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SYPHILIS SEROPREVALENCE OF WOMEN IN PUERPERIUM AND VULNERABILITY IN PRENATAL CARE

SOROPREVALÊNCIA PARA SÍFILIS NO PUERPÉRIO E AS VULNERABILIDADES DO PRÉ-NATAL

LA SEROPREVALENCIA DE SÍFILIS EN EL PUERPERIO Y LA VULNERABILIDAD DE LA ATENCIÓN PRENATAL

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ABSTRACT

Objectives: to determine the seroprevalence rate of maternal syphilis in a Maternity Hospital in the city of São Paulo and to present women's epidemiological and social demographic profile. **Methodology:** this is a descriptive, prospective study with randomized cases of maternal syphilis. The sample with 400 puerperal mothers was carried out from January to April 2009. Data collection consisted of interviews with puerperal women complemented with secondary data contained in medical records and in the prenatal care file. This research was approved by the Ethics Committee of the School of Nursing, University of São Paulo, under the nr 770/2008/CEP-EEUSP, CAAE n.3385.0.000.196-08. **Results:** most seropositive mothers had ages ranging from 26 years or more, were of mixed ethnicity, incomplete high-school, and were in a stable union. The multiparous women started prenatal care with 16 weeks of gestation or less, had six or more prenatal visits, did not contract other infections from sexual contact other than syphilis, maintained unprotected sexual contact during pregnancy and had vaginal delivery as a result of pregnancy. Of the 400 interviewed mothers, 3.25% presented positive serum samples in the first quarter and were treated. Of these, 2.75% remained seropositive in the second quarter and were identified, and 1.25% of them remained positive on hospital admission screening. All partners were treated. **Conclusion:** This study showed that even with an adequate number of prenatal visits and treatment, it was not satisfactory to guarantee the control of syphilis, which could only be effectively prevented and controlled in an adequate manner when prevention control measures are effectively applied in prenatal care. **Descriptors:** syphilis; pregnancy; puerperium; sexually transmitted diseases; prevalence.

RESUMO

Objetivos: identificar a soroprevalência de sífilis materna em um Hospital Maternidade de São Paulo/SP e apresentar o perfil sociodemográfico e epidemiológico das puérperas. **Método:** estudo descritivo, prospectivo, aleatório de casos de sífilis materna. A amostra foi constituída por 400 puérperas, nos meses de janeiro a abril de 2009. A coleta de dados se deu por meio de entrevistas, complementadas com os dados secundários do prontuário e da carteira de pré-natal, após a aprovação pelo Comitê de Ética da Escola de Enfermagem da Universidade de São Paulo, Parecer 770/2008/CEP-EEUSP, CAAE n.3385.0.000.196-08. **Resultados:** a maioria das puérperas soropositivas tinha 26 anos ou mais, cor parda, ensino médio incompleto e união estável; multiparas, iniciaram o pré-natal com 16 semanas ou menos de gestação, realizando 6 consultas ou mais. Além disso, não contraíram outras infecções de contato sexual além da sífilis, mantiveram relação sexual desprotegida durante a gestação e parto vaginal como desfecho. Das 400 puérperas entrevistadas, 3,25% eram sororeagentes no 1º trimestre e foram tratadas. Destas, 2,75% permaneceram soropositivas no 2º trimestre e foram retratadas, sendo que 1,25% delas mantiveram resultado positivo na triagem da internação hospitalar. Todos os companheiros foram tratados. **Conclusão:** mesmo tendo número adequado de consultas pré-natal e recebido tratamento, não foi suficiente para garantir o controle da sífilis, que só poderá ser efetivamente prevenida e controlada, de forma satisfatória, quando as medidas de prevenção e controle forem efetivamente aplicadas na assistência pré-natal. **Descritores:** sífilis; gestação; puerpério; doença sexualmente transmissível; prevalência.

