Age and regional characteristics of sexually transmitted infections in high-risk MSM group

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Abstract

Aim: The objectives of this study were the determination of the age and regional features of STIs among men who have sex with men (MSM) in Georgia.

Methods: The cross-sectional research was performed in the 5 main urban and regional settlements of Georgia (Tbilisi, Batumi, Kutaisi, Zugdidi, Telavi) in 2015-2019. The individuals involved in the study underwent blood test, rectal and urethral smear screening and were tested for syphilis, gonorrhea, and/or chlamydia. In 2015, 1213 MSM persons participated in the study, in 2016 - 1634, in 2017 - 1695, in 2018 - 1764, and in 2019 - 1698. Age-standardized Rates (ASR) with 95% Confidence Intervals (95%CI) were calculated for each STIs. To evaluate age- and region-specific incidence of STIs Standardized Rate Ratio (SRR) and their 95%CI were calculated for each STIs.

Results: ASR for Syphilis in MSM group of Georgia was 20.9 per 100 000 (95%CI – 20.0-21.8); ASR for Gonorhea was - 16.1 per 100 000 (95%CI – 15.3-16.9); ASR for Gonorhea was - 17.8 per 100 000 (95%CI – 16.9-18.7); ASR for Trichomoniasis was - 8.1 per 100 000 (95%CI – 7.5-\8.7). During this analysis, determination of SRR showed that the incidence of syphilis in Tbilisi was 6.2 times (95%CI 4.5-8.4) higher than the incidence in other settlements; gonorrhea - 3.9 times (95%CI 2.6-5.8); Chlamydia - 5.0 times (95%CI 3.6-7.1). In contrast, the incidence of trichomoniasis in Tbilisi is 7.7 times (95%CI 1.2-50.2) less than the incidence rate established in other settlements.

Conclusions: Very high age-standardized rates for syphilis, gonorrhea and chlamydiosis were observed in the MSM group in Georgia. In Tbilisi, these indicators are even higher for this STIs. One of the reasons may be the low level of awareness about STIs and the unavailability of screening programs. In addition to medical problems, social factors play a special role, especially the stigma in society associated with this group. **(TCM-GMJ December 2023; 8 (2):P37-P41)**

Keywords: Sexually transmitted diseases; MSM; Syphilis; Gonorrhea; Chlamydiosis.

Introduction

The high level of sexually transmitted infections (STIs) has become one of the most important health problems in the world (1). High-risk groups have a special place in the STIs prevalence, among which is the heterogenous group of men who have sex with men (MSM). MSM is characterized by variability in behavior, identity, and health care needs (2). Some MSM are at high risk of contracting AIDS, other viral and bacterial STIs because they engage in anal sex, and the rectal mucosa is highly susceptible to certain STI pathogens. In developed countries, the MSM group contributes greatly to the incidence of syphilis, gonorrhea and chlamydia infections due to their dangerous sexual relations and rates of bacterial STIs (1). Approximately two-thirds of all diagnosed cases of primary and secondary syphilis in the US occur among MSM (3-5). In this group, early syphilis detection has doubled due to an increase in the number of syphilis screening programs (6). Reported and well-known risk factors are an increased drug use, multiple anonymous partners, and seeking sexual partners via the internet (7,8). In the MSM group, reinfection with primary and secondary syphilis occurs in approximately 5-6% of cases 2 years after the initial infection; the authors considered AIDS infection, black race and more than 10 sexual partners as risk factors for such reinfection (9). The same risk factors have been observed for gonococcal infections (10).

The elderly population has grown significantly and is believed to continue to grow (11). According to the 2017 World Population Report, the elderly population has the largest share in the world (12). This older population has been shown to be more vulnerable to STIs and HIV; According to the data of several studies, one of the possible reasons for this vulnerability is the lack of sexual health knowledge in the elderly population (13,14). The increase in STIs in people over 50 years of age is a new type of epidemic in China (15,16). There are also different data on the geographical characteristics of STI distribution in MSM groups, accompanied by cultural characteristics (17).

