CLINICAL REPORT

Sexual Behaviour of Male Teenagers Attending a City Department for Skin and Venereal Diseases in Belgrade

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A study of sexual behaviour of teenagers is essential in the design of an effective intervention programme for sexually transmitted diseases (STDs). A questionnaire was administered to 380 men, attending the department for skin and venereal diseases in Belgrade in the period from January 2000 to June 2001. Two groups were compared, 'STD cases' (attending for suspected STDs) and controls (with skin mycotic diseases). In multivariate logistic regression analysis the following risk factors were significantly more frequent in STD cases: sex on the same day as the first encounter (odds ratio (OR) = 2.62, 95% CI = 1.58 – 4.34), history of previous STD (OR = 3.60, 95% CI = 1.74 – 7.45) and never using a condom with an irregular partner (OR = 2.19, 95% CI = 1.10 – 4.38). *Key words: sexual activity; condom use; STD.*

Sexually transmitted diseases (STDs) are a major public health problem because of the high incidence of acute infections, and the frequency and seriousness of their complications, particularly in women. The advent and increase of HIV infection during the last two decades has highlighted the importance of infections spread by the sexual route.

The median age at first intercourse, for both men and women, has declined to 17 years (1). This highlights the consequences associated with teenage sex, including pregnancy and risk of contracting STDs (2). Teenagers have the highest rates of STDs in the USA (3). There are no data about the frequency of STDs in the Belgrade teenage population, but Bjekic et al. (4) found that during the period 1988 – 1994, the age-standardized incidence of gonorrhoea per 100,000 population was 48.9 for male and 35.9 for female teenagers (the only higher incidence of gonorrhoea was in the 20 – 29 age group). Teenagers are at particularly high risk since the behaviour that leads to venereal diseases can also result in the transmission of HIV. STD infections may be avoided by adopting STD-preventive behaviours such as consistently using condoms and avoiding risky sexual contacts.

Since knowledge about sexual behaviour of Belgrade teenagers is minimal (5, 6), we have conducted a study in order to define high-risk behaviour in this population as a first step in the design of an effective intervention programme.

MATERIALS AND METHODS

This study, approved by the local ethics committee, was conducted in the City Department for Skin and Venereal Diseases in Belgrade from January 2000 to June 2001. The participants were sexually active male teenagers from Belgrade. Two groups of teenagers were observed. All participants were informed about the aim of the investigation before their inclusion in the study.

The first group consisted of 131 'STD cases', i.e. those who attended our institution because of urogenital symptoms (54.2%) or were asymptomatic but requested an STD examination (45.8%). Urethral specimens were used for the diagnosis of gonorrhoea (Gram stain, culture-modified Thayer-Martin medium) and chlamydia (enzyme immunoassay). Direct microscopic examinations by saline wet mount were performed for diagnosis of trichomonas and candida infection. Venereal Disease Research Laboratory (VDRL) and *Treponema pallidum* haemagglutination (TPHA) tests were used for the diagnosis of syphilis. Genital warts were diagnosed clinically. STD was diagnosed in 82 patients (in 71 patients attending the institution because of urogenital symptoms and in 11 of 60 asymptomatic patients). *Chlamydia trachomatis* was detected in 29, genital warts in 24, gonorrhoea in 11, candidiasis in 9, trichomoniasis in 8 and syphilis in 1.

The control group comprised 249 consecutive patients attending the same institution for mycotic skin diseases (*Tinea versicolor*, *Tinea pedis*, *Tinea cruris*). STD examination was not performed on subjects from the control group.

Data on demographic characteristics, sexual history and sexual behaviour, history of STDs and AIDS-related knowledge, as well as data on alcohol and drug use, were collected from all participants by the use of a standardized anonymous questionnaire. Participants completed interviews alone while waiting for the laboratory results. None of them refused to co-operate.

Statistical analysis

In the analysis of data we used proportions, medians, 25 and 75 percentiles, and univariate and multivariate logistic regression analyses.

Table I. *Sexual activities of STD cases and controls*

| Variable | Median (25 and 75 percentiles) | | p value |
	STD cases*	Controls†	
Age at first sexual intercourse	16 (15, 17)	17 (15.5, 17)	<0.001
Number of lifetime partners	4 (2, 10)	3 (1, 5)	<0.01
Sexual activity in the past year			
number of steady partners	1 (1, 1)	1 (0, 1)	<0.05
number of irregular partners	1 (0, 3)	0 (0, 1)	<0.001
Frequency of sexual intercourse in the past month			
with steady partner	3 (2, 3)	2 (1, 3)	<0.05
with irregular partner	2 (1, 2)	1 (1, 2)	<0.001

*Subjects who attended the City Department for Skin and Venereal Diseases because of urogenital symptoms and those who were asymptomatic but requested an STD examination.
†Subjects with skin mycotic diseases.

