International Journal of Contemporary Pediatrics
Ratsimbazafy ABA et al. Int J Contemp Pediatr. 2016 Aug;3(3):778-783
http://www.ijpediatrics.com
pISSN 2349-3283 | eISSN 2349-3291

DOI: http://dx.doi.org/10.18203/2349-3291.ijcp20162352

Research Article

Adolescence and sexually transmitted infections: the case in the coastal regions in Madagascar

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Received: 07 May 2016
Accepted: 10 June 2016

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ABSTRACT

Background: In order to update the knowledge concerning the sexually transmitted infection (STI) found among adolescents in the coastal regions in Madagascar, we lead a study among adolescents who come in consultation in 12 health centers of Toamasina city which is a tourist town and one of the economic exchange places located in a coastal region of Madagascar. The aim of this study is to describe the epidemiology of STI found among adolescents in Toamasina city.
Methods: This is a retrospective descriptive study from the month of January until the month of December 2014. We have included the case of STI suspected clinically encountered among adolescents come in consultation at 12 Health Centers of Toamasina city Madagascar.
Results: During the year 2014, 11757 cases of STI have been registered among all patients gathered together (adolescent and adult), among which 1110 cases of STI (9.58%) were clinically suspected in adolescents before the presence of flow and/or genital ulceration. The adolescents in the age group of 16 to 18 years are predominant among 887 cases of STI (79.9%). The majority of adolescents seen in consultation for suspicion of STI are female with a total number of 840 (75.67%). T. vaginalis predominates with 266 cases (80%), alone or associated with N. gonorrhea or to T. pallidum.
Conclusions: The fight against STI among adolescents is still a major problem in the coastal regions of Madagascar and always remains of news despite the voluntary efforts of health workers. The adolescents of the female sex are the most affected by STI and deserves all the attention.

Keywords: STI, Madagascar

INTRODUCTION

The Sexually Transmitted Infections (STI) is frequent and can be considered as a public health problem in the world given their increasing prevalence, particularly among adolescents and young adults.[1]

In the world, the World Health Organization (WHO) evaluates to approximately 450 million the annual number of new cases of curable STI (gonorrhea, syphilis, chlamydia and trichomoniasis).[2]

In Madagascar, the sexually transmitted infection is in exponential growth because of the risks of exposure cracking permanently in several regions to the state endemic. These risks are in close relationship with the national socio-economic situation and the increasing burden of life in globality due to poverty.[3]

The non-recourse of adequate care is responsible for complications and serious sequelae, including infertility, abortion, pregnancy ectopic, ano-genital cancer, stillbirth, infections of the new-born and of the infant. Above all, there is a strong correlation between the spread of conventional STI and the transmission of HIV.[3]

The WHO gives the definition of adolescence as the period which corresponds to the age class 10-19 years, while youth corresponds to the class of age of 15 to 24 years.[4]

In order to update the knowledge concerning the STI found among adolescents in the coastal regions in Madagascar, we lead a study among adolescents who come in consultation in 12 health centers of Toamasina city which is a tourist town and one of the economic exchange places located in a coastal region of Madagascar.

The aim of this study is to describe the epidemiology of STI found among adolescents in Toamasina city so as to renew epidemiological data.

METHODS

This is a retrospective descriptive study from the month of January until the month of December 2014. We have included the case of STI suspected clinically encountered among adolescents come in consultation at 12 Health Centers of Toamasina city Madagascar.

The recruitment of these patients is done in a comprehensive way on the whole of the patients who come to the 12 health centers throughout the year. The data have been collected from registers of external consultation of their Centers.

The variables selected and studied have been the distribution of cases by age, sex, level of study, professional activities, as well as the results of the reviews biological.

The biological examinations available in their centers have been the research for *Trichomonas vaginalis* to the direct examination, research of *Neisseria gonorrhoeae* after culture, and the serology for syphilis by agglutination tests (VRDL and TPHA). The research for *Chlamydia trachomatis*, hepatitis B and C, and the HPV through lack of means and the research of HIV has been completed by other specialized centers and not figured our results.

RESULTS

During the year 2014, 11757 cases of STI have been registered in the city of Toamasina Among all patients gathered together (adolescent and adult), among which 1110 cases of STI (9.58%) were clinically suspected in adolescents before the presence of flow and/or genital ulceration.

The adolescents in the age group of 16 to 18 years are predominant among 887 cases of STI (79.9%) and only 3 cases (0.7%) were found in children less than 12 years (Table 1). The minimum age of the children was 9 years.

The majority of adolescents seen in consultation for suspicion of STI are female with a total number of 840 (75.67%) (Table 1).

Table 1: Distribution of cases of STI registered according to the age, the sex and the results of the biological examinations.

