



Morbidity and Mortality in Patients Living with HIV/AIDS Followed in the General Medicine Department of the CHU BS S of Kati

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Abstract

Original Research Article

Introduction: The objective of this work was to study morbidity and mortality during HIV infection in hospitalized patients. **Methods:** It was a cross-sectional descriptive study with retrospective collection in the general medicine department of the CHU Pr Bocar Sidy Sall of Kati extending from January 1, 2010 to December 31, 2020. **Results:** Of a total of 870 medical records, 101 (11.60%) were hospitalized HIV-positive patients and 769 (88.39%) HIV-positive patients followed as outpatients. The average age was 35.92±8.75 with extremes of 18 and 70 years. The sex ratio was 0.84. The signs were dominated by cough (56.9%), chronic diarrhea (33%) and weight loss (27.7%). 88.3% of patients were on antiretroviral treatment. Neurological opportunists (28.02%), pulmonary opportunists (21.18%), digestive opportunists (41.44%) and cutaneous opportunists (29.73%) were observed. 38.3% of patients were classified as stage III. HIV type I accounted for 89.6% of cases. The viral load was ≥ 100000 in 42.63%. 70.13% were on a first-line regimen. The evolution was favorable in 70.7% and 28.2% of the patients died. **Conclusion:** HIV infection is one of the main causes of hospitalization in the General Medicine department. The clinical expression is polymorphic with multifocal damage.

Keywords: Morbidity mortality living HIV/AIDS patients CHU BSS Kati.

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INTRODUCTION

The human immunodeficiency virus (HIV) remains a major public health problem of global concern, which has so far caused nearly 33 million deaths [1]. However, thanks to better access to effective prevention, diagnosis, treatment and care, also concerning opportunistic infections, HIV infection has become a chronic pathology that can be managed with the insurance live a long and healthy life [2]. Globally, an estimated 38 million people were living with HIV at the end of 2019. As a result of concerted international efforts to respond to the virus, service coverage has steadily expanded. In Africa, according to the World Health Organization (WHO), 37.3 million [31.0 million

– 43.6 million] people were living with HIV in 2018. It remains the most affected region. It also concentrates nearly two-thirds of new infections with this virus occurring in the world. Although Sub-Saharan Africa is home to around 13.4% of the world's population, it remains the most affected area. Indeed, it accounted for approximately 69% of all people living with HIV (PLHIV) and 70% of all deaths related to acquired immunodeficiency syndrome (AIDS) in 2014 [3].

In Mali, during the Mali Demographic and Health Survey (EDSM-V) carried out in Mali in 2012-2013, nearly 4,800 women aged 15-49 and 4,050 men aged 15-59 were tested for HIV. The regions of Kidal,

Timbuktu and Gao, as well as three circles of the Mopti region could not be surveyed following the events that occurred in the country in March 2012. The results show that 1.1% of people aged 15-49 are infected with HIV-1 [4]. Although this rate seems relatively low, the HIV epidemic is of a concentrated type with higher prevalence in certain groups (sex workers: 35.3%, street vendors: 5.9%, truck drivers: 2.5%, coxers and family aids 2% each). In addition, the country brings together all the factors of propagation and potentiation of the epidemic: great poverty, illiteracy, significant migratory flows, tourism, risky sexual behavior, socio-cultural practices (levirate-sororate) [5].

Since the advent of triple antiretroviral therapy (HAART), the quality of life of patients has improved and mortality has fallen sharply. Indeed, in 2018, 62% [47–74%] of all people living with HIV were accessing treatment. And 62% [47–75%] of adults 15 years and older living with HIV accessed treatment, 68% [52–82%] of adult women 15 years and older accessed treatment. However, only 55% [41-68%] of adult men aged 15 and over had access to it %. [6] In Mali, a study carried out in 2012 in the infectious disease department of CHU Point G by YEHIA found a frequency of 68% for HIV with a mortality rate of 42.6% [7].

