The Rate of Sexually Transmitted Diseases among Pregnant Women Attending the Antenatal Care Unit in Malakal Town, Republic of South Sudan

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Abstract

Background: HIV is the causative agent of AIDS. In 2009, there were approximately 2.2 million new infections in adults; nearly 1million of them were in East-South Africa. The HIV indicator in South Sudan shows that the HIV prevalence estimate for the country is 3.1% making the estimated people living with HIV/AIDS (PLWHA) to be 155,000. The HIV epidemic is likely to grow worse due to existence of several factors that favor the transmission of the disease (AIDS) in South Sudan. These include the lack of access to HIV prevention and care service, lack of awareness among the communities, polygamy, wife inheritance and traditional malpractices. This study was conducted to estimate the seroprevalence of HIV and other STDs among pregnant women in Malakal Town and to determine the risk factors associated with disease transmission.

Material and Methods: A total of 1200 pregnant women were recruited in this study. From each subject under study, 2 - 3 milliliters of venous blood, cervical swab and urine specimen were collected. The blood specimens were allowed to clot, and then centrifuged to separate sera which were tested for HIV by Determine HIV 1 / 2, Uni-Gold HIV 1 / 2, and confirmed by ELISA. Syphilis was tested for sera by RPR. The urine and cervical swab were tested T.vaginalis, candida and N.gonorrhea, using wet preparation, Gram's stain then culture on Modified New York City (MNYC) Medium.

Results: The overall prevalence of the studied STDs among pregnant women was as follows: HIV (0.3%), Syphilis (0.6%), Candidiasis (0.3%), Trichomoniasis (0.16%) and gonorrhea

(0.08%).The most frequent STDs in age group 18 – 20 years was syphilis (2.0%) followed by Candiasis (1.0%) while HIV was (0.5%) in both age groups each. HIV and syphilis were high in illiterates. This study showed an association of HIV with other STDs evident by the co-infections. Lack of knowledge, wife inheritance, multiple sex partners and lack of personal hygiene are important risk factors for transmission of STDs in the studied population.

Key words: HIV, AIDS, Syphilis, Candidiasis, Trichomoniasis, Gonorrhea.

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Introduction

Human Immunodeficiency Virus (HIV) is a retro virus (member of the genus Lenti virus), part of the Retroviridae family that causes Acquired Immunodeficiency Syndrome (AIDS), a condition in which the immune system begins to fail, leading to life – threating opportunistic infections. Infection with HIV occurs by transfer of blood, semen, vaginal fluid and pre-ejaculate or breast milk. HIV infection in humans is considered pandemic by World Health Organization (WHO). From its discovery in 1981 to 2006, AIDS killed more than 25 million people. HIV infects about 0.6% of the world's population [(1)].

The Republic of South Sudan shares borders with countries reported to have high rates of HIV/AIDS in Uganda 6.5%, Kenya 6.3%, Ethiopia 1.1%, Democratic Republic of Congo 3.4%, and Central African Republic 4.9% [(2)].

Syphilis is a sexually transmitted disease caused by the spirochetal bacterium *Treponema pallidum* subspecies pallidum. The route of transmission of syphilis is almost always through sexual contact, although there are examples of congenital syphilis via transmission from mother

to child in utero. Enormous evidences are available indicating that syphilis increases the risk of HIV infection [3].

Gonorrhoea is one of the most frequently reported infectious diseases in the United States. The causal agent, *Neisseria gonorrhoeae*, a gram-negative dipolococcus, is frequently observed inside polymorphonuclear leukocytes of clinical samples obtained from infected patients. N. *gonorrhoeae* is usually transmitted during sexual contact through an infected birth canal. It does not survive long outside the human body because it is highly sensitive to dehydration [4].

Candidiasis (candidosis) is caused by the yeast *Candida albicans*, and other Candida species, which are normal body flora found in the skin, mouth, vagina, and intestines. Although consideredyeast, C. *albicans* is dimorphic, and can form a true mycelium Infections occur when competing bacterial flora are eliminated, for example, by antibiotics, allowing the yeast to overgrow Candida infections have various manifestations depending on the site. For example, oral candidiasis (thrush) presents as raised, white plagues on the oral mucusa, tongue, or gums. The plagues can become confluent and ulcerated and spread to the throat. Most HIV- positive individuals eventually develop oral candidiasis, which often spreads to the esophagus. The later condition is considered an indicator of full-blown AIDS. Vaginal candidiasis presents an itching and burning pain of the vulva and vagina, accompanied by a thick or white discharge. HIV-positive females often experience recurrent vaginal candidiasis [4].

