

# Clinical Presentations of HIV/AIDS Among Sudanese Patients in Khartoum, Sudan

**Samah Mohamed Osman<sup>1</sup>, Marwa Mohamed Osman<sup>2,\*</sup>, Muataz Mohamed Osman<sup>3</sup>, Mamoun Magzoub<sup>4</sup>, Safi Edin Elnour Ali<sup>5</sup>**

<sup>1</sup>Faculty of Medicine, Omdurman Islamic University, Khartoum, Sudan

<sup>2</sup>Department of Biotechnology, Africa city of Technology, Khartoum, Sudan

<sup>3</sup>Faculty of Medicine, Al-Zaiem Al-Azhari University, Khartoum, Sudan

<sup>4</sup>Faculty of Medical Laboratory Sciences, University of El-Razi, Khartoum, Sudan

<sup>5</sup>VCT Center- Omdurman Military Hospital, Khartoum, Sudan

## Email address:

[marmarzamaani@gmail.com](mailto:marmarzamaani@gmail.com) (M. M. Osman)

\*Corresponding author

## To cite this article:

Samah Mohamed Osman, Marwa Mohamed Osman, Muataz Mohamed Osman, Mamoun Magzoub, Safi Edin Elnour Ali. Clinical Presentations of HIV/AIDS Among Sudanese Patients in Khartoum, Sudan. *Journal of Cancer Treatment and Research*. Vol. 4, No. 6, 2016, pp. 38-42. doi: 10.11648/j.jctr.20160406.11

**Received:** December 24, 2016; **Accepted:** January 19, 2017; **Published:** March 17, 2017

---

**Abstract:** HIV infection is the greatest risk factor for acquiring other infections including bacterial, fungal, and viral as well as malignancies due to weakness of the immune system. This study was conducted in the VCT Center- Omdurman Military Hospital, Khartoum state during the period in nine years (from 2006-2015). We aimed to determine the Clinical presentation of HIV/AIDS among Sudanese patients. A total of 100 HIV/AIDS seropositive were included in the study. Medical records of these patients were reviewed and data from medical records was collected and analyzed by Statistical Packages for Social Sciences (SPSS). Out of 100 HIV/AIDS HIV/AIDS patients, the most common age group among the patients was 32-41 years and represented by 43 (43%). 77 (77%) patients in the sample were male while 23 (23%) were females. The majority of the patients 97 (97%) presented with symptoms compared to only 3 (3%) asymptomatic. Symptom of diarrhea was reported in 22 (22%) of the patients, fever in 17 (17%), weight loss in 14 (40%), cough in 14 (14%) fatigability in 10 (10%) and vomiting in 5 (5%). Bacterial infections were: TB in 14 (14%), Cheilitis in 3 (3%), cellulitis in 1 (1%) and chest infection 1 (1%). Fungal infections included oral thrush in 9 (9%). Kaposi sarcoma reported in 4 (4%). The CD4 level < 100 cells/mm<sup>3</sup> was found in 42 (42%) of the study sample. Neither any skin viral infections nor inflammatory dermatoses were reported in this study. We found about two thirds of the patients were in stage III, while others were in stage II, IV and I, respectively. Tuberculosis and Coexistence dermatological diseases should be early and thoroughly examined among HIV patients.

**Keywords:** HIV/AIDS, HIV Stages, Khartoum, Sudan

---

## 1. Introduction

Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome (HIV/AIDS) is a serious public health problem costing the lives of many people including health care workers [1]. It is considered a pandemic—a disease outbreak which is present over a large area and is actively spreading. HIV is believed to have originated in west-central Africa during the late 19th or early 20th century. AIDS was first recognized by the United States Centers for Disease

Control and Prevention (CDC) in 1981 and its cause—HIV infection—was identified in the early part of the decade [2]. HIV is spreading primarily by unprotected sex (including anal and oral sex), contaminated blood transfusions, hypodermic needles, and from mother to child during pregnancy, delivery, or breastfeeding. Some body fluids, such as saliva and tears, do not transmit HIV [3]. Methods of prevention include safe sex, needle exchange programmes, treating those who are infected, and performing safe male circumcision [4]. Disease in a baby can often be prevented by

giving both the mother and child antiretroviral medication [5].

