

Trends of syphilis in Posadas city (Misiones State, Argentina), 1997-2000

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Incidência de sífilis na cidade de Posadas (estado de Misiones, Argentina), 1997-2000

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key words	abstract
Adolescents	<p>Objectives: Misiones State is situated in the north-east of Argentina. The main objective was to establish the evolution of syphilis in Posadas city (300.000 inhabitants) from 1997 to 2000.</p> <p>Methods: Outpatients were studied at the STD clinics during 1997. Records of all pregnant women with babies due to the months of April to June, from 1997 to 2000 (n = 4700), were studied. Syphilis was confirmed by clinic, epidemiological and laboratory tests (VDRL and FTA-ABS). Results: Higher incidence of primary syphilis in outpatients was established among 15-19 year-old women and in 20-24 year-old men. The percentages of pregnant women with syphilis were 2.1% (1997), 2.6% (1998), 4.6% (1999) and 3.7% (2000). The most vulnerable age group was 15 to 19 year-old. Geographical distribution of cases changed from four clusters in 1997 to a wide occurrence in all city quarters with lower socioeconomic level (30% of population). Conclusion: Posadas city had an increase in cases of syphilis in pregnant women from 1997 to 1999. This evolution indicates that traditional STD-Aids programs have had no effect on safe sex practices, specially among adolescents. Home by home visits aimed at improving prenatal control as a priority, started in 1999. The incidence of the disease became stable in 2000, but still at a high rate. It is necessary to continue and improve the outreach activities. A cooperative program in these big "twin" cities: Encarnación (Paraguay) and Posadas (Argentina) - will be also of great help for syphilis control in the area.</p>
Argentina	
Congenital syphilis	
Posadas	
Syphilis	

resumo

unitermos

Objetivos: O estado de Misiones está situado no noroeste argentino, nas fronteiras oeste e norte com o Brasil e a leste do Paraguai. Este foi o interesse para estabelecer a evolução da sífilis na cidade de Posadas (300.000 habitantes), capital do estado de Misiones, desde 1997 até 2000. **Métodos:** A sífilis foi analisada por meio da avaliação epidemiológica, clínica e confirmação laboratorial (VDRL e FTA-ABS). Todas as mulheres grávidas no momento da evolução foram consultadas no hospital Madariaga, durante o período de abril a junho, de 1997 até 2000 (n = 4700), as quais foram incluídas nas análises. **Resultados:** A frequência da sífilis em mulheres grávidas atendidas em hospital público foi de 2,1% (1997), 2,6% (1998), 4,6% (1999) e 3,7% (2000). A faixa etária de maior vulnerabilidade foi de 15 a 19 anos. A distribuição geográfica de casos originados de quatro grupos isolados em 1997 expandiu-se para uma grande ocorrência em todas as regiões de baixo nível de vida socioeconômico (30% do total da população). A sífilis congênita chegou a uma média de 10,8 casos por 1.000 crianças nascidas vivas nos últimos anos. **Conclusão:** A cidade de Posadas teve um aumento de sífilis em mulheres grávidas de 1997 até 1999. Esta situação endêmica indica que o programa convencional STD-Aids teve um efeito mínimo ou nulo sobre a prática do sexo, principalmente em grupos de adolescentes. Um programa de intervenção do alvo geográfico (visita casa por casa) direcionado para prover controle pré-natal como prioridade teve início em 1999. Uma estabilização da sífilis em mulheres grávidas foi demonstrada em 2000, mas a incidência é ainda demasiadamente alta. Torna-se necessária a discussão de um programa de extensão regional que inclua a população binacional das grandes áreas povoadas.

Adolescentes

Argentina

Sífilis congênita

Posadas

Sífilis

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Introduction

Syphilis is an endemic health problem in Argentina and previous data makes it rational to develop a syphilis evaluation project with priority in Posadas city, capital of Misiones State, in the north-east region of Argentina (11).

Syphilis has been almost forgotten by researchers and physicians in the developed world. However, it is still one of the most important human infections in developing countries and, despite simple diagnostic methods in adults and the still high sensitivity to penicillin, it has resisted eradication even in industrialized countries.