According to the data of the 2009 national report by the Division of Health Policy of the Health Department of the Ministry of Labour, Health and Social Affairs of Georgia (18), new cases of all forms of syphilis amounted to 503 (incidence - 11.4). The majority of patients were 20-29 years old (101 cases). Out of 49,908 pregnant women tested for syphilis, it was found in 15 women. Compared to the country average (11.4), the incidence of syphilis was high in Tbilisi (32.0) and Adjara (12.5). As for gonorrhea, a rate higher than the na-

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tional average (15.2) was recorded in Tbilisi (29.2), Kakheti (18.4) and Adjara (24.2). Not a single case of gonorrhea or syphilis was recorded in Racha-Lechkhum and Kvemo Svaneti. 670 new cases of gonococcal infection (incidence 15.2) were recorded, which is slightly less than in 2008 (684). The majority of patients were 20-29 years old (248 cases). In 2009, not a single case of syphilis or gonorrhea was recorded among children aged 0-14 years. Other STIs were also widespread, with chlamydia and trichomoniasis being a serious problem. In 2009, the incidence rate for trichomoniasis (89.0) was higher than in 2008 (78.5), and the incidence rate for chlamydia infection was also higher (28.9). Among them, the majority of patients were 20-29 years old. The clinical pattern of these diseases is characterized by a latent course and rarely expressed symptoms.

Unfortunately, these data do not separate those risk groups that have great contribution in the incidence and prevalence of STIs. MSM group is among these groups. Accordingly, the aim of our study was to determination of the age and regional features of STIs among MSM-group in Georgia.

Methods

The cross-sectional research was performed in the 5 main urban and regional settlements of Georgia (Tbilisi, Batumi, Kutaisi, Zugdidi, Telavi). In 2015-2019, as a result of close cooperation with the LGBT community and non-governmental organizations and information spread through electronic and printed media, we tried to attract MSM people to conduct STI screening. One of the main motivators for participation in the study was free-of-charge treatment in case of disease detection, which was supported by the state program. Study protocol was approved by Institutional Review Board (N 1/20, 25.09.2014, No.GE20/2014).Inclusion criteria were: MSM persons, signing the informed consent.Exclusion criteria were: bisexual persons, the refusal to participate in the study.

The individuals involved in the study underwent blood test, rectal and urethral smear screening and were tested for syphilis, gonorrhea, and/or chlamydia. The diagnosis of syphilis was verified with RPR (rapid plasma regain) and TPHA (Treponema pallidum haemagglutination) tests. The diagnosis of gonorrhea was verified with Gram stain of rectal and urethral exudate, as well as polymerase chain reaction (PCR). The diagnosis of chlamydial infection was verified with immunofluorescence analysis (IFA) and polymerase chain reaction (PCR). In 2015, 1213 MSM persons participated in the study, in 2016 - 1634, in 2017 - 1695, in 2018 - 1764, and in 2019 - 1698.

A specially designed questionnaire/survey has been used to investigate contribution of the risk-factors and confounders: age, educational attainment (non-completed secondary, secondary, non-completed High School, completed High School), economic income (extremely low, low, middle, high), awareness of STIs (yes/no), sources of information (healthcare worker, internet/media, sex partner, social workers and/or NGOs (supporters of LGBT community, others), residence type (Urban/Rural); frequency of safe sex (using condoms for the last 6 months), number of sexual partners (> 3), and etc. Obtained results treated by the soft SPSS v.22.0. Age-standardized Rates (ASR) with 95% Confidence Intervals (95%CI) were calculated for each STIs. To evaluate age- and region-specific incidence of STIs Standardized Rate Ratio (SRR) and their 95%CI were calculated for each STIs.

Results

The distribution of persons with STIs and study participants by age groups is given in the Table N1.

Based on these data, the ASRs and their 95% CIs for STIS calculated in the MSM group are shown in the Table N2.

As reported in the methods, the research was performed in the main urban settlements of 5 regions of Georgia (Tbilisi, Batumi, Kutaisi, Zugdidi, Telavi). 2015-2019 of this research. Results by STD and these urban settlements are shown in the Table N3.

The age-standardized rates and their 95% confidence intervals of STIs determined in the MSM groups of Tbilisi and the other 4 urban settlements (in total) are given in table N4.