In 2014 about 36.9 million people were living with HIV and it resulted in 1.2 million deaths. Most of those infected live in sub-Saharan Africa. Between its discovery and 2014 AIDS has caused an estimated 39 million deaths worldwide. HIV/AIDS is considered a pandemic—a disease outbreak which is present over a large area and is actively spreading. HIV is believed to have originated in west-central Africa during the late 19th or early 20th century. AIDS was first recognized in the United States Centers at Disease Control and Prevention (CDC) in 1981 and its cause [6].

HIV/AIDS has had a great impact on society, both as an illness and as a source of discrimination. The disease also has large economic impacts [7]. There are many misconceptions about HIV/AIDS such as the belief that it can be transmitted by casual non-sexual contact. The disease has become subject to many controversies involving religion including the Catholic Church's decision not to support condom use as prevention. It has attracted international medical and political attention as well as large-scale funding since it was identified in the 1980s [8]. There is no cure or vaccine; however, antiretroviral treatment can slow the course of the disease and may lead to a near-normal life expectancy. Treatment is recommended as soon as the diagnosis is made. Without treatment, the average survival time after infection is 11 years [5].

Human immunodeficiency virus (HIV) infected patients have increased in Sudan. The clinical presentations in Sudanese patients are different from European and American which may influence the response of therapy. So; in this study we aimed to explore the clinical presentations in our country together with these differences.

## 2. Material & Methods

### 2.1. Material

This is a retrospective cohort, hospital based study was conducted at VCT Center-Military Hospital in Omdurman city, Khartoum state in nine years (from 2006-2015). 100 HIV seropositive patients were accepted to participate in the study.

### 2.2. Collection and Analyzing of Data

Data was collected using a Master sheet, which filled from the medical records of the patients. Basic demographic information, clinical presentation, investigations, treatment, follows up, and other relevant information were collected. Data was analyzed by Statistical Packages for Social Sciences (SPSS) version 15.0 software with Chi-square test, as appropriate.  $P < 0.05$  is considered statistically significant (Confidence Interval: CI 95%).

### 2.3. Ethical Clearance

Ethical approval was obtained from Sudan medical specialization board. Confidentiality and secrecy were maintained. Data were only used for the purpose of the study.

## 3. Results

In this retrospective cohort hospital based study, a total of 100 HIV positive Sudanese patients were enrolled to analyze the clinical presentation.

Concerning gender and age of the patients in this study, 77 (77%) male patients were represented in this study while 23 (23%) were females, Table (1). The most common age group among the patients was 32-41 years and represented by 43 patients (43% of the sample), Table 1.

Clinical data was collected from patients on VCT Center. Referral units are shown in Table (1); 31 (31%) of the patients referred from VCT, 17 (17%) were self-referred, and 46 (46%) were outpatient from obstetrics & gynecology, medicine unit, inpatient and dermatology unit. In addition, the majority of the patients 97 (97%) presented with symptoms compared to only 3 (3%) asymptomatic, Table 1.

**Table 1.** Baseline characteristics among 100 studied patients.

	Characteristics	Study patients No. (%)
Gender	Male	77 (77.0)
	Female	23 (23.0)
	< 22	5 (5.0)
Age groups	22 – 31	19 (19.0)
	32 – 41	43 (43.0)
	42 – 51	19 (19.0)
	52+	14 (14.0)
Clinical presentation	Symptomatic	97 (97.0)
	Asymptomatic	3 (3.0)

The main clinical presentations in this study was diarrhea and reported in 22 (22%) of the patients, fever in 17 (17%), weight loss 14 (14%), cough 14 (14%), fatigability 10 (10%), vomiting 5 (5%) and Itching 4 (4%), Table 2. Skin rash was present in 10 (10%) patient. Gastric ulcer, depression, otitis media, mouth ulcer, renal failure, cholecystitis, gingivitis and recurrent UTI each of which were presented in one patients.

