

## Profile of People Living with HIV in Intensive Medical Care in Togo: Epidemiological and Evolutionary Aspects

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### Abstract

**Aim:** To describe both the epidemiology and prognosis of people living with HIV (PLHIV) hospitalized in intensive care.

**Methodology:** It is a prospective cross-sectional study conducted at the CHU Sylvanus Olympio, Lomé over a period of 12 months on known HIV infected patients or patients newly diagnosed on admission, from both sexes, aged over 15 years, hospitalized during the period between January 1st and December 31st, 2011. We studied the socio-demographic parameters, the reason for hospitalization, the infections and affections found and their evolution.

**Results:** During our study period 124 patients (46 men and 78 women) were selected out of 1130, i.e. a rate of 10.9%, with a sex ratio of 0.6. The average age of our patients was 41 ± 15.5 years, ranging from 20 years to 69 years. On admission, 41% (51 patients) were aware of their HIV-positive status, with 30% on antiretroviral treatment. The reasons for admission were dominated by altered consciousness, repetitive seizures, severe dehydration, severe anemia with impaired general condition and paroxysmal dyspneas with respective rates of 48.4%, 22, 6%, 12% 32% and 4.3%. The clinical manifestations were dominated by hemiparesis (56.7%), fever (53%) and coma (48.4%). Biologically, 83.6% had a CD4 rate below 200 elements per mm<sup>3</sup>. Anemia was severe in 32 % out of the 87% of cases of anemia. This anemia is associated with lymphopenia or neutropenia or thrombocytopenia in respectively 63.3%, 57.1% and 20% of cases. Creatinine and blood urea were elevated in 20% of cases. Infections and diseases found were dominated by cerebral abscesses (40%), severe anemia (32%), gastroenteritis (12%) and meningitis (11.2%). Brain abscess was represented by toxoplasmosis in 90% of cases. Meningitis was bacterial in 5 cases (pneumococcus), fungal (Cryptococcus) in 3 cases. Overall mortality was 43% with a higher lethality for meningitis and severe anemia.

**Conclusion:** The proportion of patients with HIV infection is high in medical intensive care unit in Togo. The admission patterns are dominated by neurological diseases including coma. Infections and/or affections are found but dominated by various cerebral abscesses (toxoplasmosis). Mortality in patients with HIV infection in intensive care is high and seems to be improved by proper management of toxoplasmosis abscesses.

**Keywords:** Intensive Care; HIV; Cerebral toxoplasmosis; Togo

### Introduction

The Acquired Immunodeficiency Syndrome (AIDS) is an infection caused by the human immunodeficiency virus (HIV) which is currently a global pandemic. In Sub-Saharan Africa, HIV infection is a public health issue due to its frequency. In fact 60% of infected people live in Africa [1].

In 2009, Togo HIV prevalence was estimated at 3.2% [2]. At the beginning of the pandemic some opportunistic infections were part of a therapeutic emergency regarding how to take them in care. Certainly, with the popularization of the management of HIV infection with antiretroviral therapy (1997) and the implementation of the policy of free health care (2010), the incidence of opportunistic infections (OI) previously described as emergencies is declining. However, despite the early start of antiretroviral therapy (Casablanca 2010 CD4 >= 350

cells/mm<sup>3</sup>), and all these devoted efforts to allow all the people living with HIV (PLHIV) to benefit from free care, nearly 25% of patients who should benefit from the treatment, do not at present in our context. Thus, the objective of this work is to determine firstly the epidemiological aspects and also the evolution of HIV-infected patients admitted to the ICU in 2011.

### Methodology

It is a prospective cross-sectional study carried out in the medical ICU of the CHU Sylvanus Olympio (CHUSO), Lomé over a period of 12 months, including the already known patients infected with HIV (PLHIV) or newly diagnosed ones on admission, of both sexes, aged over 15 years hospitalized during the period from 1 January to 31 December 2011. The patients involved were followed and benefited from additional examinations and treatment based on clinical and etiological orientation.

We studied the socio-demographic parameters (age, sex, marital status), the reason for hospitalization, clinical and biological manifestations, infections and diseases found and their evolution. Data collection was done from a survey sheet and then processed and analyzed by the software Epi - Info 6.04.

## Results

### On the epidemiological plan

During our study period 124 patients (46 men and 78 women) were selected out of 1130 i.e. a frequency of 10.9%, with a sex ratio of 0.6. The average age of our patients was  $41 \pm 15.5$  years, ranging from 20 to 69 years; 70.9% were married.

