

# *Epidemiology of syphilis in pregnant women and congenital syphilis in Belarus*

O.V. Pankratov, Y.V. Saluk and L.V. Klimova

---

## S U M M A R Y

In Belarus the spread of syphilis has been on the increase since 1988, and the incidence reached its peak in 1996 with 209.7 cases per 100 000 inhabitants. During the following years the incidence has reduced, but still remains high with 41 cases in 2004. In the years 1996-2004 all together 4239 pregnant women infected with syphilis were registered in Dermatovenereological Dispensaries in Belarus, giving birth to 116 children with congenital syphilis. The social and economic background of these events is reviewed.

---

## *Introduction*

The syphilis epidemic tends to accompany populations that are undergoing stressful changes. There is ample data that massive infections with syphilis were noted during the first and second World wars in Western countries as well as in the following years, and also at the time of the World Economic Crisis in 1929 (1). Smaller flare-ups of syphilis were observed in various European countries around the years 1976 and 1990. An interesting hypothesis was put forward by Swiss authors who believed that syphilis would be extinguished as an infectious disease in Switzerland and corroborated their prediction with a diagram (2).

An unexpected flare-up of sexually transmitted infections (STIs) occurred in Eastern European states after the dissolution of the Soviet Union (SU), and the ensuing period of extreme economic hardship.

More or less reliable data are available from Russia,

where the incidence of STIs rose from 4.3 in 1989 to 277.3 per 100 000 inhabitants in 1997 (3). A similar situation was seen in the Baltic States. In Latvia the yearly incidence of syphilis increased from 23.7 per 100 000 in 1993 to 124 in 1996 (4, 5). An increase of syphilis cases, although substantially smaller was also noted in the USA (6).

In Belarus the incidence of syphilis has been increasing since 1988, and reached a peak in 1996 with an incidence of 209.7 cases per 100 000 inhabitants per annum. During the following years it reduced, but still remains high, with 41 cases per 100 000 in 2004 (7).

The total number of children with congenital syphilis (CS) as registered in the Russian Federation has risen from 31 cases in 1992 to 849 cases in 1998 (8). In Belarus, at about the same time, the number of cases of syphilis among the general population as well as in pregnant women increased. The rate of congenital syphilis cases also rose.

## **K E Y W O R D S**

**syphilis,  
pregnancy,  
congenital  
syphilis,  
epidemiology,  
Belarus**

Table 1. Syphilis in pregnant women and outcome of pregnancy in Belarus in the period 1996-2004.

Year	Diagnosis of syphilis						Trimester of pregnancy when syphilis was diagnosed			Number of dead-borns	Number of abortions connected to syphilis
	primary	secondary early	secondary recurrent	latent early	latent late	Total diagnosed	I	II	III incl. post delivery		
1996	186	77	188	293	0	744	424	186	144	6	451
1997	99	91	178	334	0	702	400	158	144	7	360
1998	97	59	152	354	0	662	394	126	143	8	300
1999	70	42	123	346	4	585	307	128	144	3	262
2000	60	42	101	265	0	468	238	131	99	3	212
2001	32	17	73	221	1	344	171	105	63	4	192
2002	23	16	84	200	3	326	182	85	59	7	156
2003	21	24	33	124	0	202	104	60	38	7	74
2004	15	19	32	138	2	206	115	54	37	1	69
Total	603	387	964	2275	10	4239	2335	1033	871	46	2076

The aim of the present study is to report on pregnant women infected with syphilis and on congenital syphilis in Belarus.

## Materials and methods

The study was retrospective. The data were obtained from the patients' files from the Dermatovenereological Dispensary in the city of Minsk, the state capital of Belarus, and regional Dermatovenereological Dispensaries of Belarus. During the period of collecting data the old classification of syphilis recognizing three stages of the infection was used. The authors are aware of the new classification of syphilis as proposed by the WHO recognizing just the early and late stages of the disease: all symptoms occurring during the first year of infection are at present denoted as *early syphilis*, while all the manifestations appearing later, are denoted as *late syphilis*.

The diagnosis of syphilis was made clinically and confirmed by laboratory tests. The laboratory procedures used for primary and secondary early syphilis included dark-field microscopy and the classical complement fixation tests as well as the FTA test. Other forms of syphilis were confirmed by classical complement fixation tests, FTA and, in certain instances, the TPI test.

