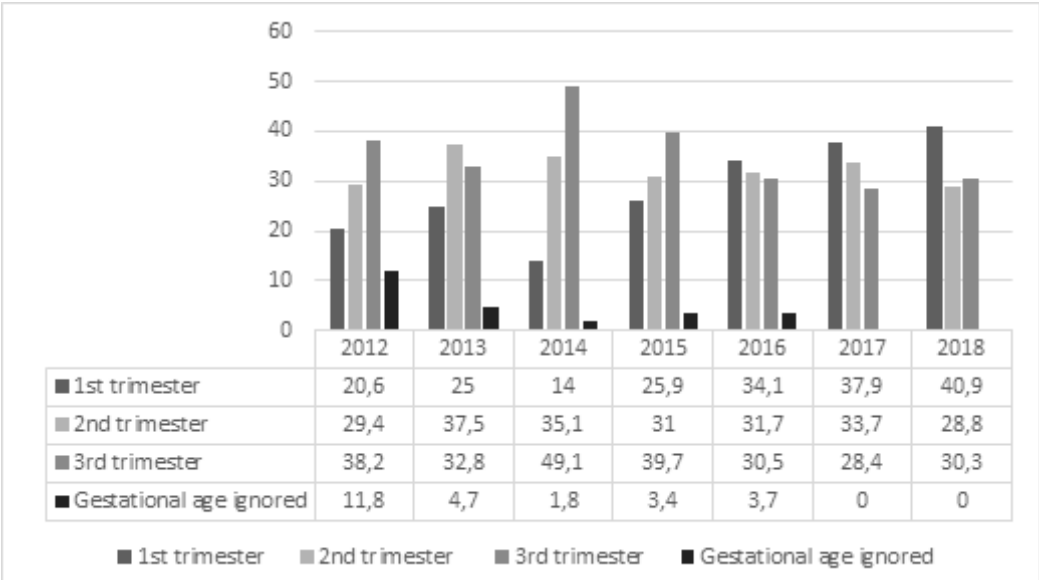

Figure 2 - Percentage analysis of gestational syphilis cases by gestational age of diagnosis from 2012 to 2018. Anápolis, GO, Brazil, 2020
Source: Authors (2021)

Observing the cases, according to the clinical classification, there was a predominance of the latent form of syphilis with 58.0% cases, followed by the primary form with 30.8%. This shows a statistically significant difference between the clinical classification and the years studied (p=0.001). Regarding non-treponemal tests (TNT) in prenatal care, 84.9% women underwent the tests and 1.7% had an ignored form, showing a statistically significant difference (p=0.001) between the groups. Regarding the treponemal tests (TT) performed prenatally, it was shown that 87.8% women underwent the test and 1.1% had ignored the completion of the notification form, showing a statistically significant difference (p=0.005) of cases (Table 2).

Table 2 - Distribution of reported cases of gestational syphilis from 2012 to 2018 by clinical and laboratory criteria. Anápolis, GO, Brazil, 2020 (continues)

Characteristics	n	%	p
Clinical Classification			
Primary Syphilis	161	30,8	0,001
Secondary syphilis	22	4,2	
Tertiary Syphilis	11	2,1	
Latent Syphilis	303	58,1	
Ignored	12	2,3	

No data	13	2,5	
Non-treponemal prenatal testing			
Reagent	344	65,9	0,001
Non-reactive	99	19	
Not performed	70	13,4	
Ignored	9	1,7	
Treponemal test in prenatal care			
Reagent	433	83	0,005
Non-reactive	25	4,8	
Not performed	58	11,1	
Ignored	6	1,1	
Total	522	100	

Source: Authors (2021)

From the observation of the different treatment regimens, there was a predominance of the use of Benzathine Penicillin G, 80.9% of cases reported. In 13% of the women, the treatment was not carried out, while in 2.9% there was no description of the scheme used, showing a statistically significant difference (p=0.001) of the cases in relation to the treatment chosen and the years studied. Regarding the treatment of the partner, 57.1% were not treated, 10.9% forms were filled out as ignored and in 1.7% of the forms there was no filling out, showing a statistically significant difference (p=0.001) (Table 3).