During this analysis, determination of SRR showed that the incidence of syphilis in Tbilisi was 6.2 times (95%CI 4.5-8.4) higher than the incidence in other settlements; gonorrhea - 3.9 times (95%CI 2.6-5.8); Chlamydia - 5.0 times (95%CI 3.6-7.1). In contrast, the incidence of trichomoniasis in Tbilisi is 7.7 times (95%CI 1.2-50.2) less than the incidence rate established in other settlements.

Discussion

Schmidt et al. (18) According to data from a 2019 publication regarding the sharp increase in the incidence of syphilis, there were 5,973 cases of primary and secondary syphilis in the United States in 2000 (2.12 per 100,000); While in 2017, the number of such cases was 30,644 (9.5 per 100,000); the increase was 413% (19). However, the data of our research is even more suggestive. The age-specific rate of syphilis in Georgia was 20.9 per 100,000, and in Tbilisi it was even higher - 51.7. Compared to the US data, the data obtained in other urban settlements is comparable - 8.4 per 100,000.

Gonococcal infections in MSM are associated with similar risk factors for the development of syphilis, such as multiple anonymous partners, drug use (10). The incidence of rectal gonococcal infection increases when HIV co-infection occurs in MSM patients (20). Oral sex is associated with the acquisition of urethral gonorrhea (21,22). The prevalence of pharyngeal gonorrhea and chlamydia is 7.3% and 2.3%, respectively (23). According to data from a multicenter study, the prevalence of rectal gonorrhea and chlamydia in the MSM group is respectively, 5.4% and 8.9% (24). Rectal gonorrhea and chlamydial infections, especially recurrent infections, are associated with an increased risk of AIDS in MSM (25,26). Newly diagnosed AIDS infec-

tion in the MSM group increases the risk of asymptomatic gonorrhea (25.9% vs. 10.9%, p<0.001) and chlamydia (18.5% vs. 7.8%, p<0.001) (27). Therefore, screening for rectal gonorrhea and chlamydia in MSM may be a more cost-effective intervention in appropriate urban areas (28). MSM remain the most disproportionately affected group in developing and transmitting gonorrhea and chlamydia, particularly among black and Latino patients.

It should be noted here the factors that contribute to high prevalence rates. About 44% of sexual minority youth still do not have information about their serostatus (29). Unfortunately, when filling in anamnestic data, information about the sexual partners is not recorded. If the sexual partner is ascertained, many MSM patients are not questioned about factors related to sexual behavior (especially anatomical sites of gonorrhea or chlamydia exposure). Often the reason for this is the stigma of the discussed issue (30-32). Clinicians should routinely seek information regarding STI-related symptoms—urethral discharge, dysuria, genital and perianal ulcers, regional lymphadenopathy, skin rash, and anorectal symptoms associated with proctitis (eg, pain during defecation or anal intercourse). Additionally, providers should provide evidence-based counseling about safe sex.

Clinicians must become familiar with the local social and educational resources associated with MSM groups so that behavioral interventions are appropriate. In recent years, many medical educational materials have been developed in both printed and electronic form (33). These resources should increase providers' knowledge and cultural competence regarding the diagnosis and management of STIs in the lesbian, gay, bisexual, and transgender population. Electronic media is also an important tool for collecting and analyzing information from MSM groups. Members of the MSM group are looking for and meeting partners online, looking for health-related information on websites. Therefore, the use of the Internet for the prevention of STIs should be correct. MSM patients can obtain information online (34) and they can also provide information about their sexual partners to health care providers (35).

STI prevention measures in the MSM group should include:

- AIDS serology;
- syphilis serology;
- Gonorrhea and chlamydia urethral infection testing;
- Gonorrhea and chlamydia rectal infection testing;

Gonorrhea pharyngeal infection testing; Testing for chlamydia pharyngeal infection is not necessary.

Conclusions

Very high age-standardized rates for syphilis, gonorrhea and chlamydiosis were observed in the MSM group in Georgia. In Tbilisi, these indicators are even higher for this STIs. One of the reasons may be the low level of awareness about STIs and the unavailability of screening programs. In addition to medical problems, social factors play a special role, especially the stigma in society associated with this group.