**Table 2.** Distribution of the patients according to general symptoms.

General symptoms	Study patients No. (%)
Diarrhea	22 (22.0)
Fever	17 (17.0)
Weight loss	14 (14.0)
Cough	14 (14.0)
Fatigability	10 (10.0)
Vomiting	5 (5.0)
Itching	4 (4.0)
Abdominal pain	3 (3.0)
Nausea	2 (2.0)
Night sweating	1 (1.0)
Joint pain and swelling	1 (1.0)
Heart burn	1 (1.0)
*None	6 (6.0)
Total	100

P- value = 0.02 \*Patient without symptoms

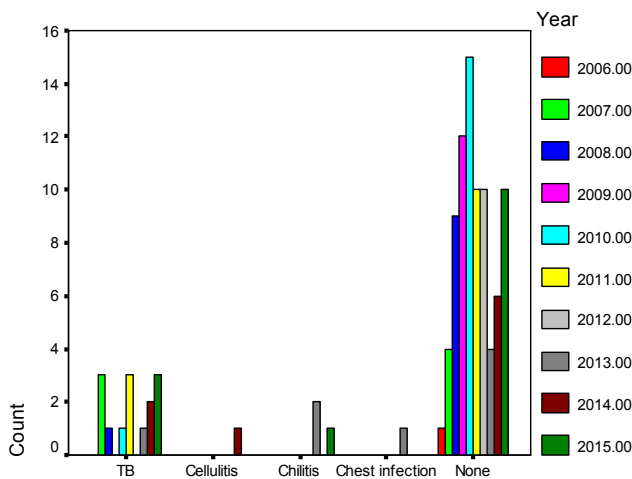
The infections in this study were classified into bacterial, fungal and viral infections. Out of the 100 patients only 14 showed coexistent bacterial infections, the most common coexistent infections with HIV among the studied patients was TB in 14 (14%), cheilitis in three (3%), cellulitis in one

(1%). Chest infection was reported in one (1%) of the patients. The results are shown in Table 3, Figure 1. Fungal infection (oral thrush) was reported in 11 (11%) of infected patients, Table 4, while viral infection was found in six of the HIV patients. Four of them (4%) reported HBV and two (2%) reported HCV, Table (5). However, malignancies represented in the form of Kaposi sarcoma were shown in only four (4%) of the patients, Table 6.

**Table 3.** Distribution of the patients with Bacterial infection.

Type of infection	Infections	Study patients No. (%)
bacterial	TB	14 (14.0)
	Cellulitis	4 (4.0)
	Chest infection	1 (1.0)
	*None	81 (81.0)
	Total	100

P- value = 0.01 \*Patient without Bacterial infection



**Figure 1.** Distribution of the bacterial infections according to year.

**Table 4.** Distribution of the patients with fungal infection.

Infections	Study patients No. (%)
Oral thrush	11 (11.0)
*None	89 (89.0)
Total	100

P- value = 0.64 \*Patient without fungal infections

**Table 5.** Distribution of the patients with viral infections.

Infections	Study patients No. (%)
HCV	2 (2.0)
HBV	4 (4.0)
*None	94 (94.0)
Total	100