Table 3 - Treatment regimen prescribed for pregnant women with syphilis and treatment or not of the partner. Anápolis, GO, Brazil, 2020

Characteristics	**n**	**%**	**p**
Treatment regimen prescribed for pregnant women			
Penicillin G benzathine 2,400,000 IU	154	29,5	
Penicillin G benzathine 4,800,000 IU	40	7,7	
Penicillin G benzathine 7.200.000 IU	228	43,7	0,001
Another regimen	17	3,2	
Not performed	68	13	
Ignored	15	2,9	
Treated Partner			
Yes	158	30,3	
No	298	57,1	
Ignored	57	10,9	0,001
No data	9	1,7	
Total	522	100	

Source: Authors (2021)

DISCUSSION

An increase in the number of cases of gestational syphilis was observed in the city of Anápolis - GO in the analyzed period. This change is attributed, among other factors, to the increased coverage of testing, expansion of the use of rapid tests, decreased use of contraceptive methods, worldwide shortage of penicillin and resistance to administration of penicillin by health professionals in primary care, as indicated by data from the Ministry of Health[9]. This increased offer of prenatal care services alters the outcomes of pregnancies, and its deficiency can increase perinatal mortality by up to five times. In developing countries, it can decrease maternal mortality by up to 26%[6].

The significant increase in cases during the years 2017 and 2018 may be related, in part, to the change in the definition of cases, which, in October 2017, started to consider notifications during prenatal, delivery and puerperium for gestational syphilis, to reduce the underreporting of cases in pregnant women. Still, the situation in Brazil is no different from other developing countries, with worrying numbers and the need for STI control[11].

Regarding the age range, the predominance found among women aged 19-29 years highlights the importance and need to expand screening and specific searches, besides notification, for this phase of higher fertility[12]. Moreover, the significant share of incidence in women between 12 and 18 years on the one hand shows the increasingly earlier onset of sexual activity and, on the other, due to the diagnostic scope, shows a special attention by public health to the young population, which is very vulnerable to risks related to sexual behavior.

In a study on knowledge about STIs conducted in Goiânia-GO, it was evidenced, still, lack of knowledge of adolescents about certain points of STIs and basic knowledge of most of the evaluated about the methods of protection against these infections, demonstrating the importance of awareness campaigns and the need for improvement in schools, which can corroborate to the decrease in infection rates by syphilis and other STIs[13].

Regarding ethnicity, the higher incidence of gestational syphilis in brown women can be attributed, in part, to the socioeconomic disparities faced by them: worse indicators of prenatal care are observed in women of brown and black ethnicity when compared to white women[14]. There is a higher prevalence of syphilis in pregnancy associated with lower rates of testing in women with lower education and in black and brown women, demonstrating as social determinants the ethnicity and education criteria and identifying them as risk factors for infection by gestational syphilis[15].

Regarding the clinical classification, there was a predominance of latent syphilis followed by primary syphilis. The epidemiological bulletin of syphilis in Goiás[16] portrays the diagnosis of primary syphilis in women as being difficult to detect, since the hard canker is asymptomatic and usually located in sites of difficult or limited observation, such as vaginal wall, cervix or perineum; therefore, as a screening profile, a higher incidence of latent phase is expected in detriment of the primary phase. Also, according to this bulletin, in Goiânia, the profile with primary syphilis occupied the first position, followed by ignored/white data and latent syphilis occupying the third position, evidencing possible errors in the clinical classification of the disease, which may lead to erroneous therapeutic conducts. The present study is divergent from the data found in the state bulletin; in addition, there was a low percentage of forms with ignored/blank filled out.

Regarding the diagnosis of syphilis, tests should be performed at four moments: in the first prenatal visit (which should be performed primarily in the first trimester); at the beginning of the third trimester (28 weeks); at delivery and in case of abortion. In this sense, prenatal care is related to strategic planning, constituting an effective instrument in the production of improved health conditions for women and their families[17-18].

In Goiás, there was an improvement in early diagnosis, but the predominance of late diagnosis of the disease remained, in the second or third trimester of pregnancy, possibly associated with late initiation of prenatal care and quality of care for pregnant women. The city of Anápolis-GO had a similar profile to that of Goiás until 2015, with a higher rate of notifications during the third trimester. As of 2016, there was an inversion, with a greater number of diagnoses made in the first trimester, with this percentage increasing and reaching almost 41% in 2018, which may be related to the improvement of prenatal care and greater amounts of early screening in pregnant women. However, the number of diagnoses in late stages (primary and secondary) is still large, showing that, despite improvement, there is still much to be done[19].