Table #1.The distribution of study participants and MSM patients with STI by age groups; 2015-2019.

#	Age group	2015	2016	2017	2018	2019	Total
		n (%*)	n (%*)	n (%*)	n (%*)	n (%*)	n (%*)
1	**18-24**	**280 (23,1%)**	**320 (19,6%)**	**318 (18,8%)**	**322 (18,3%)**	**308 (18,1%)**	**1548 (19,3%)**
	Syphilis**	79 (28,2%)	83 (25,9%)	92 (28,9%)	99 (30,8%)	90 (29,2%)	443 (28,6%)
	Gonorhea**	59 (21,1%)	77 (24,1%)	77 (24,2%)	88 (27,3%)	76 (24,7%)	377 (24,4%)
	Chlamidia**	89 (31,8%)	101 (31,6%)	94 (29,6%)	87 (27,0%)	65 (21,1%)	436 (28,2%)
	Trichomoniasis**	35 (12,5%)	36 (11,3%)	45 (14,2%)	44 (13,7%)	32 (10,4%)	192 (12,4%)
2	**25-29**	**234 (19,3%)**	**341 (20,9%)**	**349 (20,6%)**	**362 (20,5%)**	**344 (20,3%)**	**1630 (20,4%)**
	Syphilis**	81 (34,6%)	88 (25,8%)	101 (28,9%)	108 (29,8%)	92 (26,7%)	470 (28,8%)
	Gonorhea**	54 (23,1%)	75 (22,0%)	80 (22,9%)	87 (24,0%)	78 (22,7%)	374 (22,9%)
	Chlamidia**	72 (30,8%)	95 (27,9%)	97 (27,8%)	89 (24,6%)	64 (18,6%)	417 (25,6%)
	Trichomoniasis**	28 (12,0%)	29 (8,5%)	39 (11,2%)	38 (10,5%)	27 (7,9%)	161 (9,9%)
3	**30-34**	**191 (15,8%)**	**282 (17,3%)**	**312 (18,4%)**	**348 (19,7%)**	**325 (19,1%)**	**1458 (18,2%)**
	Syphilis**	53 (27,8%)	73 (25,9%)	99 (31,7%)	105 (30,2%)	93 (28,6%)	423 (29,0%)
	Gonorhea**	24 (12,6%)	39 (13,8%)	45 (14,4%)	55 (15,8%)	51 (15,7%)	214 (14,7%)
	Chlamidia**	41 (21,5%)	61 (21,6%)	69 (22,1%)	65 (18,7%)	43 (13,2%)	279 (19,1%)
	Trichomoniasis**	17 (8,9%)	29 (10,3%)	35 (11,2%)	33 (9,5%)	21 (6,5%)	135 (9,3%)
4	**35-39**	**185 (15,3%)**	**267 (16,3%)**	**294 (17,4%)**	**294 (16,7%)**	**294 (17,3%)**	**1334 (16,7%)**
	Syphilis**	33 (17,8%)	49 (18,4%)	71 (24,2%)	77 (26,2%)	71 (24,2%)	301 (22,6%)
	Gonorhea**	26 (14,1%)	43 (16,1%)	52 (17,7%)	52 (17,7%)	48 (16,3%)	221 (16,6%)
	Chlamidia**	40 (21,6%)	55 (20,6%)	66 (22,5%)	65 (22,1%)	45 (15,3%)	271 (20,3%)
	Trichomoniasis**	16 (8,7%)	29 (10,9%)	34 (11,6%)	33 (11,2%)	22 (7,5%)	134 (10,0%)
5	**40-44**	**184 (15,2%)**	**239 (14,6%)**	**241 (14,2%)**	**244 (13,8%)**	**245 (14,4%)**	**1153 (14,4%)**
	Syphilis**	25 (13,6%)	38 (15,9%)	45 (18,7%)	47 (19,3%)	40 (16,3%)	195 (16,9%)
	Gonorhea**	15 (8,2%)	32 (13,4%)	35 (14,5%)	35 (14,3%)	29 (11,8%)	146 (12,7%)
	Chlamidia**	25 (13,6%)	36 (15,1%)	40 (16,6%)	39 (16,0%)	31 (12,7%)	171 (14,8%)
	Trichomoniasis**	10 (5,4%)	18 (7,5%)	22 (9,1%)	20 (8,2%)	17 (6,9%)	82 (7,1%)
6	**45-54**	**130 (10,7%)**	**164 (10,0%)**	**161 (9,5%)**	**171 (9,7%)**	**164 (9,7%)**	**790 (5,6%)**
	Syphilis**	38 (29,2%)	42 (25,6%)	44 (27,3%)	46 (26,9%)	40 (24,4%)	210 (25,3%)
	Gonorhea**	28 (21,5%)	31 (18,9%)	28 (17,4%)	28 (16,4%)	26 (15,9%)	141 (17,8%)
	Chlamidia**	31 (23,9%)	33 (20,1%)	30 (18,6%)	28 (16,4%)	22 (13,4%)	143 (18,1%)
	Trichomoniasis**	13 (10,0%)	18 (11,0%)	17 (10,6%)	15 (8,8%)	12 (7,3%)	75 (9,5%)
7	**55-65**	**9 (0,7%)**	**21 (1,3%)**	**20 (1,2%)**	**23 (1,3%)**	**18 (1,1%)**	**91 (1,1%)**
	Syphilis**	3 (33,3%)	5 (23,8%)	5 (25,0%)	6 (26,1%)	4 (22,2%)	23 (25,3%)
	Gonorhea**	3 (33,3%)	6 (28,6%)	6 (30,0%)	6 (26,1%)	5 (27,8%)	26 (28,6%)
	Chlamidia**	4 (44,4%)	6 (28,6%)	6 (30,0%)	5 (21,7%)	5 (27,8%)	26 (28,6%)
	Trichomoniasis**	3 (33,3%)	3 (14,3%)	3 (15,0%)	3 (13,0%)	3 (16,7%)	15 (16,5%)