Unfortunately syphilis is also forgotten in general biomedical practice and also by some of the Public Health officials in Argentina. Social impact and press repercussion it is practically non-existent.

We have demonstrated in Posadas city that congenital syphilis turned to be again a serious health problem specially related with morbidity and mortality of newborns (11).

We all recognize that syphilis, besides its severe intrinsic damage, is important in increasing the HIV transmission (12).

There is no rational explanation for the existence of residual cases of syphilis and, as in the case of Posadas city, we face an epidemic outbreak, detected in 1997.

Updated information on the incidence of syphilis and precise data about its trends is compulsory to convince health policy makers to promote drastic changes, in order to regain efficiency in the STD prevention and control programs.

Modern epidemiology shows that outbreaks of syphilis occurred even in the central countries in the near past.

They occurred during the 1986-1990 period in southern regions of USA, (6, 14, 17) and in 1995 in the newly-independent Russian republics (10, 18). A continuous and well-organized program reduced the syphilis rate in USA in 84% of total cases from 1990 to 1996, and an international cooperative World Health Organization program decreased the epidemic profile in Russia (10).

It is very difficult to integrate the available information for Latin American countries in a comprehensive epidemiological analysis. A general view indicates that classical prevention and control programs have to be tailored according to each parti-

cular region and carefully adapted to critical social changes occurred in the last decade.

Data from Paraguay (9, 15, 21) and Brazil (1, 2, 13, 19) reveal – as we have detected in the State of Misiones – that there are some regions with a relatively similar endemic situation that requires adjustment in the prevention and control programs.

A description of the evolution of endemic profile of syphilis in Posadas city in the last four years is addressed in this paper. We focus the analysis on pregnant women as an indicator of the visible part of the endemic iceberg.

Syphilis in Posadas, as a universal constant of prevalence, occurs in the less privileged socioeconomic group (30% of the total population).

The Public Health Service (both National and State) has a very well-structured and traditional program for control of STD and Aids. There are several care units distributed in all quarters of the city and at the Central Hospital, with very well trained personnel and a flowing budget. The problem is that the conventional program assists the general public in need of prompt attention and the pregnant women who decide to do the prenatal control.

This program proved to be efficient in the past. Unfortunately at the present demographic status of Posadas city, the syphilis data obtained in this study demonstrate that conventional strategies are not enough to reduce syphilis incidence and to improve prenatal control.

The general situation became critical because Public Health Medical Care is in the midst of a dramatic conversion to managed care.

In addition, many local governments have considered or are considering now shifting STD public clinic services to the private sector.

We promoted in early 1999 additional activities to the traditional STD program. More intensive work has to be done to improve the new intervention program of prevention and control of syphilis.

Methods

Population

Posadas city, capital of Misiones State, has a population of 300,000 inhabitants.

Nearly all cases of syphilis occur in individuals that live below the poverty level, reaching the rate of 100.000 people.

Posadas city has seventeen peripheral centers for primary health care and a central hospital (Hospital Mada-riaga, 400 beds), a big complex that includes maternity and neonatology sections. The Health care centers and the Hospital were a free public service from 1997-2000.

The social characteristics of syphilis patients and its geographic location have been studied by direct contact at primary public health care centers.

All patients included in this study were cared for under the conventional guidelines for basic care at free public health service.

No special or additional diagnostic or treatment procedures were performed. So, no additional informed consent agreement was completed.

Pregnant women

Clinic and laboratory test for syphilis diagnosis were performed in all pregnant women at time of delivery. VDRL result was included in the mother's clinic history, within 12 hours after admission.

As a retrospective study, all Clinic History records of pregnant women assisted from April to June, during 1997 to 2000 ($n = 4700$ cases) were revised and all the confirmed syphilis cases were analyzed.

In 1998, also during April to June, two to three clinic histories of women without syphilis ($n = 65$), for each one with demonstrated syphilis ($n = 24$), were selected at random, on the same day of delivery. Several characteristics were compared in these two groups.

