HIV / AIDS Clinical Profile and Implication for Patient Clinical Outcome in Limited Resources, Wad Medani, Sudan.

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Abstract: Background: HIV/AIDS is a common health problem in Sudan. Disease is mostly common caused as result of sexual contact, blood transfusion, organ transplant, injection drug use, pregnancy and breast feeding. Other minor cause is contact between broken skin, wounds or mucous membrane, HIV infected blood or blood contaminated body fluid and deep open mouth kissing. Aims: The aim of this study was to study the clinical profile and outcome of HIV/AIDS patients, which includes demographic and clinical profile of HIV treated - non treated patients and prevalence of viral load among a disease at Anti-Retrovirus Ttherapy center. Materials and Methods: This was cross sectional study carried out over a period of 1 year (December 2020–December 2021). All HIV patients who attending in wad madani ART center. Statistical analysis was performed using SPSS statistical software trial version 21. The P< 0.05 was considered as statistically significant. Result: About 300 HIV patients were included in this study; 200 (67 %) were HIV positive without treated, and 100 (33 %) were HIV positive under treated, were assessed in ART center in Medani Teaching Hospital, with males accounting for about186(62%) and females accounting for about114(38%), Patients ranged in age from 68 to 2 years and categorized into four age group; (1-20) years 21 (7%); (21-40) years 154(51.3%); 41-60 year 112(37.3%); 61-80 years 13 (4.3%) From 50 HIV/AIDS participants, the duration/years were divided into five groups; 0-3years 21(42%); more than 12 years 12(24%); 6-9 yers10 (20%); 3-6 years 5(10%); 9-12 years 2(4%). According to WHO stage classification, HIV/AIDS patients are divided into four stages: stage one (22%); stage two (8%); stage three (56%); and stage four (7%). In this study, 24% of patients were alcoholics, while the remaining 48.6% were not, and 5% of patients were smokers, while the remaining 45.9% were nonsmokers. The majority of patients (47%) do not have any drug allergies. The marital status in this study; 116(38.7%) singles; 161(53.7%) married; 14(4.7%) separated; 2(0.7%) divorced; 7(2.3%) widows. The number of children in this study; <3 37(37%); >3 26(26%); none 37(37%). The education can classify into; Illiteracy 45(15%); basic 219(73%); secondary 20(6.7%); university 16(5.3%). The occupation; non employer 78(26%); employer 15(5%); house wife 51(17%); worker 135(45%); student 21(7%). The state of the patients; gezira 96(32%); Khartoum 196(65.3%); other 8(2.7%). Partner for patient married categorized into; husband 20(4%); x-husband 2(4%); wife 9(18%); x-wife 2(4%). The status for marital; 16(32) positive; 4(8%) negative, 14(28%) unknown; 16(32%) single positive and 12(24%) of partners dead; 38(76%) are still alive. The state of children in this study; 16(7.6%) positive, 35(38.5%) negative; 40(44%) unknown and 13(14%) of children in this study were dead; 78(86%) still alive. Conclusion: The findings can be used to develop, improve and inform HIV programmes in Sudan and interventions to reduce symptoms. There is significant effect of Anti-Retrovirus Therapy on stages of disease. There improvement was noted in viral load, body weight after treatment.

Keywords: HIV – AIDS - Anti-Retrovirus Therapy - viral load – Sudanese.

Introduction

Populations are ageing across the world due to rising life expectancy and falling fertility rates, which has led to the adoption of the first Global Strategy and Plan of Action on Ageing and Health by the World Health Assembly in 2016 (Autenrieth, *et al*,2018). The Middle East and North Africa (MENA) region comprises a geographically defined group of countries including both high-income, well-developed nations and low- and middle-income countries. It has become the center of attention during the past few years due to recent social and political movements commonly referred to as the Arab Spring. An important characteristic of the region is its steadily increasing population of young adults, who comprise 10% of the world's population in the 15–49 years age group. These demographic, social, and political trends are important factors affecting many public health issues facing the region (Gökengin, *et al*,2016). Sudan is bordered by countries with high rates of HIV infection. The first AIDS case was reported in 1986, and by 2011 the total number of cases reported had increased to 2218. In 2002, a behavioural and epidemiological survey (BES) was carried out by Sudan National AIDS Program. According to the survey, the prevalence among general population was 1.6%. Although this survey was the largest survey conducted in Sudan, it was inconclusive largely due to study limitations and mixing of samples that included both general and at-risk populations.

