

SEROPREVALENCE OF HIV, HEPATITIS B AND C, SYPHILIS AMONG MEN HAVING SEX WITH MEN IN MAHAJANGA, MAGADASCAR

Rakotondrazaka H. Riana¹, Rakotomalala Rivo², Razafindrakoto A. Cathérine³, Ramavoson Tsiry³, Rabenandrianina Tahirimalala², Rajaonatahiana Davidra⁴, Ralison Fidiarivony⁵, Rakoto Alson A. Olivat⁶, Razanakolona L. Rasoamialy⁶, Rasamindrakotroka Andry⁶, Randriamanantany Z Arivelo⁶

²Doctor, Laboratory of University hospital center PZAGA, Mahajanga, Madagascar

¹Doctor, Medical Biologist, Laboratory of University hospital center PZAGA, Mahajanga, Madagascar

³Doctor, Medical Biologist, Laboratory of University hospital center Morafeno, Toamasina, Madagascar

⁴Professor, Laboratory of University hospital center PZAGA, Mahajanga, Madagascar

⁵Professor, Faculty of Medicine, Mahajanga, Madagascar

⁶Professor, Faculty of Medicine, Antananarivo, Madagascar

ABSTRACT

Sexually transmitted diseases (STD) are public health concerns worldwide. The aim of our study is to assess infection and coinfection with HIV, hepatitis B, hepatitis C and syphilis among men having sex with men in Mahajanga which is a western coastal town of Madagascar. We conducted a prospective and descriptive preliminary study in the laboratory of the University Hospital Center PZAGA in Mahajanga during a period of three months, from December 2014 to February 2015. We included 100 MSM in our study. Their mean age was 36 yrs (16 to 55 yrs). We found 30% of seropositive men among our sample. HIV positive men are mainly part of the age group [20–29 yrs]. The mean age of positive men was respectively 38 yrs., 36 yrs., 48 yrs. and 39 yrs. for HIV, for HBV, HCV, and syphilis. We found respectively for hepatitis B, hepatitis C and syphilis 7%, 1% and 11% positive samples. We found no co-infection HIV and HCV for them. But we found 5% of coinfection HIV-HBV, 4% of coinfection HIV-syphilis and 1% of coinfection of HIV, HBV and syphilis. We highlighted a very high rate of HIV positivity among MSM living in Mahajanga. Efforts have to be made in order to sensitize them about risky behaviors.

Keywords: Sexually transmitted diseases; Mahajanga; MSM.

INTRODUCTION

Sexually transmitted diseases (STD) are public health concerns worldwide. The coexistence of two or more STD changes the natural course of each infection alone [1] or worsen the issue of the diseases [2]. It is hypothesized that the coinfection of STDs exists in Madagascar it is not well documented. Men having sex with men (MSM) contribute to the widespread of these viruses [3]. The HIV infection worsens the prognosis of hepatic diseases which are linked with HCV and HBV or with syphilis which alter the health of those MSM if the coinfection is not diagnosed as soon as possible.

The aim of our study is to assess infection and coinfection with HIV, hepatitis B, hepatitis C and syphilis among men having sex with men in Mahajanga which is a western coastal town of Madagascar.

MATERIAL AND METHODOLOGY

Study design: A prospective and descriptive study.

Study place: The University Hospital Center PZAGA in Mahajanga during a period of three months, from December 2014 to February 2015.



DOI: 10.31878/ijcbr.2019.61.01

eISSN: 2395-0471
pISSN: 2521-0394

Ethical approval: We performed analysis for blood from MSM in Mahajanga after their consent. Inform consent was obtained for each MSM, and those who didn't want to participate were excluded.

Inclusion criteria: All MSM who accepted to participate at this study without exception.

Exclusion criteria: Those who didn't know their HIV status were excluded too, because HIV testing is volunteer in Madagascar and the law didn't allow us to check the HIV status of someone who didn't want it.