RESUMEN

Objetivos: identificar la seroprevalencia de sífilis materna en un hospital maternidad de la ciudad de São Paulo y presentar el perfil epidemiológico y sociodemográfico de las mujeres puérperas. **Metodología:** estudio descriptivo, prospectivo, aleatorio para los casos de sífilis materna. La muestra de 400 puérperas ocurrió en los meses de enero a abril de 2009. La colecta de los datos consistió de entrevistas con las madres puérperas, y con los datos secundarios que figuran en los registros médicos y en la cartera de atención prenatal. La investigación fue aprobada por el Comité de Ética de la Escuela de Enfermería de la Universidad de São Paulo, parecer de no. 770/2008/CEP-EEUSP, CAAE n.3385.0.000.196-08. **Resultados:** la mayoría de las puérperas seropositivas tenían 26 años o más, eran de origen étnico mixto, con enseñanza secundaria incompleta y unión estable. Las multiparas comenzaron la atención prenatal con 16 semanas de gestación o menos, realizando seis o más consultas, no contrajeron infecciones otras por el contacto sexual que no sea la sífilis, mantuvieron relaciones sexuales sin protección durante el embarazo y tuvieron parto vaginal como resultado del embarazo. De las 400 madres entrevistadas, 3,25% eran suero reactivo en el primer trimestre y fueron tratadas. de éstas, 2,75% han permanecido seropositivas en el segundo trimestre y fueron retratadas, siendo que 1,25% de ellas se mantuvo con resultado positivo en el examen al ingreso hospitalario. Todos los compañeros fueron tratados. **Conclusión:** este estudio demostró que a pesar de un número adecuado de controles prenatales y con el tratamiento recibido, esto no fue suficiente para garantizar el control de la sífilis, que sólo puede ser efectivamente prevenida y controlada de manera satisfactoria cuando las medidas de prevención y control sean efectivamente aplicadas en la atención prenatal. **Descriptores:** sífilis; embarazo; puerperio; enfermedades de transmisión sexual; prevalencia.

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INTRODUCTION

The study of syphilis in post-natal women, conducted by the Ministry of Health of Brazil, in 2004 presented prevalence of 1.6% of women with this disease at birth. From this data, it was possible to estimate the occurrence of 50,000 cases in pregnant women in the country in 2005, and, in the State of São Paulo, 3,817 cases were reported during gestation period from 2005 to 2009.¹⁻³

With the resurgence of the disease, syphilis in pregnant women became a case of Mandatory Reporting from July 2005, through Ministerial Directive n.33, including it in the National List of diseases whose reporting became mandatory. Due to the fact that it is completely preventable through identification and treatment of infected pregnant women while in prenatal, Brazil prioritizes policies to encourage the rating of prenatal care and invests in them providing diagnostic tests and treatment for identified grievances, from which syphilis is one of the priorities.⁴⁻⁵

Vertical transmission of syphilis can occur at any stage of pregnancy and at birth when the mother has genital lesions. It is also important to emphasize that, during breast feeding the infection may occur only if there is breast lesion caused by syphilis, therefore, the serological screening of the mother is essential during pregnancy. In the case of pregnant women with no prenatal care, or in case of irregular and unsatisfactory prenatal care, the serological screening must be done in the maternity hospital.⁶

Among the grievances of vertical transmission of syphilis, it is common the occurrence of miscarriage, stillbirth or perinatal birth in approximately 40% of infected children from non-treated mothers. More than 50% of infected children are asymptomatic at birth, the first symptoms may arise during the first quarter of life.⁶

Thus, integrated healthcare, aiming to eliminate congenital syphilis, comprehends a group of coordinated actions that includes early diagnosis and treatment for general population and for pregnant women, concomitant treatment of the sexual partner, and prompt treatment of newborns with clinical, serological and epidemiological evidences.

These initiatives require improvement of epidemiological surveillance for transmission of syphilis during gestation period. Such surveillance aims to control vertical transmission and monitor the behavior of

infection among pregnant women, making the planning and evaluation of prevention and control measures. The encouragement for the diagnosis and treatment of the partner must be carried out exhaustively in order to avoid recontamination of women and possible congenital syphilis.⁵

In spite of the efforts to control this grievance, the transmission remains a public health problem in Brazil as well as in other countries of the world. From this perspective, the state of São Paulo aims to eliminate congenital syphilis as a public health problem (0.5 case/1,000 live births) through early diagnosis and appropriate care to pregnant women and their partners until 2015.⁷

OBJECTIVES

- Determine the seroprevalence of maternal syphilis in a Maternity Hospital in the city of São Paulo.
- Present women's epidemiological and social demographic profile.