According to UNAIDS 2011, the most recent estimate of the prevalence of HIV/AIDS in Sudan after South Sudan separation indicated that HIV/AIDS prevalence is around 0.4%. Although this new estimate put Sudan among the lowest countries with HIV/AIDS prevalence in Sub-Saharan Africa, the prevention efforts are far from what is needed. The Sudan House Hold Survey (SHHS) conducted in 2010 estimated that the HIV/AIDS test coverage was only 1% for Sudanese population.

The spread of HIV is influenced by poverty and illiteracy, both of which are widespread in Sudan. The movement of people displaced by harsh environmental conditions has contributed to an increase in the number of HIV/AIDS cases. Refugees from other conflicts in the region also flee to Sudan. The war in Darfur resulted in the movement of large population fleeing from the war. This resulted in displacement of about 2.5 million people with many contracted the disease. The new war in Blue Nile and South Kordofan also contributed to unfavourable socioeconomic and health situations in Sudan. Sudan is a generally conservative and highly religious society where sexuality is not openly discussed, and a disease such as HIV/AIDS is surrounded by myths and taboos and even ignored in official circles. It is difficult and requires sensitivity to get people to talk openly about the disease. A review of the literature found no previous studies addressing HIV risk factors in Sudan. The main objective of this paper is to assess participants' knowledge about HIV/AIDS and to examine the main factors associated with HIV/AIDS in Sudan (Mohamed, *et al,*2013).

In this framework it is clear that HIV testing, early diagnosis and access to treatment are key to tackling the HIV/AIDS epidemic. Despite some practical and ethical issues related to its use at population-wide level, the Treatment as Prevention approach is now considered not only an important public health tool to reduce the risk of HIV transmission but also to improve the quality of life of HIV-positive individuals. In addition, a proper antiretroviral therapeutic regime reduces the viral loads and consequently can play a crucial role in the epidemic reducing the likelihood of HIV transmission. In fact, awareness of the HIV-positive status is crucial for reducing risk behaviours and, consequently, for reducing the probability of transmitting the HIV infection. Expanding HIV testing is not only meant to increase the proportion of HIV-positive people who know they are infected but also to give them a better life expectancy (Massimo Mirandola, *et al,*2017).

Material and Methods

Cross-sectional study includes 300 samples. HIV/AIDS involved in this study were selected randomly 200 HIV positive with not treated and 100 HIV positive under treated. Blood samples were taken from patient in ART center in medani teaching hospital while the remaining samples about 300 samples. The questionnaire used in this study had been designed to be suitable as a rapid means of identifying socio demographic data and risk factor associated with HIV infection among study population. Data will be collected by using doctor's report and other finding.

Ethical clearance

Ethical approval was obtained from faculty research committee, ministry of health - Gezira state and from each participant.

Result and Discussion:

Table (1): Social characteristic of study population:

		Frequency	Percent
Gender	**Male**	**186**	**62**
	Female	**114**	**38**
	Total	**300**	**100**
Age Group	**1 - 20Year**	**21**	**7**
	21 - 40Year	**154**	**51.3**
	41 - 60Year	**112**	**37.3**
	61 - 80Year	**13**	**4.3**
	Total	**300**	**100**
State	**Gezira**	**96**	**32**
	Khartoum	**196**	**65.3**
	Other	**8**	**2.7**
	Total	**300**	**100**
Occupation	**Non employer**	**78**	**26**
	House wife	**51**	**17**
	Employer	**15**	**5**
	Worker	**135**	**45**
	Student	**21**	**7**
	Total	**300**	**100**
Education	**Illiteracy**	**45**	**15**
	Basic	**219**	**73**

	Secondary	20	6.7
	University	16	5.3
	Total	300	100
Marital status	Single	116	38.7
	Married	161	53.7
	Separated	14	4.7
	Divorced	2	0.7
	Widow	7	2.3
	Total	300	100
Number of children's	None	37	37
	< 3	37	37
	> 3	26	26
	Total	100	100

Table (2): Social characteristic of study population:

Data		Frequency	Percent
	Unknown	60	60.0
Infected partner	Positive	38	38.0
	Negative	2	2.0
	Total	100	100
Infected children	Unknown	87	87.0
	Positive	12	12.0
	Negative	1	1.0
	Total	100	100
Alcohol	Yes	16	16.0
	No	84	84.0
	Total	100	100
Stage outcome	Unchanged	96	96.0
	Progressed	4	4.0
	Total	100	100
Weight outcome	Unchanged	3	3.0
	Increase	79	79.0
	Decrease	18	18.0
	Total	100	100
Functional status at last visit	AMB	3	3.0
	Work	97	97.0
	Total	100	100
Substitution of treatment	Yes	42	42.0
	No	58	58.0
	Total	100	100
Duration	< 1Year	15	15.0
	1 - 4years	56	56.0
	> 4Years	29	29.0