* Percentage calculated from all participants;
** Percentage calculated from participants of corresponding age group and study year

Table N2. ASRs and their 95%CI of each STI; 2015-2019.

#	STI	ASR	95%CI	
1	Syphilis	**20.9**	20.0	21.8
2	Gonorhea	**16.1**	15.3	16.9
3	Chlamidia	**17.8**	16.9	18.7
4	Trichomoniasis	**8.1**	7.5	8.7

Table N3. The distribution of study participants and MSM patients with STI by location – place of residence; 2015-2019.

#	Location	Tbilisi	Batumi	Kutaisi	Zugdidi	Telavi	4 Areas - Total
		n (%*)	n (%*)	n (%*)	n (%*)	n (%*)	n (%*)
1	Syphilis*	1518 (27.0%)	299 (25.6%)	146 (15.5%)	92 (37.2%)	9 (56.3%)	546 (23.0%)
2	Gonorhea*	999 (17.7%)	258 (22.1%)	215 (22.9%)	97 (39.3%)	2 (12.5%)	572 (24.1%)
3	Chlamidia*	1267 (22.5%)	215 (18.4%)	246 (26.2%)	18 (7.3%)	1 (6.3%)	480 (20.2%)
4	Trichomoniasis*	45 (0.8%)	333 (28.5%)	343 (36.5%)	78 (31.6%)	0 (0.0%)	754 (31.8%)
	Study Participants**	**5632 (70.4%)**	**940 (11.7%)**	**1169 (14.6%)**	**247 (3.1%)**	**16 (0.2%)**	**2372 (29.6%)**

*Percentage calculated from participants of corresponding location group.
** Percentage calculated from all participants;

Table #4.ASRs and their 95%CI of each STI in Tbilisi and 4 other urban areas; 2015-2019.

#	STI	Tbilisi			4 other urban areas		
		ASR	95%CI		ASR	95%CI	
1	Syphilis	**51.7**	49.1	54.4	**8.4**	7.7	9.2
2	Gonorhea	**34.1**	31.9	36.2	**8.8**	8.0	9.6
3	Chlamidia	**43.2**	40.8	45.6	**8.6**	7.9	9.4
4	Trichomoniasis	**1.2**	0.8	1.6	**9.2**	8.4	10.0

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