METHODOLOGY

A descriptive, prospective and randomized study of cases of maternal syphilis, carried out in the low risk postpartum ward, and data collection consisting of interviews with puerperal mothers, supplemented with secondary data contained in medical records and prenatal care file.

For this survey were invited all puerperal mothers in any chronological age, who were 8 hours or more from childbirth, regardless of type of delivery, from January to April 2009. The participants were 400 mothers admitted in the period, and none of them refused to participate.

After explanation of objectives, methodology, acceptance and signature of the Free and Clarified Consent Term, the mother was taken to a reserved room to fill in the application form with structured questions, regarding variables of social demographic, obstetric, Sexually Transmitted Diseases (STDs), drug abuse and condom use.

The results were placed in a database, in a Microsoft Excel file, for the construction of tables. This research was approved by the Ethics Committee of the School of Nursing, University of São Paulo, under the nr. 770/2008/CEP-EEUSP 770/2008/CEP-EEUSP, CAAE n.3385.0.000.196-08.

RESULTS

During the study period, 400 puerperal

mothers at low gestation risk were interviewed for raising seropositive results related to syphilis.

Table 1. Maternal Characteristics. São Paulo, Brazil, 2009.

Variables	VDRL reagent		VDRL non reagent	
	n (13)	%	n (387)	%
Age (in years)				
< 19	2	0.5%	80	20%
19 to 25	4	1%	190	4.75%
26 or more	7	1.75%	117	29.25%
Skin color				
Caucasian	2	0.5%	145	36.25%
African-American	3	0.75%	70	1.75%
mixed ethnicity	8	2%	172	43%
Education				
Middle school incomplete	2	0,5%	114	28.5%
Middle school complete	1	0.25%	34	8.5%
Incomplete high school	5	1.25%	79	19.75%
Complete high school	4	1%	142	35.5%
Higher education				
incomplete	–	–	17	4.25%
No education	1	0.25%	1	0.25%
Marital status				
Living with a partner	10	2.5%	293	73.25%
Married	3	0.75%	85	21.25%
Living alone	–	–	9	2.25%

The results related to maternal characteristics (Table 1), most seropositive mothers aged 26 or more, while in seronegative mothers, the age ranged from 19 to 25 years old; in the two groups the majority were of mixed ethnicity. In relation

to education, most seropositive mothers (1.25%) had incomplete high-school, and the seronegative ones (35.50%), complete high-school; in both groups, they were in a stable union.

Table 2. Beginning of prenatal in weeks, number of visits done and number of pregnancy. São Paulo, Brazil, 2009.

Variables	VDRL reagent		VDRL non reagent	
	n (13)	%	n (387)	%
Beginning of prenatal				
until 16 weeks	11	2.75%	252	63%
> 17 weeks	1	0.25%	74	18.5%
ignored	1	0.25%	61	15.25%
Number of prenatal visits				
6 or more	12	3%	290	72.5%
< 6	1	0.25%	83	20.75%
ignored	–	–	14	3.50%
Number of pregnancy				
Primiparous	6	1.5%	203	50.75%
Multiparous	7	1.75%	184	46%

Table 2 shows that the beginning of prenatal care was appropriate for both seropositive and seronegative mothers. For most women, in both situations, the number of visits attend the recommendations of Ministry of Health of Brazil. From the 3.5% ignored cases, data collection showed that 08 seronegative mothers did not take their prenatal care file at the time of hospital

admission and 06 had not attended prenatal care. Despite this fact, such mothers tested seronegative for syphilis in the exam performed at the time of hospital admission. Regarding the number of pregnancy, multiparity prevailed for seropositive ones (1.75%) and primiparity for seronegative ones (50.75%).

Table 3. Sexual activity, condom use and STD during pregnancy. São Paulo, Brazil, 2009.