## Results

The data reported may not be absolutely reliable, but nonetheless they offer a good insight into the tragic consequences of the spread of syphilis in Belarus dur-

ing the 90s. The yearly incidence of syphilis started to rise around the year 1990, reaching its peak in 1996 with 209.7 cases per 100 000 inhabitants, when cumulatively 21,616 persons were reported as being infected. In the following years there was a steady decline with an incidence of 41 per 100 000 in 2004, when cumulatively 4038 infected persons were reported. According to the available data during the 1996-2004 period, 52,468 women were infected with syphilis, and out of these 4239 were pregnant. A peak was observed again in 1996 with a cumulative total of 744 cases. The main data are presented in Table 1.

At the same time as the decline in the general rate of infection of women in Belarus, the percentage of pregnant women with syphilis has increased in the period 1994-2002, from 6.6 in 1994 to 8.4% in 1996 and rising to 11.2% in 2002. In 2003 we saw a decline to 8.5% that had risen again to 10.5% in 2004.

This elevated number of infected females was reflected in the 116 children diagnosed as CS in Belarus in same period. Clinical manifestation of early CS was observed in 18 children (15.5%), and latent CS was present in 98 children (84.5%).

The dynamics of the emerging CS cases was similar to the dynamics of syphilis morbidity in pregnant women and it has displayed a tendency to stabilize during the last five years.

Two cases of CS were registered in 1994, 12 in 1995, 13 in 1996, 14 in 1997, 23 in 1998, 18 in 1999, 6 in 2000, 8 in 2001, 7 in 2002, 8 in 2003 and 5 in 2004. The rates of CS per 100 000 live births were as follows: 1.8 in 1994; 11.8 in 1995; 13.6 in 1996; 15.7 in 1997; 25.0 in 1998; 19.4 in 1999; 6.4 in 2000; 8.8 in 2001; 7.9 in 2002; and 9.1 in 2003.

Table 2. Data on pregnant women with syphilis giving birth to children with congenital syphilis in Belarus, the 1994-2004 period (n=105).

<i>Characteristics</i>	<i>Number of cases (%)</i>	<i>Characteristics</i>	<i>Number of cases (%)</i>
<b>Age</b>		<b>Trimester of pregnancy when syphilis was registered</b>	
< 18 years	4 (3.8)	I trimester	1 (1)
18-20 years	23 (21.9)	II trimester	8 (7.6)
21-25 years	35 (33.3)	III trimester	17 (16.2)
26-30 years	28 (26.7)	in a maternity hospital or after delivery	79 (75.2)
> 30 years	15 (14.3)	<b>Diagnosis made at</b>	
Average age (years)	25.0±0.57 (14-40)	gynecologic dispensary	17 (16.2)
<b>Marital status</b>		maternity hospital	70 (66.7)
married	39 (37.1)	other experts	2 (1.9)
single	65 (61.9)	dermatovenereological dispensary	16 (15.2)
divorced	1 (1)	after diagnosis	9 (8.6)
<b>Age at the beginning of sexual life</b>		of syphilis in the child	
14-15 years	14 (13.3)	<b>Stage of syphilis</b>	
16-17 years	38 (36.2)	secondary early syphilis	4 (3.8)
> 18 years	53 (50.5)	secondary recurrent syphilis	24 (22.9)
<b>Number of sexual partners</b>		latent syphilis	75 (71.4)
1	28 (26.7)	seroresistent syphilis	2 (1.9)
2-5	65 (61.9)	<b>History of syphilis (reinfection)</b>	
6-10	10 (9.5)	Yes	9 (8.6)
> 10	2 (1.9)	No	96 (91.4)
<b>Source of infection</b>		<b>Treatment</b>	
Known	34 (32.4)	not treated	75 (71.4)
not known	71 (67.6)	completed specific treatment without prophylactic treatment	3 (2.9)
<b>Observed in gynecologic dispensary</b>		incomplete specific treatment	6 (5.7)
I trimester	9 (8.6)	evasion from treatment	8 (7.6)
II trimester	10 (9.5)	early prophylactic treatment	1 (1)
III trimester	15 (14.3)	completed treatment	12 (11.4)
were not registered at all	71 (67.6)		

Documentation was available for 105 children with CS and was studied in detail, as presented in Table 2.

