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EPIDEMIOLOGY OF MOTHERS SUBMITTED TO SEROLOGICAL TEST FOR SYPHILIS

EPIDEMIOLOGIA DE PUERPÉRAS SUBMETIDAS AO TESTE SOROLÓGICO PARA A DETECÇÃO DA SÍFILIS

EPIDEMIOLOGÍA DE MADRES SOMETIDAS A PRUEBA SOROLÓGICA PARA A DETECCIÓN DE SÍFILIS

Aparecida Neuritianny Chaves Gondim¹, Amanda Souza de Oliveira², Ana Kelve de Castro Damasceno³, Bartira Nunes Barbosa⁴, Hércia Carla dos Santos Pitombeira⁵, Jamile Lopes Moraes⁶

ABSTRACT

Objective: find out the epidemiological profile of puerperal women submitted to sorological test to detect syphilis and analyze the association between risk factors and reactivity. **Method:** this is a documental, descriptive and quantitative study, held at a maternity in Fortaleza during the months of October/2007 and March/2008. 300 puerperal women were tested for syphilis. **Results:** the study found that most puerperal women belonged to the age group of 15 and 24 years; the incidence of new cases of syphilis that motherhood was 5,8 cases per 1000 lives births; malformation was observed in 1,3% of the newborns, with no fetal mortality in the studied cases. **Conclusions:** the study showed a high level of syphilis still among pregnant women, the results indicate the necessary of efforts to improve the quality of the prenatal assistance in the city, they are necessary investments in professional qualification. **Descriptors:** congenital syphilis; prenatal care; risk factors.

RESUMO

Objetivos: delinear o perfil epidemiológico de puérperas submetidas ao teste sorológico para detecção da sífilis e analisar a associação entre fatores de risco e a reatividade. **Método:** estudo documental, descritivo, com abordagem quantitativa, realizado em uma maternidade de Fortaleza-CE, Brasil no período de agosto de 2007 a novembro de 2008. A amostra foi composta por 300 puérperas testadas para sífilis, depois do cumprimento dos critérios estabelecidos para cálculo de populações finitas, tomando como população o valor de 1.343 mulheres, correspondendo ao número de gestantes atendidas neste local em um período de seis meses anteriores a coleta de dados, com nível de confiança (95%), prevalência do fenômeno (0,5), complementar da prevalência (0,5) e erro amostral (0,05). Os dados foram coletados com uma ficha de internação, do Partograma, da Declaração de Nascidos Vivos (DNV), analisados no *Statistical Package for the Social Sciences* (SPSS) versão 17.0 e discutidos com a literatura. Durante a análise foram utilizados os Testes Qui-quadrado e Exato de Fisher, considerando-se estatisticamente significativos os resultados com $p < 0,05$. O projeto foi submetido ao Comitê de Ética em Pesquisa da Universidade Federal do Ceará (UFC), sendo aprovado sob o protocolo nº. 240/07. **Resultados:** o estudo evidenciou que a maioria das puérperas concentrou-se na faixa etária entre 15 e 24 anos; a incidência de casos novos de sífilis nessa maternidade foi de 5,8 casos em 1000 nascidos vivos; a má formação esteve presente em 1,3% dos recém-nascidos, não havendo mortalidade fetal nos casos estudados. **Conclusão:** o estudo revelou que a presença da sífilis ainda é elevada entre as gestantes, apontando a necessidade da melhoria da qualidade da assistência pré-natal, sendo necessários investimentos em capacitação profissional e um maior empenho desses profissionais de saúde no cumprimento de normas e leis instituídas pelo governo. **Descritores:** sífilis congênita; cuidado pré-natal; fatores de risco.

RESUMEN

Objetivos: describir el perfil epidemiológico de madres sometidas a las pruebas sorológicas para la detección de sífilis y analizar la asociación entre factores de riesgo y reactividad. **Métodos:** estudio documental, descriptivo y cuantitativo, realizado en una maternidad en Fortaleza de octubre 2007 a marzo de 2008. La muestra fue de 300 madres. **Resultados:** el estudio mostró que la mayoría de las mujeres se concentran en el grupo de edad entre 15 y 24 años, la incidencia de nuevos casos de sífilis en la maternidad fue de 5,8 casos por 1000 nacidos vivos, la malformación se presenta en el 1,3% de los recién nacidos, sin ocurrir la mortalidad fetal en los casos estudiados. **Conclusiones:** El estudio reveló que la presencia de sífilis sigue siendo alta entre las embarazadas, reconociendo la necesidad de mejoras de la calidad de la atención prenatal, se necesitan inversiones en la formación profesional y un mayor compromiso de los profesionales de la salud en el cumplimiento de las normas y leyes impuestas por el gobierno. **Descriptor:** sífilis congénita; atención prenatal; factores de riesgo.