Same size: 100 samples

Methodology:

Five milliliters of blood were collected in dry Vacutainer tube by venipuncture of the forearm at the healthcare center of Mahabibo, located at the center of Mahajanga. Sera were collected after centrifuged, then sera were frozen at -20°C until the serological testing was performed. As we sought to assess the coexistence of all STDs.

Data privacy was respected, and all data were encoded before their treatment. As this study is part of routine surveillance of the Ministry of Health, the current protocol didn't include the sociodemographic characteristic of each one. All STDs screening for our study were performed with RDTs.

Madagascar is now applying the W.H.O. strategy about HIV testing with RDT. The screening is done with

Correspondence: Rakotomalala Rivo, Doctor, Medical Biologist, Laboratory of University hospital center PZAGA, Mahajanga, Madagascar, solorivo@yahoo.fr

Determine HIV 1/2 (Alere Abbott Japan) which has a sensitivity of 100% [4]. Any positive result with Determine has been confirmed with Retrocheck test (Qualpro Diagnostics India) which has a specificity of 98%, and with Unigold test HIV1/2 (Trinity Biotech Ireland) which has a sensitivity of 100% and a specificity of 100% [5], but Unigold test HIV1/2 RDT is used only for its discriminant role.

We used for hepatitis B screening the Virucheck HBsAg RDT (Orchid Biomedical System, India) which has a sensitivity of 95.6% and a specificity of 98.2% [6].

The screening for hepatitis C infection was done with the OnSite HCV Ab Plus Combo Rapid test (CTK Biotech USA), which has a sensitivity of 84.72% and a specificity of 100% [7].

We used the SD BIOLINE Syphilis (SD Bio-standard Diagnostics Private Limited) test, which has a sensitivity of 79% and a specificity of 96% [6].

Each test was performed according to the recommendation of the manufacturer. The test was considered valid when the control line appeared.

The test was considered positive for HIV when all three serial tests were positive. For other tests, they were considered positive if both line test and control appeared

RESULTS

We included 100 MSM in our study. Their mean age was 36 yrs (16 to 55 yrs). We found 30% of seropositive men among our sample. HIV positive men are mainly part of the age group (20–29 yrs). We found respectively for hepatitis B, hepatitis C and syphilis 7%, 1% and 11% positive samples.

Table 1: Age of MSM infected by HIV, or HVB, or HCV

	< 20	20-29	30-39	40-49	50-59	Total
HIV Infection	-	18	5	5	2	30
HVB Infection	1	4	1	-	1	07
HCV Infection	-	-	-	1	-	01
Syphilis	1	2	2	4	2	11
HIV-HVB Co-infection	-	3	1	-	1	05
HIV-HCV Co-infection	-	-	-	-	-	-
HIV- Syphilis Co-infection	-	1	-	1	2	04
HIV-HVB-syphilis Co-infection	-	-	-	-	1	01

The mean age of positive men were respectively 38 yrs., 36 yrs., 48 yrs. and 39 yrs. for HIV, for HBV, HCV, and syphilis. We found no co-infection HIV and HCV for them. But we found 5% of coinfection HIV-HBV, 4% of coinfection HIV-syphilis, and 1% of coinfection of HIV, HBV, and syphilis.

DISCUSSION

HIV epidemic is only focused on some key groups in Madagascar because HIV seroprevalence is only 0.2% among the general population [8]. The same fact is seen worldwide [9, 10, 11]. Unfortunately, this seroprevalence is increasing because it doubled from 2010 to 2015. This tendency is also seen elsewhere [12]. Despite all efforts done to decrease new contaminations, it seems that it doesn't have a strong effect for preventing new infections among MSM in Mahajanga. Moreover, HIV men are mainly young people like in other countries [13]. It was proposed that bisexuality contributes to the widespread of HIV [14].

We found only a few coinfections (Table1) among HIV positive men like in some eastern countries in contrast to the USA and some western European countries[15-18].

CONCLUSION

We highlighted a very high rate of HIV positivity among MSM living in Mahajanga. Coinfection also existed. As homosexuality and bisexuality are not accepted by Malagasy people, many MSM is hiding. Efforts must be made in order to sensitize them about risky behaviors.