RESULTS

The mean age of all participants was 18.4 years; >60% were students, 20% were unemployed and the rest were in work; 72.4% respondents had 11–12 years of education; 98% of respondents were single. STD cases did not differ from controls by age, years of education, occupation or marital status.

In comparison with controls, STD cases were significantly younger at first sexual intercourse, more frequently without a steady partner and more sexually active with both regular and irregular partners (Table I).

Five teenagers (two STD cases and three controls) declared themselves as homosexual, and one STD case declared himself as bisexual.

Anal sex was reported by 13.9% of participants, and was more frequently practised by STD cases than by controls, both with steady partners and irregular partners; two were homosexual (Table II).

Sexual contact on the same day as the first encounter was reported by 25.5% of participants, more frequently by STD cases (41.2% vs 17.3%, *p* < 0.001) (Table II). A minority of respondents had sex with prostitutes (12.6%).

A majority of both STD cases and controls had not used alcohol (78.4%) or drugs (94.2%) before sex, but STD cases consumed alcohol and drugs before sexual intercourse more frequently in comparison with controls (Table II).

Subjects always using condoms with steady or irregular partners were significantly less frequent among STD cases than among controls. Among all participants 39.2% never used a condom with a regular partner and 16.8% never used one with an irregular partner (Table II). More than half of respondents in both groups (50.5% vs 85.6%) usually decided alone to use a condom. Three-quarters of teenagers in both groups (74.7%) had talked to their partners about safe sex and thought that their friends found condom use essential for STD prevention. About half of respondents thought that their friends used condoms.

Eleven percent of all participants had already had a STD – STD cases more frequently than controls (22.1% vs 5.2%, *p* < 0.001) (Table III).

The majority of participants (99.5%) knew that AIDS is sexually transmitted and thought that they were well informed about STDs (68.9%). However, only 41.8% of respondents knew that people with an STD had an increased risk of getting AIDS. There were no differences between the groups in their knowledge and perceived risk for contracting HIV infection. A

Table II. *Sexual behaviour of STD cases (n=131) and controls (n=249)*

| Variable | STD cases* | | Controls† | | p value |
	n	%	n	%	
Sexual contact same day as meeting					
Never	77	58.8	206	82.7	
Sometimes	33	25.2	32	12.9	
Frequently	21	16.0	11	4.4	<0.001
Anal sex with steady partner					
Never	110	84.0	232	93.2	
Sometimes	21	16.0	17	6.8	<0.05
Use of alcohol before sex					
Never	94	71.8	204	81.9	
Sometimes	37	28.2	45	18.1	<0.05
Use of drugs before sex					
Never	117	89.3	241	96.8	
Sometimes	14	10.7	8	3.2	<0.01
Condom use with steady partner					
Never	58	50.0	72	33.4	
Sometimes	30	25.9	38	17.6	
Most of time	11	9.5	15	6.9	
Always	17	14.6	91	42.1	<0.001
Condom use with irregular partner					
Never	24	23.8	18	12.1	
Sometimes	28	27.7	17	11.4	
Most of time	6	5.9	3	2.0	
Always	43	42.6	111	74.5	<0.001

*Subjects who attended the City Department for Skin and Venereal Diseases because of urogenital symptoms and those who were asymptomatic but requested an STD examination.
†Subjects with skin mycotic diseases.

Table III. *Previous infections and knowledge about sexually transmitted diseases in STD cases (n=131) and controls (n=249)*

Variable	STD cases*		Controls†		
	n	%	*n*	%	*p* value
Have you previously had a STD?					
No	102	77.9	236	94.8	
Once	25	19.1	12	4.8	
Twice	4	3.0	1	0.4	<0.001
Are you at risk of getting AIDS?					
No	84	64.1	185	74.3	
Yes	26	19.8	50	20.1	
Do not know	21	16.0	14	5.6	<0.01
Type of changes in sexual behaviour because of AIDS					
Use of condom	57	43.5	167	67.1	
Sex abstention	34	26.0	32	12.8	
Reduction of risky sex	4	3.1	1	0.4	
No changes	36	27.4	49	19.7	<0.01

*Subjects who attended the City Department for Skin and Venereal Diseases because of urogenital symptoms and those who were asymptomatic but requested an STD examination.
†Subjects with skin mycotic diseases.

high percentage of all teenagers (70.8%) thought that they were not at risk of getting AIDS (more frequently controls −74.3%, than cases −64.1%).

About 80% of our participants reported changes in sexual behaviour because of AIDS but a higher percentage of STD cases than controls had not changed their sexual behaviour (27.4% vs 19.7%; *p*<0.01).

Sixty-five percent of teenagers reported that they had had education at school about STDs and their prevention, but the majority (95.3%) thought that sexual education at school should be better. STD cases and controls did not differ significantly in this respect.