Age group (years)	Male	Female	Total	TV	NG	*T. pallidum*	TV + NG	*TV + T. pallidum*
<12	3	5	8	6	2	0	0	0
12 – 15	52	163	215	39	14	9	61	4
16 – 18	215	672	887	64	19	22	74	8
Total	270	840	1100	119	35	31	135	12

TV: *Trichomonas vaginalis*; NG: *Neisseria gonorrhoeae*; T. pallidum: *Treponema pallidum*

Among the 1110 cases of STI suspected, 332 adolescents have benefited biological diagnostic and all have been confirmed by the presence of germs responsible of STI.

T. vaginalis predominates with 266 cases (80%), alone or associated with *N. gonorrhoeae* or to *T. pallidum* (Table 1).

Adolescents suspects STI seen and treated at the Centers are predominantly of the secondary level (659 cases, 59.40%) (Figure 1).

More than half of the teenagers infected are educated (695 cases, 62.62%) (Figure 2).

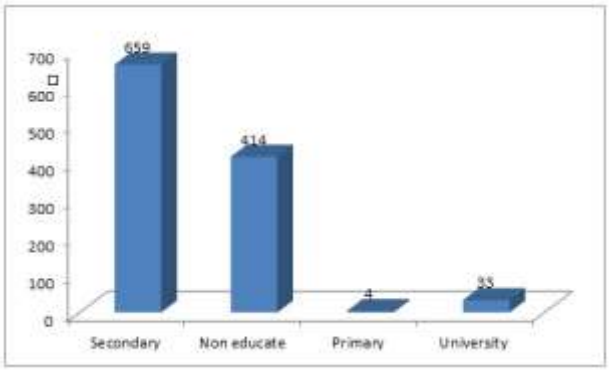

Figure 1: Distribution of cases by level of education.

A fifth of adolescents (228 cases) came in consultation at the center with their partners who have also received treatments.

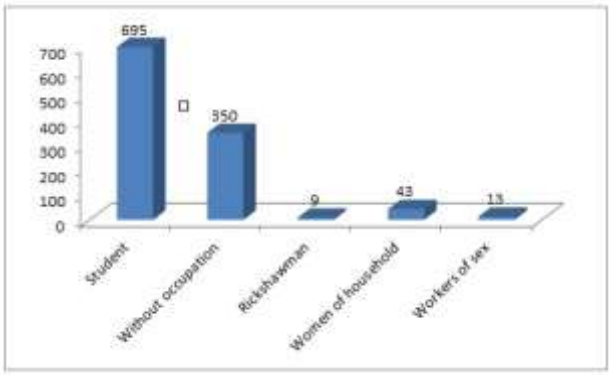

Figure 2: Distribution of cases according to the professional activities.

More than half of the teenagers infected are educated (695 cases, 62.62%) (Figure 2). A fifth of adolescents (228 cases) came in consultation at the center with their partners who have also received treatments.

DISCUSSION

Sexually transmitted infections are infectious and contagious diseases due to many micro-organisms and varied. Thus, the flow genital and the genital ulceration are the clinical manifestations of the more often encountered.[3]

The epidemiology of each of the STI is different, influenced by various factors: demographic, social condition, transmissibility of each pathogen, duration of infectivity, and types of sexual practices.

The monocentric nature of our study and the non-accessibility of patients to analysis biological make difficult the interpretation of results and the patients' views to centers cannot represent Malagasy teenagers, thus limiting our study.

The 1110 cases of STI found (9.58%) shown that it is an infection very frequent in this region of Madagascar. The spread of STI can be explained by multiple causes. It is the poverty that pushes the adolescents to engage in prostitution in order to acquire money to compensate their daily needs, there is also the use of the communications techniques such as the Internet which have a negative impact on the behavior of young people. In effect, these high technologies expose every good and bad things, and young, pushed by their spontaneous character welcoming them openly. And then, the change of the direction of the current freedom has a great influence on the behavior of young people, and before this fact, regarded as irresponsible, the parents do not know what to do. There is also the neglect or the irresponsibility of the biological fathers who will have had a great influence on the behavior of adolescents. And finally, the rural exodus of adolescents attracted either by the development of local industries, either by the quest of foreigners.

The cases of STI found are more frequent among girls in 840 cases (75.67%). On one hand results are due to the fact that the girls are many to come and consult on the one hand, and on the other hand the girls have a genital space much more extended and fragile than that of men. The high elevation of STI observed among girls could be explained also by their anatomic physiological receptivity, the risk of acquiring an infection during vaginal intercourse without protection (and even during a single sexual act) is greater for women than for men, especially for the young girls, the lining of the cervix is not fully formed. Women are physiologically more sensitive to the sexually transmitted infection than men because they have a greater part of contact (vaginal mucosa) that the man (mucosa of the urinary meatus). A study by Tiembre I and his collaborators in the Ivory Coast has shown that the main syndromes of STI are most of the time associated, but they are dominated by the syndrome of vaginal discharge (with 50.9%).