Variable	VDRL reagent		VDRL non reagent	
	n (13)	%	n (387)	%
Sexual activity				
Yes	12	3%	352	88%
No	1	0.25%	35	8.75%
Condom use				
Yes	3	0.75%	66	16.5%
No	6	1.5%	243	60.75%
sometimes	4	1%	78	19.5%
STDs				
Syphilis	13	3.25%	–	–
Gardnerella	–	–	14	3,5%
Trichomoniasis	–	–	6	1,50%
HPV	–	–	11	2,75%
HIV	–	–	–	–

Table 3 shows that both seropositive and seronegative puerperal mothers remained sexually active and unprotected during pregnancy.

Regarding Sexually Transmitted Diseases, 3.25% of puerperal mothers had tested positive for syphilis in the first quarter and

were not infected with other STDs; while 7.75% of seronegative mothers were infected, at some time of pregnancy, with *Gardnerella Vaginallis*, *Trichomonas* and HPV. None of the interviewed women were HIV seropositive.

Table 4. Result of VDRL in 1st and 3rd quarter, at birth and of the newborn. São Paulo, Brazil, 2009.

Variable	VDRL reagent		VDRL non reagent	
	n (13)	%	n (387)	%
I quarter	13	3.25%	387	96.75%
III quarter	11	2.75%	389	97.75%
Childbirth	5	1.25%	395	98.75%
Newborn	5	1.25%	—	—

In Table 4, it was verified that, from the 400 women interviewed, 3.25% were seropositive for syphilis in the first quarter of pregnancy. From these, 2.75% remained seropositive in the 2nd quarter, and 1.25% of them still remained positive on at hospital admission screening.

Regarding the treatment of syphilis, although all puerperal mothers (3.25%) received it together with their partners, after confirmation in the 1st quarter, 2.75% remained seropositive, and the couple was re-treated according to the prenatal care file. It is observed that, even having received treatment in the 1st and 3rd quarters, together with their partners, 1.25% of them had confirmed result at the time of hospital admission.

The newborns of seropositive puerperal mothers (1.25%), in hospital admission, had their diagnosis confirmed for congenital syphilis and were treated.

DISCUSSION

The National Program of STD/AIDs of the Ministry of Health researched the prevalence of some STDs in the population of six Brazilian capitals and found that, among 3,303 pregnant women, the prevalence for syphilis was 1.6%. According to World Health Organization, in underdeveloped countries, around 10% to 15% of pregnant women are infected with syphilis.⁸ Such study found prevalence of 3.25%.

The results showed that most seropositive pregnant women aged 26 years or more. A study in Ceará reported that most pregnant women with positive serology had ages ranging from 21 to 30 years old⁹ and, another study carried out in Vitória, most women were between 20 and 29 years old.¹⁰ In the data regarding the skin color, in the group of seropositive and seronegative puerperal

mothers, 2.0% and 43%, respectively, were of mixed ethnicity. Such data is not consistent with the studies that found a large number of Caucasian pregnant women.¹¹

The results showed that most pregnant women with syphilis had incomplete high school and, the study carried out in Vitoria, the average of education was from 4 to 7 years old.¹⁰

Regarding marital status, the result of the present study shows that 46.15% of seropositive puerperal mothers lived with a partner, consistent with findings of the research carried out in Ceará and Vitória^{9,10}, however, Kwiek¹², in his study with 3,824 pregnant women at the Central Hospital *Queen Elizabeth* in Blantyre, Malawi, found no correlation between syphilis and marital status.

Other studies evaluating prenatal care found a large number of non-Caucasian pregnant women, identifying that socio-economic indicators in this population decreased as the skin color changed, verifying that the disadvantages observed in African-American women and women of mixed ethnicity showed alarming socio-economic indicators, extending to health care and assistance at birth.¹³

While assessing the beginning of prenatal care and the number of visits recommended by the Ministry of Health in both groups, most puerperal mothers were presented within recommended standards; and such findings were also noted in both studies carried out by Campos and Miranda.^{9,10} In 2005, 5,792 cases of congenital syphilis were reported, and in 78% of these cases the mother had prenatal care.¹⁴ In 1993, the Ministry of Health recommended the eradication of congenital syphilis in Brazil, since it can be prevented with diagnosis and treatment during pregnancy; and such action caused the rate of congenital syphilis to become the indicator of

evaluation of basic health care of each city, since it directly reflects the quality of prenatal care.¹⁵

It was found that, among seropositive mothers, most of them (1.75%) were multiparous mothers, as also reported by Campos⁹, who found the percentage of 62.1% in seropositive multiparous mothers. Kwiek¹² also found higher prevalence of syphilis in multi pregnancy.