	Total	**100**	**100.0**
Partners	**None**	**26**	**26.0**
	One	**66**	**66.0**
	More than one	**8**	**8.0**
	Total	**100**	**100.0**

Table (3): Clinical Information about the HIV stages:

Stage1	Stage2	Stage3	Stage4
- fever (raised temperature) - rash - sore throat - swollen glands - headache - upset stomach - joint aches and pains - muscle pain	flu-like symptom	- weight loss - chronic diarrhoea - night sweats - fever - persistent cough - mouth and skin problems - regular infections - serious illness or disease.	- Rapid weight loss - Recurring fever - Profuse night sweats - Pronounced fatigue and weakness - Prolonged swollen lymph glands - Chronic diarrhea, which lasts more than a week - Sores that develop in the mucous membranes of the mouth, anus, or genitals - Blotches (red, brown, pink, or purplish) on the skin, under the skin, or inside the mouth, nose, or eyelids - Neurological issues, including memory loss and depression

Discussion:

In this study, hundred patients with treatment and two hundred patients with no treatment, they categorized into two group patients with treatment 33.3% and patients with no treatment 77.7% were examined in ART center in Medani Teaching Hospital, male about 62% and female about 38% and this finding agree with Linley *et al,* 2019 who found that the annual number of new HIV infections in 2019, as compared to 2015, decreased among males, but remained stable among females. In 2019, the rate for males (21.0) was 5 times the rate for females (4.5). The maximum age of patient was 72 years and the minimum was 4 years, with mean of age 38 years can be categorized into four age group; 1-20 years (7%), 21-40 Year (52%); 41–60-year (37%) and (61-80) year 4% and this result was near to result obtained by Linley *et al,* 2019 who found that the annual number of HIV infections in 2019, compared with 2015, decreased among persons aged 13–24 and persons aged 45-54, but remained stable among all other age groups. In 2019, the rate was highest for persons aged 25-34 (30.1), followed by the rate for persons aged 35-44 (16.5).and the duration by year categorized into three group from 100 patient with HIV treatment; less than years (15%); 1-4 years (56%) and more than 4 years (29%). Depend on WHO stage classification; the HIV/AIDS patients categorized into four stages; stage one (19%); stage two (4%); stage three (55%) and stage four (22%) and the stage outcome for the patient categorized into two average groups; 96% unchanged and 4% progressed and the weight outcome for the patient categorized into three average groups; (3%) unchanged weight, (79%) increase weigh and (18%) decrease weight. In this study; 16% of patient alcoholic and 84% not alcoholic. The marital status in this study; 39% single; 53% married; 5% separated; 1% divorced and 2% widow, Tlou, B. (2019) differ for study the risk of HIV infection remained significantly high among unmarried compared with married people when only sex behavior factors were controlled for in the model.

The risk depends on various demographic factors and sex behavior practices. Partner for patient categorized into; none 26%; one 66%; and more than one 8% and this was near to study done by Ahura, 2017 who found that sexual relationship of which majority had 1-2 partner 30(60%) and majority had their first partner at 15- 17 years old 30(60%). The number of children in this study could be; 37% none, 37% less than three and 26% more than three. The state in this study could be; 32% gezira, 65% Khartoum and 3% other and categorized into five group: (26%) of patient non-employer, (17%) house wife, (5%) employer, (45%) worker and (7%) students and this finding was agreed with Britt, 2021 who noted that it may be important for state legislatures to consider ways to modify their statutes to explicitly expand or contract the rights of workers who have contracted HIV in the workplace. The education was categorized into four groups illiteracy (15%), basic (73%), secondary (7%) and university (5%) and the functional state at last visit categorized into two groups: 3% were AMB and 97% work. The infected partners categorized into three groups: 60% unknown, 38% positive and 2% negative. The infected children categorized into three groups: 87% unknown, 12% positive and 1% negative and this finding was near to WHO, (2018) noted that by age 1 year, an estimated 35·2% infected and 4·9% uninfected children The substitution of treatment recognized into two groups; group one 42% patient's substitution the treatment; group two 58% patients not substitution the treatment. Nosyk *et al,* 2015 who found that individuals were at lowest risk of death when these medications were used jointly. Both opioid substitution treatment (OST) and highly active antiretroviral therapy (HAART) independently protected against HIV-related death, drug-related death and death due to other causes.

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