When all the variables that were significantly more frequent among STD cases than controls (according to univariate logistic regression analysis) were put in a model of multivariate logistic regression analysis, the independent risk factors were found to be: sex on the same day as the first encounter (odds ratio (OR) = 2.62, 95% confidence interval (CI) = 1.58 – 4.34), history of previous STD (OR = 3.60, 95% CI = 1.74 – 7.45) and never using a condom with an irregular partner (OR = 2.19, 95% CI = 1.10 – 4.38) (Table IV).

Anal sex was significantly related to the majority of observed risk factors, which can explain why it was not found as an independent risk factor.

DISCUSSION

One of the drawbacks of the present study is that controls were not examined for STDs, which is why we did not compare subjects with and without STD. Instead, we compared the sexual behaviour of teenagers with skin mycotic diseases and STD cases who attended with urogenital symptoms or because they were afraid of being infected. The facts that some of the STD cases had no STD and that it is likely that some among the controls had asymptomatic infection can only underestimate differences between compared groups. Another drawback is the relatively small number of participants. Studies involving other groups of teenagers would be highly desirable, as that would help to obtain a more complete picture of the sexual behaviour of Belgrade youth.

More than half of Belgrade teenagers have their first sexual intercourse before their 16th birthday (1, 7–9). This highlights the consequences associated with teenage sex, including pregnancy and risk of contracting STDs.

Regular use of condoms by teenagers in the present study was high (43–75%) compared with other populations (10). In the study by Maxwell et al. (7), only 10% of male teenagers reported consistent condom use with steady partners and 34.8% with non-steady partners. In the general population survey of adolescents in Massachusetts, 31% of sexually active teenagers always used condoms (11). Keller et al. (12), found consistent condom use in about 25% of sexually active inner city adolescents in an endemic area of HIV, and Gyarmathy et al. found that 40% of Hungarian adolescents who had had sex in the past 5 weeks used a condom consistently (13). The fact that condoms are used more frequently with irregular partners implies that teenagers recognize that having sexual intercourse with irregular partners increases the STD risk. Östergaard (8) also reported that men and women with no regular partners used condoms more frequently in order to protect themselves from STDs. Although the percentage of Belgrade teenagers who use condoms is greater in comparison with other mentioned studies, it is still necessary to take steps to further increase condom use as a protective measure.

Table IV. *Multivariate logistic regression analysis – STD cases compared with controls**

Variable	Coefficient	Standard error	Odds ratio	95% confidence interval	*p* value
Sexual contact same day as meeting	0.9640	0.2570	2.62	1.58 – 4.34	<0.001
History of STD	1.2808	0.3709	3.60	1.74 – 7.45	<0.001
Never using condom with irregular partner	0.7839	0.3541	2.19	1.10 – 4.38	<0.05
Constant partner	1.8351	0.8711			

*STD cases, subjects who attended the City Department for Skin and Venereal Diseases because of urogenital symptoms and those who were asymptomatic but requested an STD examination; Controls, subjects with skin mycotic diseases.

Sexual contact on the same day as the first encounter, and not using a condom, have been found as risk factors for STDs in some other studies (14).

The fact that a history of a previous STD is risk factor for a new infection indicates that increased knowledge of STD prevention is insufficient to motivate the adoption or maintenance of safer sexual behaviour (15). Even when post-STD treatment counselling does occur, high re-infection rates suggest that preventive information may have insufficient effect on subsequent risk behaviour (16–18). In our opinion, a history of previous STD as a risk factor for new infections shows that an already established sexual behaviour is difficult to change even after a bad experience, which emphasizes the importance of early sexual education.

The frequency of anal sex practice in Belgrade teenagers is similar to that found in a study conducted in the USA (7), showing that about 7% of the men had anal sex with a steady partner at least once a month. Since anal intercourse is one of the most efficient modes of transmitting HIV (19), intervention programmes need to stress the great importance of condom use during anal sex.

The proportion of Belgrade teenagers who use alcohol or drugs before sex is moderate to low in comparison with that in other populations. For example, in the study by Maxwell et al. (7) about 60% of respondents, reported using alcohol and 32% reported using drugs before intercourse. Use of alcohol and drugs is a risk behaviour in its own right, adolescents more frequently practise unprotected sex with multiple partners after the use of drugs and alcohol, which puts them at risk of rapid transmission of HIV (20).

It is interesting that Belgrade teenagers, although they claimed that they were well informed about STD, appealed for better sexual education at school. In the year 2003, sexual education was included in the curriculum of elementary schools and the effects of that measure should be evaluated. Health services can play an important role in helping adolescents to stay healthy. Counselling for STDs should be offered to all teenagers attending an STD clinic and it should be stressed that a behaviour that leads to other STDs can also result in the transmission of HIV.

ACKNOWLEDGEMENT

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