¹Nurse graduated from the Federal University of Ceara (UFC), Fortaleza (CE), Brazil. E-mail: tiannychavesgondim@yahoo.com.br; ²Nurse graduated from the Federal University of Ceara (UFC), Fortaleza, Brazil. MS in Nursing from the Federal University of Ceara, Member of the Project 'Nursing in Maternal Health Promotion', Fortaleza (CE), Brazil. E-mail: aso.enfa@gmail.com or mandinhadeoliveira@hotmail.com; ³Nurse, Doctor in Nursing, Specialist in Obstetrical Nursing, Assistant Professor II of the Department of Nursing / UFC, Coordinator of the Project 'Nursing in the Promotion of Maternal Health', Fortaleza (CE), Brazil. E-mail: anakelve@hotmail.com; ⁴Graduated nurse from the Federal University of Ceara (UFC), Fortaleza (CE), Brazil. E-mail: bartirinha09@hotmail.com; ⁵Graduated nurse from the Federal University of Ceara (UFC), Fortaleza (CE), Brazil. E-mail: carlinha85ce@hotmail.com; ⁶Graduated nurse from the Federal University of Ceara (UFC), Fortaleza (CE), Brazil, Specialist in Obstetrical Nursing, MS in Nursing from the Federal University of Ceara. E-mail: jamile_lm@yahoo.com.br

INTRODUCTION

The attention to women's health has been reconsidered politically in the recent years, however, the integral care provided by the National Health System (SUS) is still something to be chained. To contribute with advance in this area, it turns necessary evaluation of the measures implemented in the assistance to women, especially in respect to the reduction of the rates of maternal morbidity and mortality, considering its relevance as an indicator of evaluation of the conditions of health of pregnant women, as well as the assistance received by them.

Currently, the Maternal Mortality Ratio (MMR) is high in Brazil and other countries. In developed countries such as Canada and the United States, the MMR is 10 maternal deaths per 100,000 alive births. In Latin American countries like Brazil, Argentina, Chile and Cuba, the MMR is 40 maternal deaths per 100,000 live births. The national MMR estimates that 1,600 deaths occur annually in women with complications of pregnancy, childbirth and puerperium, stressing that there is behind that number significant under-reporting.¹

Although the means of prevention and treatment of syphilis are effective and relatively inexpensive, the disease affects approximately 12 million people annually, being thus in a public health problem worldwide.

Due to a low operative monitoring, the precise number of infected pregnant women ends up being a difficult task to accomplish. Studies conducted in the 70 and 80 showed a 0.03% prevalence in Scotland and 16% in Brazil. Currently, a study conducted in 2004 on a representative sample of pregnant women 15-49 years old, from all regions the country, there was a prevalence rate of 1.6% for active syphilis, with an estimate of about 50 000 pregnant women with an active infection, and 12 000 live births with congenital syphilis. These data also demonstrate an insufficient control of the disease throughout the country.³

Infection during pregnancy can cause congenital syphilis. It is estimated that worldwide, about two million cases per year of infection during pregnancy. Complications of infection include: spontaneous abortion, perinatal death, premature birth, low birth weight, malformations and neonatal infection.²

In 2000, the Ministry of Health established

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the Program for Humanization of Prenatal and Childbirth (PHPN) in order to ensure improved access, coverage and quality of prenatal care, childbirth and the puerperium pregnant women and newborn, in view of citizenship rights. In 2002, approved the Sunrise Project, to improve the comprehensive health care delivery, reduce vertical HIV transmission and mortality associated with congenital syphilis, testing for syphilis and HIV 100% of pregnant women and ensuring proper treatment.

In light of the above, this study aimed to describe the epidemiological profile of mothers subjected to serological testing for syphilis and to analyze the association between risk factors and the reactivity of the examination for the woman and the newborn.

METHOD

Documentary study, descriptive, quantitative approach, performed in a maternity hospital secondary Ceara, from August 2007 to November 2008.

The selection of the sample ($n = 300$) followed the criteria established for the calculation of finite populations, the population taking as the value of 1343 women, corresponding to the number of pregnant women seen at this location over a period of six months prior to data collection, level of (95%), prevalence of the phenomenon (0.5), complementary to the prevalence (0.5) and sampling error (0.05).