General population

Men and non-pregnant women, with syphilis diagnosis, during voluntary demand of attention at the STD open clinic and Public Health Centers (all confirmed cases – $n = 73$ – from October-December 1997) were separated in two groups: Early Syphilis and Latent Syphilis. In the Early Syphilis group, we incorporated all patients compatible with Primary, Secondary and Early Latent Syphilis.

Early Syphilis, Primary Syphilis, Early Latent Syphilis and Latent Syphilis are defined according to the CDC guidelines, based on clinical and epidemiological background and VDRL, FTA-ABS and dark field microscopy (4).

Laboratory diagnosis

VDRL was performed with reagents provided for the STD and Aids program of the Ministerio de Salud

y Acción Social de la Nación, validated under strict quality control (both internal and external). FTA-ABS was done with Trepo-Spots (Biomerieux), Sorbent (Difco) and Kalestad conjugated (4, 21).

Data analysis

Data was processed using Epi Info-6 for data records and statistical analysis. The odd ratio was calculated with 95% confidence interval and p , according to Yates correction.

Results

A general incidence of 110 cases per 100,000 inhabitants was detected in the general population in Posadas city, the results of primary and latent syphilis are presented in **Table 1**.

The incidence of syphilis infection in pregnant women was 2.1% (26/1, 230 cases) in 1997, 2.6% (24/913 cases) in 1998, 4.6% (59/1, 257 cases) in 1999 and 3.7% (49/1, 300 cases) in 2000.

The most vulnerable age group for syphilis infection was the 15 to 19 year-old odd ratio 1.78 ($1.12 < OR < 3.81$) $p = 0.012$) and, with less significance, the group of 20 to 24 years-olds odds ratio 1.56 ($1.01 < OR < 2.4$) $p = 0.043$).

The number of 70 cases of congenital syphilis per year in an area in which we have 6,500 annual live births, represents a rate of 10.8 cases per 1,000 live births.

The real rate has to be calculated over 4,409 births at the free Public Hospital where practically the 100% of syphilis cases in pregnant women occur. This adjusted rate presents a result of 15.9 cases per 1,000 live births.

Syphilis is practically absent in populations that have health insurance covering obstetric care at private clinics. A control study of 650 pregnant women during the same period of time in 1997 (April-June) in two different private maternity hospitals did not detect any syphilis-infected women.

The number of inpatients in neonatology wards with diagnosis of congenital syphilis including only symptomatic newborns in 1998 was significantly higher, compared with that of children from non-syphilitic women (Table 2).

Data about the social profile of this group of syphilitic pregnant woman is summarized in Table 2.

Table 1 Primary and latent syphilis in women and men, separated by age groups in Posadas (1997)

Age by groups in years	Primary*				Latent			
	Women		Men		Women		Men	
	Cases	Or**	Cases	Or**	Cases	Or**	Cases	Or**
15-19	4	12.48 (0.0003)	2	2.0 (0.68)	10	4.07 (0.00019)	3	0.94 (0.85)
20-24	1	1.75 (0.88)	6	11.98 (0.0000007)	7	2.83 (0.0248)	9	4.15 (0.0002)
25-29	6	1.82 (0.90)	2	2.39 (0.53)	5	1.95 (0.276)	4	1.55 (0.610)
30-34	0	0	0	0	1	0.38 (0.502)	4	1.64 (0.535)
35-39	1	2.23 (0.98)	0	0	2	0.86 (0.888)	2	0.87 (0.885)
40-44	0	0	2	3.39 (0.29)	1	0.56 (0.850)	1	0.50 (0.721)
45-69	0	0	0	0	0	0	0	0
70 or more	0	0	0	0	0	0	0	0
Total	12		12		26		23	

*In this group are included all cases compatible with primary, secondary and early latent syphilis.