Among our patients, 41% (51 patients) were aware of their HIV-positive status, with 30% on antiretroviral treatment.

The reasons for admission were represented by altered consciousness, repetitive seizures, dehydration, decompensated anemia, poor general condition and paroxysmal dyspneas with respective rates of 48.4%, 22.6%, 12%, 32% and 4.3%. These reasons were sometimes inter related.

Clinically, the manifestations are shown in Table 1.

Clinical signs	Number	%
Hemicorporeal deficit	71	56.7
Fever	66	53
Coma	61	48.4
Alteration condition	57	43.5
Oropharyngeal candidiasis	45	36
Prurigo	44	35.5
Zona	18	14.5
Joint dehydration	15	12
Tumor lesions*	3	2.4

**Table 1:** Distribution of clinical signs among PLWHA in intensive care. Sarcoma superinfected, nasopharyngeal tumor.

Biologically, the CD4 rate was  $<200$  elements per  $\text{mm}^3$  with 83.6% of our patients, anemia was found with 87.8% of our patients with 32% severe in severe conditions (hemoglobin rate  $<6$  g/dl). It was hypochromic microcytic regenerative with 25.8%, normocytic hypoplastic with 22% and regenerative normocytic with 30%. This anemia was associated with lymphopenia in 63.3% of cases, neutropenia in 57.1% of cases and thrombocytopenia in 20% of cases. There was no pancytopenia. Creatinine and blood urea were high in 20% of cases.

Infections and affections found, are represented in Table 2.

Infection/affection	Number	%
Brain abscess	50	40
Severe anemia	40	32

Diarrhea/vomiting	15	12
Meningitis	14	11.2
Stroke	5	4
Pneumonia	4	3.2
Kaposi's Disease	2	1.6
Cancer of the nasopharynx	1	0.8

**Table 2:** Infections and diseases found among PLWHA in ICU.=Hemoglobin rate  $<6$  g/dl; Stroke=stroke.

Brain abscess were represented by toxoplasmosis in 90% of cases and were discovered as a result of altered consciousness focused deficit associated or not with seizures.

Stroke provoked bleeding in 3 cases (2.5%) and ischemic in 2 cases. They were discovered as a result of altered consciousness with or without seizures. Meningitis was bacterial in 5 cases (pneumococcus), fungal (Cryptococcus) in 3 cases, in the remaining cases the germ has not been singled out.

### Evolutionary aspects

Overall mortality was 43%.

Lethality related to infections and affections conditions are shown in Table 3.

	Number	Lethality %
Brain abscess	12	24%
Severe anemia	18	45%
Diarrhea/vomiting	7	46%
Meningitis	8	57%
Stroke	2	40%
Pneumonia	3	75%
Kaposi's disease	2	100%
Cancer of the nasopharynx	1	100%

**Table 3:** Lethality related to found infections affections conditions.

## Discussion

The modesty of the technical platform in our work environment did not allow us in some situations to confirm the diagnosis, but in those cases the clinical aspects prevailed and they were associated with additional tests allowing to further refine the diagnosis.

Out of the 1,130 admissions in the ICU, 124 patients were HIV-positive i.e. a frequency of 10.9% in ICU. This frequency is close to hospital frequencies in Togo [3] but higher compared to the prevalence in the general population which is (3.2%) [2]. Which, on the other hand would be normal because HIV-AIDS symptomatic stage is a frequent reason for consultation in reference centers.

Very few studies have been devoted to the morbidity and mortality of HIV/AIDS infection in intensive care unit in Togo, but in the

Northern countries that morbidity and mortality in intensive care has been decreased since the advent of antiretroviral [4,5].

Our series consists mainly of women with a sex ratio of 0.6 this could be explained by a high prevalence of women among PLWHA in Togo as in other African countries [6,7].

The reasons for admission are dominated in over 50% of cases by neurological manifestations. Coma was found in almost half of neurological manifestations. However in the series of MORQUIN [8] in France and Gorges in the US [9] secondary respiratory failure resulting from infectious pneumonitis was first. Neurological manifestations are secondary. The high frequency of neurological admission reasons in our study could be explained by the high incidence of opportunistic infections and affections with neurological events such as toxoplasmosis, meningitis, meningoencephalitis with cryptococcosis.