P- value = 0.31 \*Patient without viral infection

**Table 6.** Distribution of the patients with malignancies.

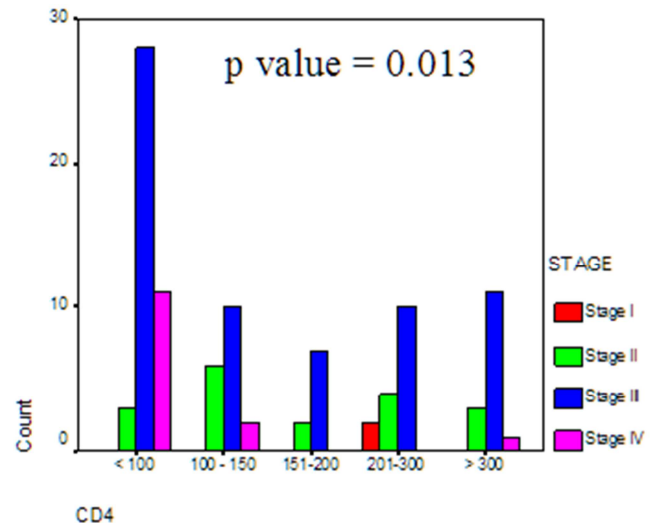
Malignancies	Study patients No. (%)
Kaposi sarcoma	4 (4.0)
*None	96 (96.0)
Total	100

\*Patient without symptoms

The patients were clinically classified into four stages of

HIV/AIDS. The majority of patients 66 (66%) were in stage III, 18 (18%) in stage II, 14 (14%) in stage IV and only 2 (2%) were in stage I.

The CD<sub>4</sub> levels in HIV positive patients in this study were < 100 cells/mm<sup>3</sup> in 42 (42%), 100-150 mm<sup>3</sup> reported in 18 (18%), 201-300 mm<sup>3</sup> in 16 (16%), > 300 mm<sup>3</sup> in 15 (15%) and 151-200 mm<sup>3</sup> in nine (9%), figure 2.



**Figure 2.** Distribution of the CD<sub>4</sub> (mm<sup>3</sup>) in relation to HIV staging.

## 4. Discussion

We reviewed 100 patients who presented with different symptoms and signs related to HIV infection among Sudanese population during nine years (from 2006-2015) in Khartoum state, Sudan.

The majority of patients were male and the most common age group among the patients was 32-41 years. In 2008 and 2009 high rate of the HIV infection (63%) was found between the age group (21-40 years). The most common symptom within infected patients was diarrhea. It had caused significant morbidity in HIV-infected patients and can be due to a multitude of etiologies from infectious pathogens to malignancy or medications. Diarrhea is also an independent predictor of reduced quality of life [9]. In other hand; recurrent or persistent fever is the first signs of HIV which occurs in acute retroviral syndrome. Weight loss may be due to HIV itself or HIV drug which lead to loss of appetite and makes food taste bad or lead to malabsorption. It also may be due to nausea and vomiting which are usually attributed to medication's side effects, infections, gastro-paresis and psychosomatic. Nausea and vomiting are also the most common cause of discontinuous of antiretroviral therapy (ART). These general symptoms showed significant differences starting from the year 2005 to year 2015 ( $P = 0.02 < 0.05$ ). For example, fever and weight loss were reported in higher number of patients in the years 2005 and 2015 respectively and lower numbers in the other years. The previous study in 1995 in south Sudan has shown that Cryptococcal meningitis was another common opportunistic infection beside TB. Statistically, the bacterial infections in

terms of TB, cellulitis and chest infection were more evident in 2007 and 2011 than other years. This indicated significant differences in distribution of bacterial infections among the patients during the period from 2006 to 2015 ( $P = 0.01 < 0.05$ ). Moreover, fungal infection had not shown significant difference through the period from 2006 to 2015 ( $P = 0.31$ ). A total of 401 subjects in the Sudanese study in 1995; the prevalence of HIV-1 was highest among tuberculosis patients 42 (19%) among 401 Sudanese patients in a study was conducted in 1995 [10]. Also another study was carried out in Sudan revealed that 97 (33%) out of 291 subjects were TB-HIV co-infected [11]. Previous study by Wananukul S. *et al.* (2003) showed that the prevalence of bacterial infection was found in 8% of patients while the fungal infection was found in 44% of patients. Oral candidiasis was the most common manifestation (33%) [12].