Although information is available regarding the prevalence of HIV, information regarding the other STDs is few or even lacking in South Sudan. This study is conducted to determine the rate of infection with HIV, syphilis and other STDs among pregnant women in Malakal Town, South Sudan.

South Sudan is described as having a low generalized epidemic with an average HIV prevalence rate of 3% among pregnant women [5]. The prevalence shows wide disparities in geographical locations with some areas as high as 7.2% in Western Equatoria State (WES), 3.3% in Eastern Equartoria State, 3.0% in Jonglei and Upper Nile States and 0.7% in both Northern Bahr Elghazal and Warrap States ([5,6]).

Materials and Methods

During the period from February 2012 to July 2013, pregnant women in Malakal town were invited to be enrolled in research to identify epidemiologic and biologic determinants of HIV and STDs infections. One thousand and two hundred pregnant women were included from age 18-24 years old. The selection of participants was based mainly on attendance. Informed consent was obtained after proper counseling. There after a sample of venous blood 2 - 3 milliliters was collected from each individual by vacutianer tube and sera were separated within two hours. Cervical swabs were taken and urine was taken in a sterilized container. The diagnosis HIV was made when the specimen tested positive with three of the screening test and western blot. Syphilis was diagnosed based on positive RPR only. The diagnosis of trichomoniasis and candiiasis was based on microscopic examination of wet preparation and gonorrhea by gram's stain and culture on MNYC.

Results

In this study a total 1200 pregnant women were recruited to participate in this study. The most prevalent STD among pregnant women was syphilis 0.6% followed by HIV infection and candidiasis 0.3% each (Table 1). The most frequent STD in age group 18 – 20 years, was syphilis 4.0% followed by candidiasis 2.0 while was the most frequent STD in the age group 21 – 24 years was HIV 0.8% (Table 2). All the investigated STDs were higher among the illiterate participants (Table 3).

Table (1).Shows the Percentage of the STDs Investigated in the Studied Population (n = 1200)

Type of STD	Positive for Disease	
	Frequency	Percentage %
HIV	4	0.3
Syphilis	8	0.6
Candida	4	0.3
T. vaginalis	2	0.16
Gonorrhea	1	0.08

Table (2).Distribution of the Different STDs According to Ages of Pregnant Women

Type of STD	Age group: 18 – 20			Age group: 21 – 24		
	Total	Positive +ve	%	Total	Positive +ve	%
HIV	200	2	1.0	1000	8	0.8
Syphilis	200	8	4.0	1000	6	0.6
Candida	200	4	2.0	1000	2	0.2
T.vaginalis	200	2	1.0	1000	1	0.1
Gonorrhea	200	1	0.1	1000	0	0.0

Table (3).Distribution of the Different STDs According to Educational Level of the Participants

Type of STD	Literate			Illiterate		
	Positive for the STD			Positive for the STD		
	Frequency		Percentage %	Frequency		Percentage %
	Total	Literate	%	Total	Illiterate	%
HIV	900	2	0.2	300	8	2.6
Syphilis	900	6	0.6	300	8	2.6
Candida	900	2	0.2	300	4	1.3
T.vaginalis	900	1	0.1	300	2	0.6
Gonorrhea	900	0	0.0	300	1	0.3

Discussion

In this study the overall seroprevalence of HIV among the studied population was found to be (0.3%). This is in agreement with what was reported by JUNP and UNAIDS [7, 8]. But very much lower than what was reported in South Sudan by SSAC [9]. The seroprevalence of HIV was 1.0% higher in age group 18 – 20 and can be explained that they are sexually active. Illiterates were found to be more affected by HIV than the educated participants. This is expected by fact that literates are not aware about HIV and other STDs. This can be explained by the fact that married individuals were practicing sex with possibly multiple partners if we consider the bad tradition of wife inheritance. In fact four of the HIV infected participants were inherited wives. Two studies done in Kenya revealed similar results [10, 11].

Conclusion

The overall prevalence of the studied STDs was HIV (0.3%), syphilis (0.6%), *Candida* (0.3%), *T.vaginalis* (0.16%) and *Gonorrhea* (0.08%) among pregnant women. This study showed other STDs as co-infection of HIV positive or risk factors. Therefore, Further studies with large sample size, health education campaigns encouraging (safe sex, abstaining, faithfulness and the use of condoms consistently) and correctly and measures that aim to combat bad habits and traditions like wife inheritance and other malpractices such as removal of teeth, tattooing and scarification of forehead, ears and lips are recommended.

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