The profound immunosuppression of patients on admission justifies the persistence of those affections and infections with neurological manifestation (CD4 <200 elements per mm<sup>3</sup> with 83.6% of our patients). These neurological infections affections conditions often lead to coma, so requiring a taking-in-care in intensive care department. They are followed by the deterioration of general condition, decompensated anemia and dehydration. That latter resulted from digestive disorders namely vomiting and diarrhea associated with oral pharyngeal candidiasis very frequent in immunosuppression syndrome as reported by many authors [3,10,11].

Beside anemia we noted a leukopenia in 57.1% and lymphopenia in 63.3%. Those immune disorders explain the high frequency of tumor infections and affections such as Kaposi's disease and that is shared by several other authors [12,13].

In our series more than 80% of our patients had a CD4 rate below 200 elements per mm<sup>3</sup>. Indeed, the low rate of CD4 partly explains the severity of cases admitted in ICU. The same observation is made by Chakib in Morocco [14] and Assogba [15] Togo.

Hematological disorders are represented mostly by anemia observed in 87.8% of patients, with 32% of severe cases (hemoglobin below 6 g/dl). This anemia was microcytic, hypochromic aregenerative in 25.8%; normocytic aregenerative in 22% and normocytic regenerative in 30%. It would be a multifactorial etiologies anemia (iron deficiency, inflammatory, hemolytic) a thorough investigation would have allowed us to better document etiologies.

Regarding found infections and affections conditions, infections, namely brain abscess (especially cerebral toxoplasmosis) are more frequent in these PLWHA hospitalized in intensive care. These infections occur in cases of profound immunosuppression and more than 80% of our patients had a CD4 rate below 200 elements per mm<sup>3</sup>. That explains the importance of these infections as stressed by several writers in African literature [5,13-15]. Indeed with patients presenting neurologic disorders, namely impaired consciousness, seizures, sensorial motor deficits, brain abscess was diagnosed before the Scanner images and toxoplasmosis has been mentioned with the presence of Toxoplasma antibodies and a raise in their rates through the respective controls, this combined with the efficiency of the test process made of strong cotrimoxazole or combination of pyrimethamine and sulfadiazine with folic acid. Thus, for lack of technical facilities, all these abscesses are treated as cerebral toxoplasmosis. Other causes of cerebral abscesses are only mentioned

just in case of failure of the test treatment namely ordinary germ abscesses, fungal and tuberculoma.

In addition to brain abscesses, other infections with neuromeningitis damage are not particularly rare, namely meningitis, which represented 11.2%. They are due to pneumococcus in 4% of cases (5 cases) and in 2.4% of cryptococcal cases (3 cases), the latter occurring mainly at the stage of severe immunosuppression.

Other studies in Mali [16], Burkina Faso [17], and Senegal [18] found higher frequencies of cryptococcal meningitis. Indeed in our work we sought only the Cryptococcus through staining with Chinese ink, the culture and search for the soluble antigen in CSF are not carried out. All these meningitis are represented in an chart of febrile coma.

Overall mortality was higher (43%) than those reported by Gorges in the US 15% [9] and MORQUIN in France 37%. [8] That could be explained by the fact that despite free treatment in Togo since 2009, only 30% of patients are on antiretroviral treatment associated cotrimoxazole prophylaxis.

The therapeutic interruption has been observed with more than half of these patients. Besides those contributing factors, insufficient of the technical platform, the multiple interrelated defects responsible for poly visceral failures could explain this high rate in our series.

Also before the advent of multi ART mortality rate was also high, potentially reaching up to 80% in intensive care in France [8]. This trend is becoming more and more controversial these days with the early start with antiretroviral treatment. This finding partly justifies the reducing of patient transfer in ICU. But the non adherence to antiretroviral therapy, the difficulty to take in charge all infected patients are as many factors explaining the high mortality in intensive care for PLWHA in the era of the availability of multi antiretroviral therapies.

The decompensated anemia accounted for a high fatality rate (14.5%), the difficulty of acquiring blood urgently in our context could be a proof, knowing that anemia often occurs in a poly pathological context. In our series it was frequently associated with infectious disorders of the central nervous system and this further compromised the vital prognosis.

## Conclusion

The proportion of patients with HIV infection is high in medical intensive care unit in Togo. The admission patterns are dominated by neurological diseases namely comas. Infections and/or affections found are diverse but dominated by cerebral abscesses (toxoplasmosis). Mortality with patients with HIV infection in intensive care is high and seems to be improved by proper taking-in-care of toxoplasmosis abscesses.

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