The Kaposi sarcoma within the studied patients was not significantly different through the period from 2006 to 2015 ( $P = 0.96$ ). A study by Borkovic SP. *et al.* (1981) in USA showed that Kaposi sarcoma (KS) was the first reported malignancy associated with HIV infection and was first documented in 1981 from reports in New York, Los Angeles, and San Francisco [13]. However; generally the prevalence of KS in patients with HIV disease is less than 5%. Among 50 Sudanese patients in a study by Ahmed MI. *et al.*, (2016) KS was only (6%) [14].

Neither skin viral infections nor Inflammatory dermatoses (e.g. seborrheic dermatitis, xerosis ... etc.) were found in the studied patients. Human immunodeficiency virus (HIV) infection in Sub-Saharan Africa is complicated by co-infection with hepatitis B and C viruses (HBV and HCV), which share similar transmission routes [15]. According to statistical analysis, general viral infections (HBV and HCV) reported in this study were not significantly different through the period from 2006 to 2015 ( $P = 0.64$ ). In 358 HIV-positive Sudanese patients, evidence of current HBV infection was detected in 62.8% of the patients [15]. Panya MF. *et al.* (2009) showed that the viral was found in 23% of HIV positive patients [16] thus both studies revealed more viral infections than in our study. Another study by Lim W. *et al.* (2010) found that the severity of the dermatological manifestations was correlated with the immune status of the patients, which was determined by T4 helper cell numbers and lymphoproliferative responses to mitogens and recall antigens [17].

Staging of HIV is based on clinical findings that guide the diagnosis, evaluation, and management of HIV/AIDS, and does not require a CD<sub>4</sub> cell count. This staging system is used in many countries to determine eligibility for antiretroviral therapy [10]. In Awadalla H. *et al.*, (2015) study stage III recorded the higher level i.e. in 81 patients (84%), followed by IV in 12 (13%), II in 2 (2%) and I in 1 (1%) [11]. In our study, the CD<sub>4</sub> levels in HIV positive patients found significant differences in distribution of CD<sub>4</sub> level according to the disease stages. Less than 100 mm<sup>3</sup> was more common found among patients in stage IV than other stages ( $P = 0.013 < 0.05$ ). This is due to the fact that CD<sub>4</sub> level less than

100 mm<sup>3</sup> closely associated with advanced stages of HIV/AIDS. This finding is similar to many previous study results. e.g.: an American study by Leeds IL. *et al.* (2012) concluded that the mean CD<sub>4</sub> lymphocyte count of the HIV-infected TB subjects was significantly lower ( $195 \pm 40.5$  cells/ $\mu$ L) compared to the non-HIV infected ( $288 \pm 35.25$  cells/ $\mu$ L  $P = 0.01$ ) [18]. Another study by Abdallah TM. *et al.* (2012) in Sudan showed that low CD<sub>4</sub> ( $< 200$  cu. mm<sup>3</sup>) count was significantly associated with HIV co infection ( $P$  value 0.5 and 000 respectively) [19].

## 5. Conclusion

Co-existence dermatological disease should be early detected among HIV patients. Also active detection of tuberculosis should be done among HIV/AIDS patients, and all tuberculous patients should be screened for HIV infection. Bacteriological, Virological and Fungal tests must be done for people living with HIV in order to mitigate further deterioration of their health. Health workers should increase their awareness so that they could perform their work perfectly with proper investigations and early treatments. Health workers also should be cautious when a patient has lower initial weight and lower baseline CD<sub>4</sub> cell count, and a patient is bedridden and is in WHO clinical stages III or IV.

## Competing Interests

The authors declare that they have no competing interests.

## Acknowledgements

The authors are grateful to the Omdurman Military Hospital-department of VCT Center for their help and support in collecting data of this study and also to Mr. Mohamed Osman Mohamed Nour for the paper editing.