**Odds ratio were calculated with 95% level of confidence and *p* values by Yates correction.

Table 2 Profile of pregnant women with syphilis and Controls in Posadas city (1998) at time of delivery

Characteristic	Syphilis group n = 24 (%)	Control group n = 65 (%)
Dead newborns		
Previous stillborns	5	1
Total inpatients days.		
Newborns in neonatology	176	9
Mean of age (in years)	20	25
Sexual debut (age in years)	15	15
Prenatal control completed	27.0	35.0
Civil Status		
Unmarried	47.3	26.3
Married	16.0	28.0
Permanent partner	36.8	45.0
Employment		
None	88.8	94.0
Domestic service	11.1	3.6
Others	0	1.8
Education		
None	27.7	35.0
Elementary completed or more	73.0	64.8

Discussion

Syphilis: a hidden epidemic in Posadas city

In USA, the results of the CDC program for syphilis control shows a significant declining rate in the last years with an actual general value of 3.2 per 100,000 individuals (6, 17).

We must recall that in all countries in Western Europe, syphilis rates remain below 10 cases per 100,000 inhabitants and, in Canada, a rate of 0.4 per 100,000 people was reported in 1995 (21).

The general crude rate of 110 cases per 100,000 inhabitants in Posadas has to be qualified as a critical endemic situation with high incidence.

This situation could be defined under the concept of "hidden epidemic" (7), according to the social analysis of the Institute of Medicine (USA), in which they recognize that medical care can not make further progress in the control of syphilis, without an integral and participative response of all members of the society.

Syphilis in adolescent women

Adolescent women (15-19 years old) and young men (20-24 years old) show the burden of incidence and also the higher degree of transmission potential. It is particularly interesting to observe that age distribution of syphilis in women from Posadas (Spanish-Americans) agrees with the pattern found in USA (17).

When the incidence of syphilis by age groups was quoted, the highest incidence in 15-19 year-olds was found in Hispanic women (2.7 times). In African-American women the higher incidence was in the group of 20-24 year-olds (47.9 times). In non-Hispanic white women, the major incidence occurs in the 24-39 age group. When general incidence by ethnics was scored, syphilis was higher in African-Americans (22.0 per 100,000), with high degree of significance, compare with Hispanic-Americans (1.6 per 100,000) and with non-Hispanics whites (0.5 per 100,000) (17).

This result opened the need to discuss the hypothesis that Hispanic-Americans women start sexual activity before women from other ethnic origins.

All syphilis cases detected in women in Posadas city belong to the lower socioeconomic classes, which is very similar to the situation among the Hispanic-Americans and African-Americans in USA. Thus, there

must be another variable besides poverty to explain this particular age distribution of syphilis among hispanic women.

This important fact has to be seriously taken into account when designing outreach interventions activities, in order to establish at what age the counseling about condoms use has to be started.

Syphilis in pregnant women as an indicator of epidemic trends (1997-2000)

Syphilis in pregnant women increased in Posadas city with alarming significance from 1997-1998 to 1999. It appears that in 2000 the disease reached a plateau, but still at a high rate of incidence.

Syphilis cases were clustered in four relatively small inner-city areas in 1997 (11). During 1997 and 1998 the traditional program counted on the people's spontaneous demand of assistance at the STD clinics and performed excellent medical service to the causative of syphilis at the time of delivery.

Cases of syphilis in pregnant women evolved to a wider geographical distribution in 1998, and in 1999-2000 they covered all territories where less-privileged classes lived. This geographical kinetics means that risk for syphilis transmission is now in the general population, and not only associated with clusters of marginal or prostitutes, like it is in Houston (USA) (20).

Profile of pregnant women with syphilis

In the syphilitic pregnant women group (n = 158) detected during years 1997-2000, there was just one woman, that inform to be a "professional of sex".

It was impossible to identify any of these mothers as drug addicts. This profile is clearly different from the data reported in USA (17, 20). There is also a recent report from Costa Rica, in which syphilis in pregnant women were more frequent in cocaine consumers (3). This particular epidemiological difference obviously requires a prevention and control program with a different approach.

Congenital syphilis

Diagnosis of congenital syphilis in newborns is particularly difficult in non-symptomatic children.

Almost 100% of births among people of lower socioeconomic group in Posadas city occurs at the Madariaga Hospital (an average of 4,700 births a year).

