

Effect of Status of Human Immunodeficiency Virus (HIV), Previous History of Syphilis and Use of Narcotics, Psychotropics and Addictive Substances (NAPZA) to the Incidence of Syphilis

Vicky Arfeni Warongan¹, Fazidah Aguslina Siregar², Etti Sudaryati³

^{1,2,3}Universitas Sumatera Utara, Indonesia

Corresponding Author: Vicky Arfeni Warongan

ABSTRACT

Until now, syphilis is still a public health problem. Homosexual behavior, changing partners and moving places increase the risk of transmitting syphilis. The purpose of this study was to analyze the effect of status of human immunodeficiency virus (HIV), previous history of syphilis and use of narcotics, psychotropic and addictive substances (NAPZA) to the incidence of syphilis in high-risk men in the working area of the community health center (Puskesmas) in Medan City. The design of this study was a case control study with a total sample size of 100 consisting of 50 cases and 50 controls. The sampling technique uses the determination of the minimum sample size. Data processing was carried out by means of multiple logistic regression analysis. Based on multiple logistic regression tests, the variables that the incidence of syphilis are status of human immunodeficiency virus (HIV) (OR=4.14; 95% CI=1.30-13.22), previous history of syphilis (OR=19.13; 95% CI=5.28-69.29) and use of narcotics, psychotropic and addictive substances (NAPZA) (OR=11.45; 95% CI=2.35-55.71). It is hoped that the Medan City Health Office can provide input for the development of health intervention programs including suggestions for evaluating the intervention program that is currently running. For the Teladan Community Health Center, the Helvetia Community Health Center and the Padang Bulan Community Health Center to further improve communication, information and education (KIE) education, treatment and prevention of syphilis infection, especially for the male

population who are at high risk who suffer from syphilis.

Keywords: Status of Human Immunodeficiency Virus (HIV), Previous History of Syphilis, Use of Narcotics, Psychotropics and Addictive Substances (NAPZA), Incidence of Syphilis

INTRODUCTION

Until now, syphilis is still a public health problem. Homosexual behavior, changing partners and moving places increase the risk of transmitting syphilis. One of the diseases that causes morbidity and mortality is sexually transmitted infections (STIs), which are transmitted mainly through sexual contact. There are approximately 30 types of microbes (bacteria, viruses and parasites) that can be transmitted through sexual contact. The most common conditions are gonorrhea, chlamydia, syphilis, trichomoniasis, chancroid, genital herpes and hepatitis B (World Health Organization, 2012).

Syphilis transmission can occur through direct or indirect contact. Direct transmission of syphilis through the transfer of the bacteria *treponema pallidum*, which is found in lesions in the genital area and on the skin outside the genital area. *Treponema pallidum* has a tendency to penetrate normal skin and mucous membranes in human skin and mucous membranes. Syphilis transmission can indirectly occur, such as through the use of personal items such as

towels, razors, sleeping mats and living in the same room or using shared toilet facilities (World Health Organization, 2012).

One example of an STI is syphilis. Syphilis is caused by a bacterial infection with *treponema pallidum* (Centers for Disease Control and Prevention, 2017). Syphilis transmission can occur through direct or indirect contact. Syphilis is transmitted directly through the transfer of the *treponema pallidum* bacteria found in lesions in the genital area and on the skin outside the genital area. *Treponema pallidum* has a tendency to penetrate normal skin and mucous membranes in human skin and mucous membranes.

There are three types of *treponema pallidum* antigens, namely heat-resistant proteins, polysaccharides, and lipid antigens. In anaerobic conditions at 25 ° C, *Treponema pallidum* can move actively and stay alive for 4-7 days in a liquid culture containing albumin, sodium carbonate, pyruvate, cysteine, and bovine serum ultrafiltrate. These bacteria are difficult to color with wax dyes but can reduce silver nitrate to silver metal which remains attached to the surface of bacterial cells. Bacteria reproduce by means of transverse division. The cleavage time of these bacteria is approximately 30 hours (Todd *et al.*, 2001).

Based on WHO data collected from around the world in 2016, the incidence rate of syphilis cases in women was 1.7 per 1,000 population and 1.6 per 1,000 male population in the 15-49 year age group. Meanwhile, the incidence rate of congenital syphilis cases was 473 cases per 100,000 live births. In 2017, the prevalence of syphilis cases in female sex workers in the world was 32 per 1,000 population with the highest prevalence in the African region, which is around 132 per 1,000 population. Meanwhile, the prevalence of syphilis cases in male sex (MSM) in the world is 60 per 1,000 population with the highest prevalence in the Americas region, which is

around 124 per 1,000 population (World Health Organization, 2018).