To this end, we believe it is necessary to periodically determine the dynamics of the evolution of infections and morbid conditions during HIV as well as their attributable mortality. Based on these findings, we have wished to carry out this study at the general medicine department of the Kati University Hospital in order to objectively assess the extent of this problem in terms of prognosis. Thus, we asked ourselves the question of what are the conditions at risk of high

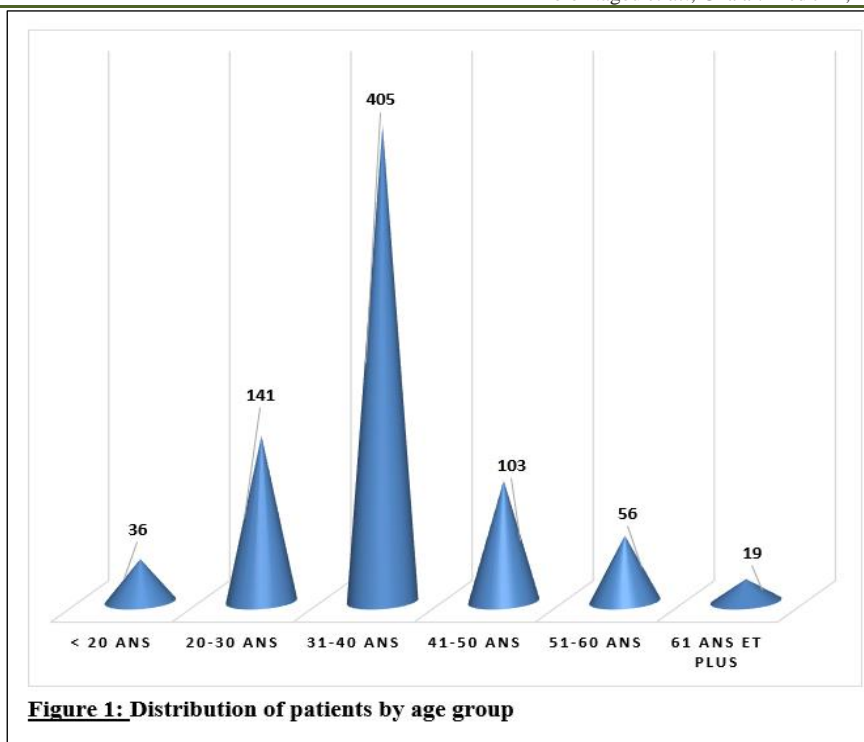
mortality in PLHIV, with the aim of studying morbidity and mortality during HIV infection in hospitalized or outpatient patients in the general medicine department of Kati.

METHODS

This was a cross-sectional descriptive study with retrospective collection in the general medicine department of the CHU Pr Bocar Sidy Sall de Kati which extended from January 1, 2010 to December 31, 2020. It concerned all hospitalized and followed-up patients externally with positive HIV serology whatever the serotype, at least 15 years old. Sampling was exhaustive through all hospitalization records of patients meeting our recruitment criteria. Data were entered and analyzed using SPSS version 26.0 software. Pearson's Chi-2 test was used for comparisons. A threshold for $p < 0.05$ was used as the threshold for positivity.

RESULTS

During our study period, we recorded 10,201 patients in the general medicine department of the CHU Pr Bocar Sidy Sall in Kati, including 870 cases of HIV patients during the period, i.e. 8.53%. Of the 870 records collected, 101 (11.60%) were HIV-positive hospitalized patients and 769 (88.39%) were HIV-positive followed on an outpatient basis. We noted 110 records of unusable HIV-positive patients. In total we used 760 files. During the period we recorded 214 deaths, 48 of which were hospitalized and 166 outpatients. The average age of the patients was 35.92 ± 8.75 years with extremes of 18 and 70 years and the modal class 36-40 represented 27.63% (figure 1).