Data were collected through a form of admission of the partogram, the Statement of Live Birth (DNV) and recorded on a form pre-established. These were analyzed in Statistical Package for Social Sciences (SPSS) version 17.0 and discussed in the literature. During the analysis was performed using the Chi-squared and Fisher's exact test, considering statistically significant results with $p < 0.05$.

The project was submitted to the Ethics Committee in Research of the Federal University do Ceara (UFC), was approved under the Protocol. 240/07, and followed the guidelines of Resolution no. 196/96 National Health, the Ministry of Health for research on human subjects, emphasizing the signing of the consent of all participants.⁶

RESULTS AND DISCUSSION

All women admitted in labor in maternity that are subjected to the serological test for syphilis (VDRL). Thus, 300 (100%) women in

the sample were tested, of which eight (2.66%) were reactive for syphilis serology.

Table 1. An Association between sociodemographic characteristics of mothers and the result of the VDRL. Maternity-secondary level. Fortaleza, CE, October 2007 - March In 2008.

	Reagent		No reagent		Value of p
	n	%	n	%	
Proceedings (n=300)					0,696
Capital	5	1,6	204	68,0	
Countryside	3	1,0	77	25,6	
Another State	-	-	11	3,8	
Age (n=300)					1,0
Until 19 years old	2	0,6	71	23,6	
Since 20 years old	6	2,0	221	73,8	
Sholarity (n=291)					0,473
Under de 8 years old	2	0,7	125	43,0	
More than 8 years old	6	2,1	158	54,2	
Marital status (n=294)					0,405
Single	5	1,7	218	74,1	
Married	3	1,0	68	23,2	
Occupation (n=297)					1,0
At home	6	2,0	219	73,7	
Works/Student	1	0,3	71	24,0	

The sociodemographic characteristics are presented in Table 1, where we observe a predominance of women coming from the capital, both in the group reagents (5, 1.6%) as the non-reactive (204, 68.0%), showing no influence statistical predominance on the site (Fisher's exact test, $p > 0.05$). Calculating the incidence of new cases in a study of motherhood, we have 5.8 cases per 1000 live births, as quite alarming when compared to the national rate and the state. Nationally representative study in 2005, the incidence was 1.9 per 1000 live births, less than that found in our study.7 already in Ceará in 2007, were reported 411 cases of congenital syphilis representing an incidence of 3.2 cases per 1000 live births. 8

In terms of age, 73 (24.2%) mothers were aged less than 19 years, during which the precocity in sexual intercourse, multiple partners and low condom use, coupled with greater freedom sex, are some of the known factors that can increase vulnerability to Sexually Transmitted Diseases (STD) .9 a study conducted in six hospitals in Bolivia revealed adolescence as a risk factor for acquiring STDs and pregnancy noted that under-14 years was strongly linked to the presence of infection. 10

Regarding the mothers reactive serum, we realize that the age of 19 years was predominate, showing no statistical influence on the age group (Fisher's exact test, $p > 0.05$). Thus, both in the present study as in another conducted in Mato Grosso do Sul, which investigated the age distribution of

pregnant women with the frequency of cases of infections of transmissibility vertical11, age was not considered a factor associated with the presence of maternal syphilis.

Regarding education, 127 (43.7%) mothers had less than eight years of study, considered a relatively low educational level and may negatively affect the self-care during pregnancy and STD prevention. We also note that ¼ reactive serum of women said a few years of study. Studies have shown that mothers of cases of congenital syphilis were younger and had less education. 12-3

Regarding marital status, we found a higher contamination between unmarried because of the eight with a diagnosis of syphilis five were single, although there was no statistically significant (Fisher's exact test, $p > 0.05$). Different result found in a study conducted in the State of Pará that aimed to analyze the relationship between prenatal care and the occurrence of cases of congenital syphilis, however, found that 78.3% of mothers were married with the infection, suggesting possible contamination of the woman promiscuous by her partner. 14 But we can only state this fact had also asked the number of partners during the marriage because the relationship of marital infidelity, can not be seen as something related only to the man.

As for occupation, there was a predominance of women who take care of the home both in the group of women reagents, six (2.0%), as in non-reactive, 219 (73.7%), a total of 225 (75.7 %).

Table 2. Association between obstetric characteristics of the mothers and the result of the VDRL. Maternity of secondary level. Fortaleza, 2007/2008.