In both groups of the population studied, most of them were sexually active during pregnancy, however, they used no protection. It is known that prevention of syphilis involves use of male and female protection, and the studies also showed direct correlation between the use and no use of protection as well as the incidence of syphilis.¹⁰ The use of condom is recommended by the Ministry of Health, not only for syphilis, but also for all STDs. Nevertheless, the fact of supplying condoms in Basic Health Units and encouraging their use, through commercials and health programs, cannot ensure its use, since there are other factors involved such as the culture of the country.¹⁴ Another fact to be highlighted is that the couple shall receive instruction about the continuance of the use of condom even during treatment.¹⁶

There was no concurrence of seropositive mothers with other STDs, however, it was found in the literature association between syphilis and other STDs, as mentioned in Kwiek's¹², verifying that 2.45% of the population studied were seropositive for HIV and syphilis, and that dual infection was common in pregnant women aged between 20 and 25 years old.

Studies show that, in stable unions, the trust in the partner and the fact they do not enjoy using condom appear as reasons for non-use of condom. However, when the relationship is between casual partners rules the fact of not enjoying to use it and the unavailability at the time of the sexual relation.¹⁷

In both groups studied, most mothers were not illicit drug users. Among 13 seropositive mothers, only one (0.25%) used non intravenous illicit drugs. Miranda¹⁰ found as a risk factor associated to HIV infection, syphilis and intravenous drug use (0.9%) and, for non intravenous drug use, (3.8%). The type of prevalent childbirth in both groups was normal.

It is verified, then, that results found in positive serology for syphilis denote significant and concerning prevalence. As

found in other studies, the beginning of prenatal care took place at an early stage, and the number of prenatal visits was appropriate. Based on data from this study and on studies carried out by other authors, it was noted that the guarantee of a minimum number of prenatal visits was not enough to ensure quality care for the pregnant women, which makes the aims for controlling congenital syphilis unachievable with the current practices.

As for the treatment carried out, it was mentioned in the prenatal care file that the mother and her partner undertook the recommended therapeutic scheme. For the positive serology in the 2nd quarter, the treatment for the couple was repeated as mentioned in the prenatal care file. Nevertheless, 5 puerperal mothers had positive serology in the test performed in the hospital and, consequently, their babies were diagnosed with congenital syphilis.

It is known that when STD is diagnosed and treated during pregnancy, it provides positive results, enabling the cure of the mother and avoiding congenital syphilis. The treatment during prenatal care may fail in 14% of cases, and, there is still the possibility of re-infection if the partner is not simultaneously treated with the pregnant woman, which explains the importance for treating men^{19,20}. This is confirmed by the fact that in 2008, the state of São Paulo had 1,462 reported cases of congenital de syphilis, and from these, a significant percentage (73.2% of cases) the partner received no treatment.²¹

Under this view, the test *Venereal Disease Research Laboratory* (VDRL) shall be performed at the beginning of prenatal care, and shall be repeated in the third quarter and during childbirth. The two first tests aim to guarantee early diagnosis for the pregnant woman with syphilis and treatment in a timely manner, and the third test allows early treatment of the child.¹⁸

Hawkes²¹ carried out a bibliographic review about the effectiveness of the diagnosis of syphilis during prenatal care, about the treatment in this period and the reduction of adverse outcomes in pregnancy, verifying that such interventions reduce rates of stillbirth and perinatal death in up to 50% and also improve perinatal and infant survival rate.

FINAL CONSIDERATIONS

This study, besides demonstrating seroprevalence of syphilis and the social demographic profile of a group of seropositive

puerperal mothers, also showed that - even with an adequate number of prenatal visits and - it was not satisfactory to guarantee the control of syphilis. The decrease of prevalence during pregnancy, puerperium and the consequences in newborns can only be effectively prevented and controlled through epidemiological surveillance at basic care level, emphasizing the role of the Family Health Strategy and the municipal administrators committed with the quality of service rendered in prenatal care.

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