Our sample consisted of 349 men (46%) against 411 women (56%) with a sex ratio of 0.84. We observed a polymorphism of the reasons for admission in our patients. These signs were dominated by cough (56.9%), chronic diarrhea (33%) and weight loss (27.7%). 88.3% of patients were on antiretroviral (ARV) treatment. Smoking intoxication accounted for 26.31%, alcohol 10.65% and drugs 0.78%. Clinically, pulmonary condensation syndrome was found in 20.9% of cases. The prevalence of neurological conditions was reported in 28.02% (213/760); cerebral toxoplasmosis 13.9%, meningitis 6.3%. As for pulmonary

opportunists, they were reported in 21.18% (161/760). Pulmonary tuberculosis was the predominant respiratory disease in 12.9%, followed by bacterial pneumonia in 5.9%. Skin conditions were found in 29.73% (226/760) consisting mainly of prurigo (15.3%) and genital herpes (10.7%). The prevalence of digestive pathologies was 41.44% (315/760) consisting mainly of digestive opportunists such as diarrhea (17.10%) and oral candidiasis (12.63%). Anemia was normochromic normocytic in 43.7% of our patients. Clinically, the majority of patients were classified as stage III, i.e. 38.3% of patients (table 1).

WHO clinical stage	Effective	Percentage (%)
I	68	8.9
II	275	36.2
III	291	38.3
IV	126	16.6
Total	760	100

Type I HIV was found in 89.6%. The CD4 count was less than or equal to 200 in 32.8% of patients and 42.63% of patients had a viral load greater than or equal to 100,000 copies/mm³. On the therapeutic level, 70.13% were under first-line regimen and 14.71% were naïve to any treatment. The evolution was favorable in 70.7% of the patients and 28.2% died. Death was due to tuberculosis (6.3%) (Table2), pneumocystosis (0.06%),

cerebral toxoplasmosis (5.52%), neuromeningeal cryptococcosis (0.07%). We did not find any relationship between WHO stage and mortality in our study (p=0.422). Mortality according to WHO stages 1,2,3 and 4 was 2.7%, 8.9%, 11.2% and 5.2% respectively. The lower the CD4 count, the higher the mortality (p=0.000). The higher the viral load, the higher the mortality (P=0.001) (Table 3,4 and 5).

Table 2: Distribution of patients according to outcome and pulmonary involvement

Lung damage	Become		Total
	deceased	Living	
Pulmonary TB	48	60	108
Pneumocystosis	5	3	8
None	161	483	644
Total	214	546	760

Table 3: Distribution of patients according to outcome and WHO classification.

WHO Classification	Become		Total
	deceased	Living	
Stage 1	21	47	68
Stage 2	68	207	275
Stage 3	85	206	291
Stage 4	40	86	126
Total	214	546	760

Table 4: Distribution of patients according to outcome and CD4 count.

CD4 count	Become		Total
	deceased	Living	
≤200	162	85	247
201-300	25	53	78
301-400	18	38	56
401-500	5	91	96
≥500	4	279	283
Total	214	546	760

Table 5: Distribution of patients according to outcome and viral load.

Viral load	Become		Total
	deceased	Living	
Not done	26	176	202
< 100000	34	290	324
≥100000	154	80	234
Total	214	546	760

COMMENTS AND DISCUSSIONS

Our sample was dominated by women with a sex ratio of 0.84. The trend towards the feminization of HIV in our series reflects the epidemic at the national level where women are more affected than men [5]. The average age of our patients was 35.92 years \pm 8.75 and the modal class was 36-40 years representing 27.63%.

This confirms that HIV remains a disease of young adults in Mali. This same observation is made by other authors, in his series, Lewden [6] reported a median age of 40 years with an interquartile range between 33 and 48 years. We noted as main functional signs cough (56.9%), chronic diarrhea (33%). Fortes had also found cough as the first reason in hospitalized patients

infected with HIV [8]. Cough (25.1%) and diarrhoea/vomiting (23.4%) were the other main reasons for consultation. This result is comparable to that of Fortes [8].

In our study 26.31% of patients were smokers. Yéni had reported that approximately 50% of HIV-positive patients were smokers [9]. Some authors confirm that smoking in HIV-positive patients is responsible for an increase in comorbidities such as cardiovascular pathologies, respiratory diseases, cancers, impaired quality of life and mortality [8,9]. Alcohol consumption was found in 11.60% of patients. It is known that people who consume alcohol have a greater risk of HIV infection than those who do not [10]. Alcohol is a biological risk factor in HIV patients; its immunosuppressive role generates an increased susceptibility to infections by reducing the inflammatory response and altering the production of certain cytokines [11]. In our series, pulmonary tuberculosis was by far the main cause of hospitalization of patients living with HIV/AIDS concerning 14.2% of patients.