	Reagent		No reagent		Value of p 1,0
	n	%	n	%	
Number of pregnancy(n=298)					
1 a 3	7	2,3	235	78,8	
4 ou mais	1	0,3	55	18,6	
Gestational age(n=286)					0,352
Until 36 weeks old	1	0,3	16	5,6	
From 37 weeks old	6	2,1	263	92,0	
Number of consultations (n=294)					0,145
Until 3 consultations	3	1,0	48	16,3	
From 4	5	1,7	238	81,0	
VDRL in Prenatal (n=300)					0,969
Did not do	2	0,6	27	9,0	
1º trimester	5	1,6	215	71,6	
3º trimester	-		4	1,3	
1º e 3º trimester	1	0,3	46	15,3	
Number of Stillbirths (n=298)					1,0
No	8	2,7	270	90,6	
Yes	-	-	20	6,7	

According to Table 2 shows that the majority, ie, 269 were full-term pregnancies (37-41 weeks), six (2.1%) reactive serum and 263 mothers (92.0%) who were negative, thus demonstrating in our study no significant correlation between gestational age with syphilis (Fisher's exact test, $p > 0.05$). A different result found in a study conducted in Natal that aimed to identify the occurrence of congenital syphilis in the city considering the epidemiological profile of mothers and cases reported by the municipality, whose sample of 311 cases revealed that the rate of prematurity was found in 10 6% of newborns.¹⁵

Regarding the number of visits for prenatal care, non-reactive in the sample we found that 238 (81.0%) had four or more visits, a fact crucial to maximize the chances of early detection of congenital syphilis, taking into account the regular supply of samples of laboratory tests, because the fact of the realization of prenatal unfortunately no guarantee of early detection, since there were five reactive serum of women who made four or more visits. It is worth noting the percentage of women who underwent up to three prenatal visits, three (1.0%) of mothers and 48 reagents (16.3%) of non-reactive, something considered as an indicator of concern and determining process for the evaluation of prenatal care.

Study in Palmas that aimed to study the cases of congenital syphilis occurring in a reference hospital in town, evaluating the rate of notification of this disease and to identify some of the causes of its occurrence, found similar data to our study, where 72% of mothers had done prenatal care.¹⁶

Regarding the realization of VDRL during pregnancy, we found that mothers of eight

reactive serum, only five made the first sample of VDRL during the prenatal period, not repeating around the 30th week of gestation. According to the Ministry of Health, it is necessary to carry out the second sample of this examination so that there is time for the treatment of the mother-filho.⁴ So from what is recommended by the PHPN, ie, the two samples of examination, only 47 (15.6%) performed the in calling even more attention to the fact that even a postpartum sororeagente who performed the two samples, however, still came to the maternity ward to a positive VDRL. The divergence between the performance of prenatal care and compliance with standards established by the Ministry of Health can still be observed in another study in which only 8.0% of the sample was tested for syphilis during prenatal follow-natal.¹⁷ As can be seen is not the number of consultations to examine the indicator, but the quality of care being offered to pregnant women.

We also point out that women in our study who underwent more than four prenatal visits were still admitted at the maternity ward presenting with positive VDRL titers of 1:4 to 1:128. Being tested properly and still have been found positive results during entry to motherhood may have occurred due to the precariousness of prenatal care, where lack of timely and appropriate treatment of pregnant women and their partners suggests the unpreparedness of health teams before a positive result.

The national scene about prenatal care is worrisome because it was reported in 2005, 5792 cases of congenital syphilis, and 78% of mothers received prenatal care, 56% were diagnosed with syphilis during pregnancy and only 13% of its partners were tratados.¹⁷

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study conducted to evaluate the incidence of congenital syphilis in the state of Ceará, with 1203 cases of congenital syphilis reported in Ceará between 2001 and 2006 showed that in that series, except for 2002, in the other years the number partners of pregnant women with positive VDRL, untreated, was always greater than the number of partners tratados.¹⁷ Therefore, untreated partner confirms the inefficiency in breaking the transmission chain, leading to an increase of congenital syphilis.

Thus, treating these women without concomitant partner is a low-impact, because they will be reinfected by their partners.¹⁹ Adds up, though, the irregular supply of

Epidemiology of mothers submitted to serological... drugs, as well as institutional barriers, social and cultural men to health services and the very negation of the injectable treatment.