## References

- [1] UNAIDS. Report on the Global AIDS epidemic, 2004. Bangkok, Thailand 2004. 2016).
- [2] Cohen MS, Hellmann N, Levy JA, DeCock K, Lange J. The spread, treatment, and prevention of HIV-1: evolution of a global pandemic. *The Journal of clinical investigation*. 2008; 118 (4): 1244-54.
- [3] UNAIDS, FACT SHEET. 2016.
- [4] Mocroft A, Ledergerber B, Katlama C, Kirk O, Reiss PD, Monforte AD, Knysz B, Dietrich M, Phillips AN, Lundgren JD, EuroSIDA Study Group. Decline in the AIDS and death rates in the EuroSIDA study: an observational study. *The Lancet*. 2003; 362 (9377): 22-9.
- [5] Sterne JA, Hernán MA, Ledergerber B, Tilling K, Weber R, Sendi P, Rickenbach M, Robins JM, Egger M, Swiss HIV Cohort Study. Long-term effectiveness of potent antiretroviral therapy in preventing AIDS and death: a prospective cohort study. *The Lancet*. 2005; 366 (9483): 378-84.

- [6] Joint United Nations Programme on HIV/AIDS. Report on the Global Acquired Immunodeficiency Syndrome Epidemic. Unaid; 2008.
- [7] Centers for Disease Control, Divisions of HIV/AIDS Prevention, 2005, available at: [www.cdc.gov/hiv/stats.htm](http://www.cdc.gov/hiv/stats.htm).
- [8] Mitsch A, Hu X, Harrison KM, Durant T. Trends in HIV/AIDS diagnoses among men who have sex with men—33 states, 2001–2006. *MMWR Morb Mortal Wkly Rep*. 2008; 57 (25): 681-6.
- [9] Wilcox CM, Wanke CA, Bartlett JG, Mitty J. Evaluation of HIV-infected patient with diarrhea. Up to date (base de dados na internet). 2007.
- [10] Hakim GJ, Hakim JG. HIV/AIDS: Update on Epidemiology, Prevention and Treatment including Available South Sudan Literature. 2009.
- [11] Awadalla H, El-Samani F, Soghaier MA, Makki M. Risk Factors Associated with the Development of Tuberculosis Among HIV-Infected Patients in Khartoum in 2010. *AIMS Public Health*. 2015; 2 (4): 784-92.
- [12] Wananukul S, Deekajorndech T, Panchareon C, Thisyakorn U. Mucocutaneous findings in pediatric AIDS related to degree of immunosuppression. *Pediatr Dermatol*. 2003; 20: 289- 94.
- [13] Borkovic SP, Schwartz RA. Kaposi's sarcoma presenting in the homosexual man -- a new and striking phenomenon!. *Ariz Med*. 1981; 38 (12): 902-4.
- [14] Ahmed MI, Mussa A. Ocular Manifestations of HIV in Patients Attending Selected Centers in Khartoum State. *Adv Ophthalmol Vis Syst*. 2016; 4 (3): 00112. DOI: 10.15406/aovs.2016.04.00112.
- [15] Mudawi H, Hussein W, Mukhtar M, Yousif M, Nemer O, Glebe D, Kramvis A. Overt and occult hepatitis B virus infection in adult Sudanese HIV patients. *International Journal of Infectious Diseases*. 2014; 29: 65-70.
- [16] Panya MF, Mgonda YM, Massawe AW. The pattern of mucocutaneous disorders in HIV-infected children attending care and treatment centres in Dar es Salaam, Tanzania. *BMC Public Health*. 2009; 9 (1) 1.
- [17] Lim W, Sadick N, Gupta A, Kaplan M, Pahwa S. Skin diseases in children with HIV infection and their association with degree of immunosuppression. *International journal of dermatology*. 1990; 29 (1): 24-30.
- [18] Leeds IL, Magee MJ, Kurbatova EV, del Rio C, Blumberg HM, Leonard MK, Kraft CS. Site of extrapulmonary tuberculosis is associated with HIV infection. *Clin Infect Dis*. 2012; 55 (1): 75-81.
- [19] Abdallah TM, Ali AA, Karsany MS, Adam I. Epidemiology of dengue infections in Kassala, Eastern Sudan. *Journal of medical virology*. 2012; 84 (3): 500-3.