Traore [12] had reported that tuberculosis was the most frequent reason for hospitalization among PLHIV in 25% of patients on ARVs compared to 28.6% of HIV patients not treated with ARVs. In West Africa, Lewden reported that tuberculosis was the most common condition with 29% of cases. TB/HIV co-infection is a well-documented fact worldwide and also in black Africa where its prevalence varies from 16 to 80% [13].

In addition, in our series, the prevalence of candidiasis was 12.63% (96/760), representing the third most common condition in our patients after tuberculosis and toxoplasmosis. This has been reported in other studies, notably in Apsete [14] where candidiasis was the most frequent opportunistic infection (58.8%), and the most represented mycosis, preferentially located in the mouth [15]. It is described in the literature that oral candidiasis is the most frequent form, generally affecting 80% of people living with HIV in resource-limited countries [16].

In our series, cerebral toxoplasmosis was present in 13.9% of patients. The literature reports a prevalence of 4.63%, 2.8%, 3.5% [16,17,18] low of 1.7% [19]. This difference could be explained by the fact that in developed countries HIV testing is done early, unlike ours. Cerebral toxoplasmosis generally occurs in subjects with less than $100/\text{mm}^3$ CD4 lymphocytes, whose toxoplasma serology is positive and not receiving specific prophylaxis. CT is still a frequent method of revealing HIV infection. In our series, the notion of primary prophylaxis was not often mentioned in the files. Also, most of our patients were hospitalized at a stage of severe immunosuppression with an average CD4 count of 116.7 cells. Moreover,

this diagnosis was made at the abscess stage, confirming the delay in diagnosis and treatment.

In our series, diarrhea-type digestive opportunists accounted for 17.1%. Indeed, this prevalence could be higher if research were systematic and if the technical platform were better equipped. Among isolated parasitic opportunistic infections, *Cryptosporidium spp* with nine cases was the most frequent, followed by *Isospora belli* with four cases. The same observation had been made by Konaté who found that the causes of parasitic diarrhea were dominated by *Cryptosporidium parvum* and *Isospora belli* [20].

The majority of patients 38.3% were classified as WHO stage III. In 32.8% of cases, our patients had a CD4 count less than or equal to 200 and 30.78% a viral load greater than or equal to 100,000 copies/ mm^3 . This result further demonstrates a delay in the diagnosis and management of HIV infection in modern medical settings. Having considered the reasons for this late recourse to conventional medicine, Traoré reports that 19% of patients had first resorted to self-medication as a means of treating their disease. In Dakar, traditional therapists were consulted first by 68% of PLHIV. In addition to the use of self-medication, other factors have been associated, such as denial of seropositivity or even HIV disease (29%), with the delay in treatment responsible for the severity [6,12].

Regarding overall mortality, it was 28.2% in our series. In a study conducted in the CHU Point G infectious disease department, Traoré had found a higher mortality rate with 43.18% in patients infected with HIV in hospitalization. On the other hand, Fortes in Senegal had reported 44% during AIDS in hospitalized patients. This difference could be explained by the difference in the sizes of the sample and also the location of the study (departments specializing in infectious disease). In our sample, the mortality rate varied according to the different attacks. Death related to toxoplasmosis was 5.2% in our series. This damage to the nervous system is often very serious and testifies to profound immunosuppression, hence the high mortality rate. Tuberculosis-related mortality in our study was 6.3%. This prevalence could be explained by a precarious life associated with chronic immunosuppression. Mortality related to digestive opportunistic infections was the first of the deaths in 12.14% of cases. Traoré found cerebral toxoplasmosis in first place with 3% [8,12].

CONCLUSION

HIV infection is one of the main causes of hospitalization of patients in the general medicine department of the CHU BSS of Kati. There is a clinical polymorphism with multifocal damage during this condition. The majority of patients were admitted with advanced stages of immunosuppression. Overall

mortality during HIV remains high with 11.72% in our service.

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