According to the Centers for Disease Control and Prevention (2015) it is stated that benzathine penicillin g, bicillin is the best drug of choice for the treatment of all stages of syphilis and is the only successful treatment used for syphilis during pregnancy. Penicillin is still the drug of choice because it is cheap and effective. In contrast to gonococci, treponemal resistance to penicillin has not been found. A serum concentration of 0.03 IU/ml is treponemasidal but remains in the blood for 10-14 days in infectious syphilis, 21 days in all late and latent syphilis.

Social discrimination against groups at risk affects the high level of depression, anxiety, smoking, alcohol use, substance abuse and suicide as a result of chronic stress, social isolation suffered by these groups and termination of access to various health services needed. This became the spotlight and attention of the World Health Organization, so that in 2011, the World Health Organization (WHO) issued guidelines for the prevention and treatment of human immunodeficiency virus (HIV) and STIs specifically aimed at risk groups in poor and developing countries.

Apart from homosexuality, changing partners and moving places increases the risk of transmission. Open syphilis lesions can also increase the risk of HIV transmission and transmission (Centers for Disease Control and Prevention, 2019). Some other factors that may increase the risk of syphilis are alcohol and drug consumption. In the integrated biological and behavioral survey, the risk factors measured were condom use and lubricants, level of knowledge, consumption of alcohol and drugs and STI and HIV services (Kementerian Kesehatan, 2011).

The development of STI clinical management including diagnosis and treatment of syphilis sufferers, providing supplies and providing easy access to condoms, behavior change interventions, information and education communication

activities (IEC) are included in these intervention-based activities (Kementerian Kesehatan, 2013).

In North Sumatra, 625 cases of syphilis were found in 2018. Whereas in Medan City, 410 cases of syphilis were found with criteria of 320 male patients and 90 female sufferers in 2017 and 459 cases with the criteria of 366 male sufferers and 93 female sufferers in 2018. Meanwhile, from January to October 2019, 783 cases of syphilis were found with the criteria of 646 male sufferers and 137 female sufferers in the city of Medan. Based on these data, it can be seen that an increase in syphilis cases was found in Medan City and the most cases found were male.

The target of STI control, namely syphilis: less than 1% of the key population. WHO has launched a global strategy for 2030 with a target of reducing the incidence of syphilis, gonorrhoea, new HIV infections and AIDS deaths by 90%, and reducing congenital syphilis cases to less than 50 per 100,000 live births.

The purpose of this study was to analyze the effect of status of human immunodeficiency virus (HIV), previous history of syphilis and use of narcotics, psychotropic and addictive substances (NAPZA) to the incidence of syphilis in high-risk men in the working area of the community health center (Puskesmas) in Medan City.

RESEARCH METHODS

This type of research is analytic observational research with a case-control approach. This analytical study is an epidemiological research which aims to obtain an explanation of the determinants of syphilis. Meanwhile, the approach to case control is identifying cases first, followed by identifying controls. The design of this study was a case control study with a total sample size of 100 consisting of 50 cases and 50 controls.

The sampling technique uses the determination of the minimum sample size. From the calculation above, the minimum

number of cases is 39 people. Sampling using purposive sampling technique Sugiyono (2010), using inclusion and exclusion criteria. Due to the limitations of the research in the form of time and energy, a 1:1 comparison of cases and controls was carried out with a total sample size of 50 people and a control sample of 50 people where the total sample of this study was 100 people.

Data processing was carried out by means of multiple logistic regression analysis.

RESULT

Description of Research Location

The Padang Bulan Health Center is located on Jalan Jamin Ginting, Padang Bulan Village, Medan Baru District with an area of 540 Ha. The working area of Puskesmas Padang Bulan covers 6 sub-districts with 64 neighborhoods. The area of the Padang Bulan Health Center has the following boundaries:

1. North: Medan Petisah District
2. South: Medan Johor District and Medan Selayang District
3. East: Medan Sunggal and Medan Selayang Districts
4. West: Medan Polonia and Medan Johor Districts

Padang Bulan Health Center is located at Jalan Sisingamangaraja No. 65 Teladan Barat Village, Medan Kota District. The Teladan Community Health Center is a Puskesmas covering five sub-districts. The boundaries of the Teladan Community Health Center in Medan are:

1. North: Maimun District
2. Selatan: Teladan Timur Village

The Medan Helvetia Puskesmas is located on Jalan Kemuning Perumnas Helvetia, Helvetia Village, Medan Helvetia District with its boundaries, namely:

1. North: Deli Serdang Regency
2. South: Medan Sunggal Subdistrict
3. West: Medan Sunggal Subdistrict
4. East: West Medan and Medan Petisah Districts

Puskesmas Padang Bulan, Puskesmas Teladan and Puskesmas Helvetia are health facilities that have a VCT/STI clinic. Services provided at the clinic are for the risk groups for FSW, MSM, their partners and customers as well as drug users. In carrying out its services, Puskesmas Padang Bulan, Puskesmas Teladan and Puskesmas Helvetia collaborate with an NGO that cares about STI sufferers, namely the Medan Plus NGO.

In addition to providing services at the clinic in the form of patient examinations, laboratory examinations, medication and counseling, the Padang Bulan Health Center, the Teladan Community Health Center and the Helvetia Health Center also carry out extension activities, mobile to risky locations. in the working area an average of 2 times a month, distributing leaflet. distribution of condoms, distribution of lubricants and distribution of brochures, in addition to carrying out several inspections and counseling in several places that are risky places, namely in okup-okup, hotels, inns, prisons and several hot spots in the working area of Puskesmas-Puskesmas.

Characteristics of Respondents

From the results of the study, the majority of marital status was single in cases and controls, namely 40 (47.6 percent) and 44 (52.4 percent). Syphilis does not only threaten the population by changing partners, but can also be transmitted to the general population, namely partners/wives of men with syphilis and fetuses/babies of pregnant women with syphilis. If pregnant women infected with syphilis are not treated adequately, 67% of pregnancies will end in abortion, stillbirth or congenital syphilis in the neonate. Prevention of mother-to-child transmission of syphilis can be done by early detection through screening pregnant women and treating women infected with syphilis and their partners.

Based on the partners who live with the most respondents, namely the control who lives with their family or siblings, which is 29 people (53.7 percent) and the most respondents' source of income is the control obtained through employee salaries, namely 37 people.

Multiple Logistic Regression Analysis

The important variable from the results of the bivariate analysis which has $p < 0.25$ was selected for multiple logistic regression tests, as shown in the following table:

Table 1: Multiple Logistic Regression Test

Variable	B	P	Exp (B)	95% CI	
				Lower	Upper
Status of HIV	1.422	0.016	4.14	1.30	13.22
Previous History of Syphilis	2.952	0.0001	19.13	5.28	69.29
Use of NAPZA	2.438	0.03	11.45	2.35	55.71
Konstanta	-11.523	0.0001			

Note: The p value is statistically significant at $p < 0.05$

Based on multiple logistic regression tests, the variables that the incidence of syphilis are status of human immunodeficiency virus (HIV) (OR=4.14; 95% CI=1.30-13.22), previous history of syphilis (OR=19.13; 95% CI=5.28-69.29) and use of narcotics, psychotropic and addictive substances (NAPZA) (OR=11.45; 95% CI=2.35-55.71).

The results showed that the variable HIV status had an effect on syphilis ($p=0.016$). Research conducted in Peru on

MSM found that HIV infection was associated with syphilis infection (Santisteban et al., 2012). Maryani's research (2014) states that the proportion of respondents who have a positive HIV status in the case group is 30 percent, this figure is higher than the control group (16 percent), and the proportion of respondents who have negative HIV status in the case group is 70 percent. This is lower than the control group (84 percent).

The results showed that the syphilis disease variable previously had an effect on syphilis ($p=0.0001$). The proportion of respondents who have had syphilis in the case group is 54 percent, this figure is higher than the control group (8 percent) and the proportion of respondents who have never had syphilis in the case group is 46 percent, this figure is lower than the control group (92 percent). Meanwhile, the results of research by Ishikane et al., (2019) stated that people who have syphilis are 4.9 times more likely to have had a previous history of syphilis compared to people who do not have syphilis. In this study, the average length of time for respondents who had a previous history of syphilis was from 1 year to 7 years previously.

The proportion of respondents who did not use condoms in the case group was 60 percent, this figure was higher than the control group (40 percent) and the proportion of respondents who used condoms in the case group was 40 percent, this figure is lower than the control group (66 percent). In this study, people with syphilis were 4.95 times more likely to use drugs than people without syphilis. The consumption of alcohol and drugs is considered to have contributed to the increased risk of STIs and HIV, especially increasing the risk of unsafe sexual behavior. It is known that many MSM have problems with alcohol and addictive substances that increase the risk for HIV by eliminating shame. Some are known to have sex transactions to get drug supplies (World Health Organization, 2010).