This reflects the magnitude of the genital discharge among young people.[5] This difference of attendance of the health center between the girls and boys who have a STI has also been observed by Guiella during an survey to Bobo-Dioulasso. The results of this survey show that, among the adolescents who reported having a STI symptom during the 12 last months; the girls had the most use to health structures (73%). This could be justified by the fact that the girls are more reluctant to talk about the sexual problems in group, and for reasons of confidence and trust, they most often have the use of a health agent. Whereas the boys, do not consult a health officer that when they will have experienced without success the advice and other means that the Friends have provided.[6] This attendance of young girls in the consultation centers compared to boys can also be explained by concern of their reproductive health. By contrast, boys with STI tend to practice self-medication

of where their lesser frequentation of the health centers as compared to women.

This women's is in agreement with the results of other authors African and Western authors which show respectively that consultants are the feminine gender in 94% according to Menick DM in Cameroon and in France, Gallay has and al have found a prevalence similar to our study that more than 60 % of consultants are women.[7,8]

This study reveals a sexual precocity of inquired adolescents because the minimum age of adolescents is 9 years and that 215 cases of STI are found among children 12 to 15 years. The cases of STI found are located mainly in the age group of 16 to 18 years (887 cases). The median age of first sexual intercourse in Madagascar is 16.6 and 15.6 years respectively among the rural populations and the non-educated.[9] A trend to the increase of young beginners precociously their sexual lives would be observed in regions with high tourist activity in Madagascar (Toamasina, Nosy-Be, Morondava). The number of cases of STI among these young people also tends to increase.[9] A study on the health of adolescents asserts that each year, 1 in 20 adolescents contract a STI, and this at an increasingly early age.[10]

Various studies conducted in Burkina Faso and other countries in sub-Saharan Africa have also noted the occurrence of sexual intercourse at an early age.[6,11] This sexual permissiveness could be explained by the fact that the parents have real difficulties to talk about sexuality with their children. So, this difficulty of communication will bring the children to search for information on sexuality outside the framework of the family. That's why the sexual education is going to do with the competition of the street or friends who provide information more or less erroneous and vicious on sexuality.

Sexually transmitted infections can affect all age groups, but especially between the age of 16 to 18 years. This can be explained by the rapid growth phase from the point of view of the body, also the hormonal upheaval and psychic especially resulting in a desire greater independence and freedom of any kind including sex. At this stage, the young people are exposed to all the behavioral influences negative. Then, this situation leads in a life without prohibition.

Among the 1110 cases of STI suspected, 332 cases of infections have been confirmed biologically by the presence of germs responsible of STI. *T. vaginalis* predominates to 80% among 266 adolescents, alone or associated with *N. gonorrhoae* or *T. pallidum* (Table 1).

170 cases of infection to *N. gonorrhoae* and 43 cases of *T. pallidum* have been diagnosed biologically with respectively 51% and 13%. The non-achievement of the biological examinations can be explained by the fact that the greater part of the young people does not have the financial means.

Among the less than 12 years, all the children have made the biological examinations. 6 cases of *T. vaginalis* and 2 case of *N. gonorrhoeae* have been diagnosed. 127 adolescents among the 215 have made the biological examinations in the age group of 12 to 15 years. *T. vaginalis* has been seen in 104 cases, including 61 cases have been associated with *N. gonorrhoeae* and 4 to *T. pallidum*. 75 Case of *N. gonorrhoeae* and 13 cases of *T. pallidum* have been diagnosed in total.