As for the diagnostic tests, a significant portion of pregnant women did not have the TNT. Because gestational syphilis is silent, with little or no symptoms, pregnant women believe to be totally healthy, so it is important to perform diagnostic tests that, in addition to diagnosis, also allow the treatment of the pregnant woman and her child[20]. This fact may be associated with the late initiation of prenatal care and delay in returning the results, leading a significant portion of pregnant women not to receive the result of the VDRL (Venereal Disease Research Laboratory) still during the prenatal period[21]. It is also observed 70 (13.4%) records in which there was no TNT, but TT was performed, demonstrating a failure to follow the diagnostic flow established by the Ministry of Health[22], which is to perform a TNT as screening and diagnostic confirmation or exclusion of false positives by TT, which should be the second test.

Regarding the treatment of pregnant women, most of them received at least one dose of benzathine penicillin G, the drug recommended by the Ministry of Health[7]. A significant number of pregnant women did not undergo treatment, which may result in an increase in the number of cases of congenital syphilis and unfavorable outcomes. A factor that may be related to the number of untreated pregnant women is the shortage of penicillin since 2014, which several countries have been facing, including Brazil, due to the lack of raw materials to produce the drug, requiring government actions to adjust the price of the drug[23]. According to the Ministry of Health[7], for the treatment to be considered effective, it must meet the following criteria: use of medication, the scheme indicated for the phase of the disease, treatment instituted up to 30 days before delivery, and treatment of the partner.

When analyzing the form of treatment prescribed, it is observed that there were many files with inadequate treatment for the clinical stage of the disease, presenting cases with less and more doses than necessary. Regarding latent syphilis, which presents the highest incidence, it is not possible to make an analysis, since there is no specification whether it is early or late latent and each of these subtypes presents a specific and targeted treatment[7].

Regarding the partner, more than half of the forms showed that there was no treatment prescription and an even greater number of forms established that there was no treatment itself, revealing that, even with the prescription of treatment, there was no effectively instituted therapy. Some of the reasons reported in the notification forms for non-treatment of the partner were the difficulty of contact/loss of contact by the pregnant woman and refusal of treatment by the partner. It is perceived a poor qualification of prenatal care, observed by the non-performance of screening serology and treatment not performed or performed inadequately to the partner[24].

This study has some limitations, such as the use of secondary data, which are conditioned to the quality of the records, besides not allowing us to estimate how much the frequency of underreporting can distort the results found. However, the databases used, even with their limitations, are considered reliable and of good quality, producing reliable information.

CONCLUSION

From the results it can be concluded that there was an increase in gestational syphilis in the city of Anápolis-GO in the analyzed period among women aged 19 and 29 years, brown and with incomplete high school. Latent syphilis predominated followed by primary syphilis, most women performed the non-treponemal test and the treponemal test in prenatal care, the treatment of pregnant women was with penicillin G benzathine and there was no treatment of the partner.

In this sense, it is essential that health professionals and managers are present in the development of strategies to improve prenatal care and public policies that cover not only pregnant women, but also their partners, since the non-treatment of these partners is an obstacle to interrupting the chain of transmission of syphilis.

It is worth emphasizing the need for adequate qualification of health professionals through continuing education for the correct filling of medical records, pregnant women's cards, and notification forms, so that the follow-up is done in a continuous and regular way.

Therefore, the need for new studies is perceived, as well as their dissemination so that there is knowledge by the population and health professionals about the importance of notifications. Research is still needed to ensure, monitor, and indicate possibilities of action of the health system on cases of gestational syphilis regarding prevention, symptoms, and treatment. Therefore, this study contributed with data for the public and health sectors to trace surveillance actions against gestational syphilis, allowing its decrease.

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HOW TO REFERENCE THIS ARTICLE:
Santos Filho RC dos, Moreira IC, Moreira LD, Abadia LG, Machado MV, Nascimento MG, *et al.* Clinical-epidemiological situation of gestational syphilis in Anápolis-GO: a retrospective analysis. Cogit. Enferm. [Internet]. 2021 [accessed "insert day, monh and year"]; 26. Available from: http://dx.doi.org/10.5380/ce.v26i0.75035.

Received: 06/07/2020
Approved: 02/02/2021

Associate editor: Tatiane Herreira Trigueiro

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Role of Authors:
Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - RCSF, ICM, LDM, LGA, MVM, MGN, CTXS
Drafting the work or revising it critically for important intellectual content - RCSF, ICM, LDM, LGA, MVM, MGN, CTXS
Final approval of the version to be published - RCSF, ICM, LDM, LGA, MVM, MGN, CTXS
Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - RCSF, ICM, LDM, LGA, MVM, MGN, CTXS

ISSN 2176-9133