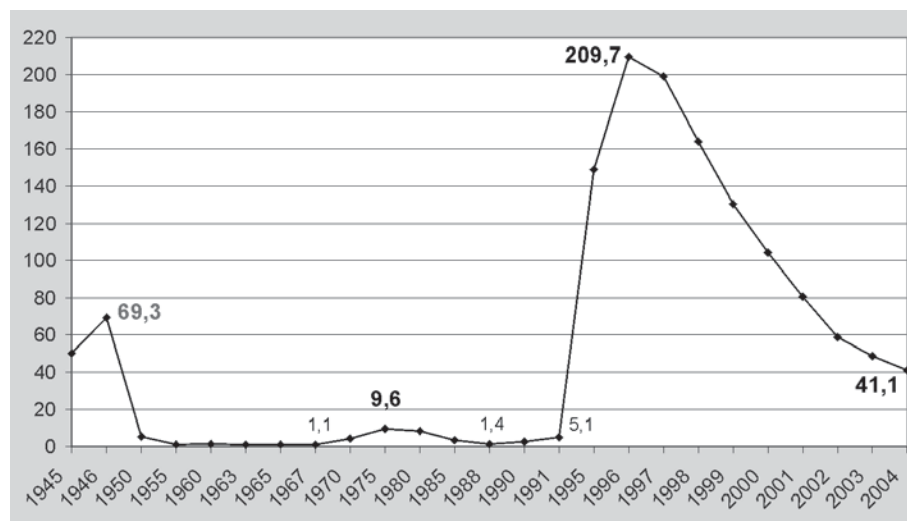
For 26 women (24.8%) no reliable data were obtained about the father of their child. Ten mothers giving birth to a child with CS rejected their children and left them in a maternity home. Three children with CS died during the first month of life. A survey of the yearly rates of syphilis in Belarus covering the 1945-2004 period is shown in table 3.

## Discussion

The disintegration of the former Soviet state abol-

ished the rule of the communist party, but at the same time provoked the collapse of many vital functions of the state, as well as a very severe economic crisis. The subsequent decrease in the standard of living triggered an unexpected spread of STIs, such as syphilis, human immunodeficiency virus (HIV), chlamydial and other infections. The above mentioned tendencies were clearly in evidence in Belarus. Lowered moral standards and the disappearance of adequate prenatal care is the principal cause for the birth of so many children with CS. Improvement in the standard of medical care and better sanitary education of the population has contributed to a reduction in the number of children with congenital syphilis during the last five years.

Table 3. Syphilis rate in Belarus in 1945-2004 (cases per 100 000 inhabitants).



## REFERENCES

1. Rook A. Skin diseases caused by arthropods and other venomous and other noxious animals. In: Rook A et al. Textbook of dermatology 4<sup>th</sup> ed., Blackwell, Oxford 1986, p. 1060.
2. Eichmann F, Rudlinger R, Schnyder UW. Epidemiologie - Klinischer Gestaltwandel -serologie und Therapie der Syphilis heute. Permanente Aertzliche Fortbildung 1983; 4(4): 178-90.
3. Gomberg MA, Akovbian VA. Resurgence of sexually transmitted diseases in Russia and Eastern Europe. Dermatol Clin 1998; 16: 59-62.
4. Rubins A, Gutmane R, Robins S et al. Epidemiology of syphilis in Latvia. Acta Dermatoven Alp Panonica Adriat 1999; 8: 59-62.
5. Rubins A, Rubins S, Jakopbsone I. Syphilis and gonorrhoea in the Baltic countries. Sex Transm Inf 2000; 76(3): 214.
6. Finelli L, Levine WC, Valentine J. Syphilis outbreak assessment. Sex Transm Dis 2001; 28(3): 131-135.
7. Navrotski AL. National strategy and tasks on strengthening control and prevention of sexually transmitted infection. Recipe 2005; Suppl.: 7-12.
8. Borisenko KK, Tikhonova LI, Renton AM. Syphilis and other sexually transmitted infections in the Russian Federation. Int J STD AIDS 1999; 10: 665-8.

**A U T H O R S ' A D D R E S S E S** *Oleg V. Pankratov MD, assistant professor, Byelorussian Medical Academy of Postgraduate Education, Minsk, Republic of Belarus, corresponding author, e-mail: ovpank@mail.ru*  
*Yurij V. Saluk MD, Head physician -Minsk City, Dermatovenereological Dispensary, Minsk, Republic of Belarus*  
*Ljubov V. Klimova MD, same address*