As for the history of stillbirths, 20 (6.7%) reported their occurrence, and we found no case of stillbirth in reactive serum, noting how in our study there was no significant correlation between stillbirth with syphilis (Fisher's Exact Test , $p> 0.05$). Given divergent found in another study which shows that syphilis is considered a disease of the fetus which contamination can cause miscarriage, stillbirth and neonatal death in 40% of infected fetuses or birth of children with syphilis.²⁰

Table 3. Distribution of the type of delivery according to the result of the VDRL test. Maternity secondary level. Maternity secondary level. Fortaleza, 2007/2008.

	Type of birth			
	Vaginal		Cesareo	
Result VDRL	n	%	n	%
Reative	6	2,0	2	0,6
No reative	152	50,6	140	46,8
Valor of p	0,288			
n=300				

Regarding the type of delivery, shown in Table 3 that 158 (52.6%) had vaginal deliveries and 142 (47.4%) by cesarean section, and analyze the sample alone sororeagente observed that six of the eight mothers reactive serum were subjected to vaginal delivery. However, representative study conducted in Rio de Janeiro with pregnant women with syphilis and their

concepts, which showed that about 70.1% had birth vaginal.¹⁷ light of these findings can be inferred that sororeagente for syphilis or not, is not a determinant for best mode of delivery (Fisher's exact test, $p> 0.05$), however, this result may have been influenced by small reactive serum sample in our study.

Table 4. Association between Apgar scores and malformation with the result of VDRL. Maternity secondary level. Fortaleza, 2007/2008.

	APGAR1°min (n=300)				APGAR 5°min (n=300)				Bad formation (n=264)			
	Until 6		From de 7		Until 6		From 7		Absent		Present	
Result VDRL	n	%	n	%	n	%	n	%	n	%	n	%
Reactive	3	1,0	5	1,6	1	0,3	7	2,3	7	2,7	1	0,4
Non reactive	9	3,0	283	94,4	-	-	292	97,4	251	95,1	5	1,8
Valor of p	0,002				0,027				0,170			

Observed in Table 4 with respect to APGAR score at 1 minute that predominated from the index scores of 7 (96.0%) (mean = 8.5; Fashion: 9.0), adding the reagents and not reagents, which is in accordance with the 5th minute APGAR, where 99.7% showed less than seven (Mean = 9.06, Mode = 9.0). Different proportion found in the sample serum reactive, where three (1.0%) had index scores of up to 6 at 1 minute and a baby (0.3%) showed a rate of up to 6 at 5 minutes, so there is an association between Apgar and VDRL positive (Fisher's exact test, p less than 0.05).

So picture yourself that infants of mothers

belonging to the group reactive serum syphilis had the quality of his APGAR compromised. It is known that when a woman acquires syphilis during pregnancy, there may be asymptomatic or symptomatic infection in newborns and more than 50% of infected infants are asymptomatic at birth. However, in early congenital syphilis may manifest clinical characteristics such as respiratory distress, convulsions and even meningitis, clinical syndromes that can directly interfere in the evaluation of Apgar scores.²¹

As the malformation, detected in five newborns, and that the total of eight newborn children of mothers reactive serum, showed a malformation with agenesis of the

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left forearm, however, in our study there was no relationship between poor training and VDRL positive (Fisher's exact test, $p > 0.05$). This result can be explained by the fact that the reactive serum sample was small, since it is known that syphilis may manifest before two years, being named early congenital syphilis, and after two years, called late congenital syphilis. Thus, the child may have infected skin and mucosal lesions, hepatosplenomegaly, lymphadenopathy, osteochondritis, periostitis or osteitis, anemia, hydrops fetal.¹⁸

It is noteworthy that the infants born to mothers only reactive serum were discharged when they had secured their treatment and their mothers. As also emphasized the need to partner in treatment, it is very important at this point the contact unit secondary to primary care following the treatment.

FINAL CONSIDERATIONS

Well-known fact in our study is that more than half of the sample reagent attended at least four antenatal visits. Most came from the capital and was aged between 20 and 38 years and there was no direct relationship between schooling and syphilis infection. The data that were significant to the results of positive VDRL was the low APGAR score at 1 and 5 minutes, where the values of $p < 0.05$, showing a strong association between these events to the presence of congenital syphilis.

Despite advances in public health care system provided by the programs instituted by the Ministry of Health and other agencies, this study confirms a common feature in other studies: the issue of quality of prenatal care. The importance of support and encouragement to this type of study lies precisely in its being a means of validating compliance with rules and laws imposed by government.

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Corresponding Address

Amanda Souza de Oliveira
Rua Salgado Filho, 1064 – Antônio Bezerra
CEP: 60361-020 – Fortaleza (CE), Brazil