The data that we analyze in this communication only refer to symptomatic confirmed cases. As a

minimal appreciation, we found 10.8 cases per 1,000 live newborns, a situation that has to be qualified as hyper-endemic. In Haiti, Fitzgerald *et al.* have found an incidence of 5.5 per 1,000 live children. In this case, virtually all of the births occurred at home. The rate was calculated based on cases of the regional hospital. Therefore, the real incidence could have been underestimated (8).

In the USA, a rate 0.3 cases per 1,000 live births was registered in 1996 and 0.2 in 1998, but in Baltimore city, in 1998, a rate of 2.70 per 1,000 live births was confirmed (6, 14).

In **Table 2**, the inpatient neonatology days assigned for treatment of congenital syphilis, with a sensitive rate of mortality, indicates the need of a drastic response for the prevention and control of the disease.

Conclusions

The structured conventional program of STD control do not contain the evolution of the syphilis circulation in Posadas city, and a significant increase of incidence took place from 1997 to 1999.

A similar conclusion is reported by Araujo *et al.* (1), in 1996, in the region of Pará (Brazil) where a 9.1% of incidence of congenital syphilis was detected (1).

We demonstrate some data that are very difficult to understand. We must recall that 73% of adolescent mothers in Posadas (with or without syphilis) did not start or complete prenatal control, despite having a system of free public health centers in their neighborhoods. Among them, 73% had finished elementary school (seven years of basic education) or more. Data not show, reveals that absolute ignorance of syphilis risk is the main cause why adolescents avoid prenatal control.

A number of 64.5% of syphilitic pregnant women were unmarried and without a stable partner. They are not homeless or delinquents. They are adolescents that return after delivery to live with their own family, which is already highly numerous.

Unexpected pregnancy and syphilis represent two problems with a significant degree of association, marked by unsafe sex practices in this social group. Therefore, this is a definitive indication that the classical preventive methods (posters, radio-television campaigns, and family planning programs), has had no or very poor results in this population, specially in teenagers group.

We are convinced that the results of Polsoman and Kuntula (16) are rational and could be positively accepted among our adolescents. They have demonstrated that adolescents are responsible for positive condom beliefs before they get their own sexual experience. The main problem is to define the best age to start the program of sexual education in the target group, taking into consideration the several social and religious concerns.

We have demonstrated in this study that the sexual activity in Posadas city and probably also in Paraguay and Brazil surrounding areas, begins among girls around 15 years of age or even less.

Discussion about the importance of using condoms should begin in these groups before sexual debut, at the age of 12-13.

In the Posadas city, in the beginning of 1999, a new strategy was started, which included a sentinel detection at the peripheral Health Centers, the development of an expanded and decentralized serology screening, as well as an intervention program with the participation of public health, university personnel and community based organizations. Basically the action consists in visiting houses in the inner-city neighborhoods with high rates of syphilis, to promote prenatal control, detect early syphilis and assure treatment of detected cases, as well as to campaign for prevention, with special reference to the importance and correct use of condoms.

Yet a stabilization in the number of pregnant women with syphilis was demonstrated in 2000. However, it is still impossible to attribute the direct causality of this decrease to the newly-developed activities, and the present rate is still highly unacceptable.

More sociological research has to be done, because of the existing of ethnical, cultural and also language differences. Nevertheless, everything indicates that the absolute priority is to adjust the primary health care program for syphilis and to establish activities for geographical and social identification of more vulnerable exposed clusters.

In a region with high international daily exchange of people, these activities will not be sufficient if the intervention is not implemented in the total highly-populated bi-national region, as it has been developed in Russian Republics recently (10, 18).

OPS started in 1995 a program for control of congenital syphilis in the Americas. Particular objectives

of this program could be adapted to this particular region (5).

The possible coordinated international interventions in order to control syphilis have to recognize as the main priority in this sector of the Southern Cone Common Market (Mercosur). There are natural difficulties for a rapid organization of such

kind of programs, but probably a tri-national regional agreement could contribute to optimize the current situation.

A very positive preliminary approach by local authorities of "twin" cities like Encarnación (Paraguay) and Posadas (Argentina) forecasts an optimistic future for the situation.

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