Among the Adolescents over the age of 16 years, 187 have benefited of biological diagnostics with 146 cases of *T. vaginalis*, including 74 cases associated with N. *gonorrhoeae* and 8 cases associated with *T. pallidum*. 93 Case of *N. gonorrhoeae* and 30 cases of *T. pallidum* have been diagnosed in total. In the north of Australia, the authors have found that a study carried out on aboriginal women has found an increase in the prevalence of the infection in *T. vaginalis* with age.[12,13] According to other authors, unlike *Chlamydia trachomatis* and *N. gonorrhoeae*, the young age is not a risk factor of *trichomoniasis*. The prevalence of *T. vaginalis* appears to increase with age for both sexes, perhaps due to the nature frequent asymptomatic infection and consequently the persistence of untreated infections.[12] The unprotected sex with multiple partners increases the chances of an infection by *T. vaginalis*, as other STI. There is no doubt that the protection of sex with a condom helps to prevent the vaginal infection of *T. vaginalis* as well as other STI.[14,15] Other risk factors have also been described for *T. vaginalis* to know the subjects with a poor personal hygiene and also a socio-economic level low).[16] Among women, the gonorrhea is often asymptomatic, often incorrectly diagnosed as a cystitis.[17] Or contrary, the infection can be translated by a painful urination or burns, an increase of vaginal discharge, or vaginal bleeding. The men have orchitis, urethritis and a whitish discharges, yellowish or greenish. The symptoms usually appear 2-5 days after infection, but the infection can remain dormant for up to 30 days. The clinical manifestations of the gonococcal infection in men are generally in the short term, however, the clinical signs of the infection are 1.5 times more frequent than among women.[18] In the United States, the gonococcal infections are more frequent among young adults and the Afro-Americans. The risk factors of gonococcal infections in the United States are the young age (less than 24 years), the high density of the population in the urban communities, the multiple sexual partners and unprotected sex. The men and the Afro-American women between 15 to 19 years had an increased incidence for the second consecutive year of 2005 to 2006.[17,19,20] The socio-economic and cultural factors, social behavior significantly affect the rise in the rate of gonorrhea associated with multiple sexual partners and unprotected sex. Ingram and al. have found in their

epidemiological study that 83% of children have had gonorrhea after a sexual contact.[21]

About the syphilis in the United States, the age group most frequently infected with syphilis is the age group of 25 to 29 years. The men (5.7/100 000) are infected more often than women (1.0/100,000), while other epidemiological studies in other countries show that women have shown, however, a greater risk of syphilis infection than men.[22]

Concerning the activities of adolescents, 695 are students (62,62%), 350 without occupation (31.62%), 9 rickshawman (0.81%), 43 women of household (3.87%), and 13 workers of sex (1.08%) while Mbassa M and al in Cameroon have found that 23% of those infected are waitresses, 28.2% dancers, and 32.7% workers on the sidewalk in the evening.[23]

Nearly two thirds of adolescents infected (659 cases either 59.4%) have a secondary level, 414 cases (37.3%) did not have education, 4 cases (0.3%) were the primary level and 33 (3%) are academics. F. ly and al have found at Dakar that more than half of the teenagers infected have the secondary level.[24] In all cases, the education of the population is the key to the prevention to check the STI according Da Ros CT and al.[25]

In our case, 228 teens (20.5%) came in consultation at the center with their partners who have received treatments. This result is in agreement with the study of Gleize and al. who found the same values.[26] In the case of STI, the treatment of partners avoids the contamination.[27] There is also the self-medication which is not uncommon in the case of STI. This habit promotes the spread of the disease and leads the frequent appearance of resistance to the usual drugs.

Face to these problems, the religion and culture play a large role in the social life by helping young people to acquire a correct behavior. In addition, the religion teaches sexual abstinence before marriage and faithfulness in marriage.[28]

The religious leaders take an important place on sexuality in Madagascar because they are considered in some societies, particularly in Africa, as the guarantors of the culture and enjoy, to this title, a great listening among the members of the community. As smugglers of knowledge and mediators in multiple aspects of life (social, cultural, political, legal, etc.), they must demonstrate a degree of flexibility, more or less accepted and assumed, in relation to the changes in the society, including the evolution of the behaviors of young people. The constant need to take into account changes in the patterns of life of their faithful, including young people, would make of it an important actors of change and because they share the same cultural framework that the Community, they have strong chances to achieve to initiate changes whose effects will be beneficial to health and future life of the young people who are part of it.

They are also the traditional authorities including parents, who may impose on minors to conduct responsible behaviors. This is based on the belief and on the respect of established order. In addition, these traditional authorities are considered as the priest of the family, lineage or clan and who are the Conservatives of the Customs and smugglers of traditional educations and are more easily accepted by the Community.

The resurgence of STI is attributed to various factors: lack of information for adolescents, stigma still too frequent, constraint of means of prevention, the release of the sexual act.[1]

CONCLUSION

The fight against STI among adolescents is still a major problem in the coastal regions of Madagascar and always remains of news despite the voluntary efforts of health workers. The number of cases of STI among adolescents registered in our study helps us to better identify the target groups. The adolescents of the female sex are the most affected by STI and deserves all the attention.

Funding: No funding sources
Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Ratsimbazafy ABA, Andrianarivelo AM, Razafindrakoto HS, Andriafanjanomenjanahary J, Andriantsoa F, Rabesandratana N. Adolescence and sexually transmitted infections: the case in the coastal regions in Madagascar. Int J Contemp Pediatr 2016;3:778-83.