Conflict of interest: Nil

Source of funding: No competing financial interests exist.

Acknowledgments: We thank the Public Health Ministry for support.

REFERENCES

- [1] Pais R, Benhamou Y. Long-term therapy for chronic hepatitis B in HIV coinfecting patients. *GastroenterolClinBiol*2010; 34:136-41.
- [2] Ruan Y, Li D, Li X. Relationship between syphilis and HIV infections among men who have sex with men in Beijing China. *Sex Transm Dis* 2007;34:592-7.
- [3] Liao M, Wang M, Shen X. Bisexual Behaviors, HIV Knowledge, and Stigmatizing/Discriminatory Attitudes among Men Who Have Sex with Men. *PLoS One* 2015. DOI:10.1371/0130866.
- [4] Menard D, Mairo A, MandengMarie-J. Evaluation of rapid HIV testing strategies in under equipped laboratories in the Central African Republic. *J virol methods* 2005; 126(1-2):75-80.
- [5] Eligius F, Lyamuya, Said A. Evaluation of simple rapid HIV assays and development of national rapid HIV test algorithms in Dar es Salaam, Tanzania. *BMC Infectious Diseases*2009; 9:19.
- [6] Randrianirina F, Carod JF, Ratsima EH. Evaluation of the performance of four rapid tests for detection of hepatitis B surface antigen in Antananarivo, Madagascar. *J Virol Methods* 2008; 151(2): 294-7.
- [7] Yasir W, Muzammil HN, Hafsa A. Prevalence of hepatitis C in people who inject drugs in cities of Rawalpindi and Islamabad, Pakistan. *Biomedical*. 2017:263-6.
- [8] UNAIDS. Country factsheets—Madagascar 2016, <http://aidsinfo.unaids.org> (2018, accessed 17 August 2018).

- [9] Merrigan M. HIV prevalence and risk behaviours among men having sex with men in Nigeria. *SexTransm Infect.* 2011;87:65–70.
- [10] Hugues F. Le VIH chez les MSM. *ANRS* 2012;25-8.
- [11] Rispel LC. HIV prevalence and risk practices among men who have sex with men in South african cities. *J Acquir Immune Defic Syndr*2011;57:69-76.
- [12] Rapport du Ministère thaïlandais de la Santé publique. HIV and Syphilis Infection among Men Who Have Sex with Men, Bangkok, Thailand, 2005–2011. *CDC and Prevention* 2013;62(25):518-20.
- [13] Smith AD, Tapsoba P, Peshu N, Sanders EJ, Jaffe HW. Men who have sex with men and HIV/AIDS in sub-Saharan Africa. *Lancet* 2009;374:416-22.
- [14] Kayigan W and France L. Transsexuel(le)s : conditions et style de vie, santé perçue et comportements sexuels. *Bull Epidémiol Hebd.* 2008;27:240.
- [15] Velter A, Saboni L, Bouyssou A. Comportements sexuels entre hommes à l'ère de la prévention combinée - Résultats de l'Enquête presse gays et lesbiennes 2011. *Bull EpidémiolHebd*2013;(39-40):510-6.
- [16] Sun M, Li D and Wang J. Investigation on the Infection of HIV, HCV, Syphilis and HBV among MSM in Dalian City in 2008. *Prev Med Tribune.*2009;p11.
- [17] Ruan, Yuhua, Jia. Incidence of HIV-1, Syphilis, Hepatitis B, and Hepatitis C Virus Infections and PredictorsAssociatedWithRetention in a 12-Month Follow-Up StudyAmong Men Who Have SexWith Men in Beijing, China.*JAIDS* 2009;52(5):604-10.
- [18] Thijs JW, Van de Laar, Akke K. Increase in HCV Incidence among Men Who Have Sex with Men in Amsterdam Most Likely Caused by Sexual Transmission. *The Journal of Infectious Diseases.* 2007;196(2):230–8.