CONCLUSION AND SUGGESTION

Based on multiple logistic regression tests, the variables that the incidence of syphilis are status of human immunodeficiency virus (HIV) (OR=4.14; 95% CI=1.30-13.22), previous history of syphilis (OR=19.13; 95% CI=5.28-69.29) and use of narcotics, psychotropic and addictive substances (NAPZA) (OR=11.45; 95% CI=2.35-55.71).

It is hoped that the Medan City Health Office can provide input for the development of health intervention programs including suggestions for evaluating the intervention program that is currently running. For the Teladan Community Health Center, the Helvetia Community Health Center and the Padang Bulan Community Health Center to further improve communication, information and education (KIE) education, treatment and prevention of syphilis infection, especially for the male population who are at high risk who suffer from syphilis.

REFERENCES

1. Centers for Disease Control and Prevention. (2015). *Sexually Transmitted Disease Treatment Guidelines*. Atlanta: Recommendations and Reports of Center for Disease Control and Prevention.
2. Centers for Disease Control and Prevention. (2017). *Syphilis*. Accessed from <https://www.cdc.gov/std/syphilis/stdfact-syphilis.htm>.
3. Centers for Disease Control and Prevention. (2019). *The Diagnosis, Management and Prevention of Syphilis*. Accessed from https://www.nycptc.org/x/Syphilis_Monograph_2019_NYC_PTC_NYC_DOHMH.pdf.
4. Ishikane, M., Arima, Y., Itoda, I., Yamagishi, T., Takahashi, T., Matsui, T., & Oishi, K. (2019). *Case Control Study of Risk Factors for Incident Syphilis Infection Among Men Who Have Sex With Men in Tokyo, Japan*. Jepang: National Institute of Infectious Disease.
5. Kementerian Kesehatan RI. (2011). *Laporan Survei Terpadu Biologis dan Perilaku*. Jakarta: Direktorat Jenderal Pengendalian Penyakit dan Penyehatan Lingkungan.
6. Kementerian Kesehatan RI. (2013). *Pedoman Tata Laksana Sifilis untuk Pengendalian Sifilis di Layanan Kesehatan Dasar*. Jakarta: Direktorat Jenderal Pengendalian Penyakit dan Penyehatan Lingkungan.
7. Maryani, Y. (2014). *Determinan Penyakit Sifilis pada Kelompok Lelaki Suka Lelaki (LSL) di Klinik Infeksi Menular Seksual-Voluntary Counseling and Testing (IMS-VCT) Veteran Kota Medan*. Medan:

- Fakultas Kesehatan Masyarakat, Universitas Sumatera Utara.
8. Santisteban, Silva, A., Raymond, H.F., X. Salazar., Villayzan, J., Leon, S., McFarland, W., & Caceres, C.F. (2012). *Understanding the HIV AIDS Epidemic in Transgender Women of Lima, Peru: Results From a Seroepidemiologic Study Using Respondent Driven Sampling*. *AIDS Behav* 2012, 16(4), 872-881.
 9. Sugiyono. (2010). *Metode Penelitian Kuantitatif Kualitatif dan RND*. Bandung: Alfabeta.
 10. Todd, J., Munguti, K., Grosskurth, H., Mangara, J., Chagalucha, J., Mayaud, P., & Hayes, R. (2001). *Risk Factors for Active Syphilis and TPHA Seroconversion in a Rural African Population*. *Sex Transm Infect* 2001, 77, 37-45. DOI:10.1136/sti.77.1.37.
 11. World Health Organization. (2010). *STI/HIV status and Trends of STI/HIV and AIDS at the end of the Millennium*. Switzerland: World Health Organization Press.
 12. World Health Organization. (2012). *HIV and Sexually Transmitted Infections in The Western Pacific Region*. Switzerland: World Health Organization Press.
 13. World Health Organization. (2018). *Report on Global Sexually Transmitted Surveillance*. Switzerland: World Health Organization Press.

How to cite this article: Warongan VA, Siregar FA, Sudaryati E. Effect of status of human immunodeficiency virus (HIV), previous history of syphilis and use of narcotics, psychotropics and addictive substances (NAPZA) to the incidence of syphilis. *International Journal of Science & Healthcare Research*. 2021; 6(1): 233-238.
