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Progressive Characteristics of HIV Infection in the Elderly in the Cohort of the Internal Medicine Department of the Points G University Hospital, Bamako, Mali

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Abstract

Few data are available on HIV infection in the elderly and they are an important population in our different cohorts in view of the improvement in the quality of care over the last ten years. **Objective:** to determine the clinical and immunovirological characteristics as well as the acceptance of antiretroviral drugs in this patient population. This is a cohort study of the files of PLHIV (People living with HIV) aged 50 years or more, followed in the Internal Medicine Department of the Point G University Hospital between January 2007 and December 2012. **Results:** Out of 161 HIV-infected patients in the cohort, 38 were aged 50 years or older, of whom 11 met the criteria and were included. The median age was 55 years, 90.9% of whom were in the [50 - 59 years] age group, with 63.6% being women (sex ratio = 0.57). At admission, 3 patients (27.3%) had prurigo and 2 (18.2%) had oral-pharyngeal candidiasis. At inclusion, 45.5% of patients were classified as WHO stage 2 and one as WHO stage 4. All were on ARVs, including 10 on 1st line HIV-1 and 1 on HIV-2. On triple therapy, the average weight gain was 5.1 kg at D15 and 6.84 kg at M6. However, at M12 there was a weight loss of 1.04 kg. The mean CD4 T cell gain was +102/mm^3 at M6 and +188/mm^3 at 12 months. At D0, mean viral load = 565024.75 copies/mm^3 [99 - 1100000] in 4/11. At M12, two patients had undetectable viral loads. **Conclusion:** The prevalence of HIV in elderly subjects is certainly underestimated. Thanks to triple antiretroviral

therapy, PLHIV are aging with HIV but screening is not systematically proposed during consultations in elderly subjects. It is necessary to reinforce communication about HIV at all ages.

Keywords

HIV, Elderly, Clinical, Immunovirology

1. Introduction

Sub-Saharan Africa is the youngest known region in the world. In 1995, the median age was estimated at 17.4 years, the proportion of people under 15 years of age was 44.9%, and those aged 60 years or more represented only 4.7%. The share of the latter has remained virtually unchanged over the past 35 years [1].

The HIV epidemic remains a global public health problem. The number of people living with HIV (PLHIV) worldwide continued to increase in 2008 to an estimated 33.4 million (an increase of more than 20% over the 2000 figure). This continued increase in the PLHIV population reflects the combined effects of the continued high rate of new HIV infections and the positive impact of antiretroviral therapy [2]. From this point of view, we are increasingly witnessing a chronicisation of HIV. Paradoxically, at the same time, there is a lack of data on the prevalence and incidence of HIV in older people worldwide.

In many African countries, the transition from young to aging populations is occurring very rapidly. For most of these countries, the risk of the emergence of another facet of HIV corresponds to the difficulty of social, family, financial and medical care of this aging population. However, these positive points are also accompanied by unprecedented health challenges for the 21st century, including the management of HIV in the elderly [3].

Indeed, in the last five years, only 13 out of 30 surveys have included older men and older women [4]. In addition, the few available data reveal a surprisingly high prevalence and incidence of HIV in people aged 50 years and older ("elderly subjects") [5] [6].

In view of the aging of our cohort, it was necessary to take stock of the clinical and virological characteristics as well as the tolerance to ARV molecules associated specifically to this population.

2. Methodology

We conducted an epidemiological cohort study by including the retrospective records of all HIV-infected patients of age higher than or equal to 50 years, followed in the Internal Medicine Department of the Point G University Hospital, in Bamako, Mali. Sampling was exhaustive of all cases followed between January 2007 and December 2012 with a hospitalization file whose variables retained for the study would be complete. After a collection and content analysis of the files, the study variables related to each patient were transcribed on the pre-established

questionnaire and then entered and analysed using the Epi info 3.5.3 software. The variables studied were related to sociodemographic data (age, sex, occupation), clinical data (clinical signs on admission, WHO classification of AIDS), biological data (haemoglobin, creatinine, lymphocyte count, viral load), and the evolution under treatment. Creatine clearance was assessed according to the Cockcroft and Gault formula.

For data collection, a study protocol and an individual data collection sheet were developed and then validated secondarily by the scientific manager of the department. The collection sheet was initially tested and then entrusted to a doctoral student in medicine under the supervision of the assistants.

The Chi2 test was used for comparison of categorical variables. The expected threshold of significance was set at $p < 0.05$. The Kruskal-Wallis test was used for the comparison of the distribution of means and the median test for the comparison of medians. The Kruskal-Wallis test was used to compare the distribution of means without any statistically significant difference ($p = 0.666$); the median test was used to compare medians without any statistically significant difference ($p = 0.754$).

3. Results

During the study period, 161 HIV-infected patients constituted the cohort of the Internal Medicine Department, among whom 38 elderly subjects, 11 of whom met the criteria for participation in the study.

Elderly subjects represented 24% of the department's cohort, of whom 29% had an analysable file (11 patients).

- **Study's limits**

They focused on the shortcomings of all retrospective studies. The incompleteness of clinical and especially biological information (hematological, immunological and virological) does not allow the taking into account of all files of elderly HIV patients. Consequently, the small sample obtained did not allow a detailed analysis of the data. It should be noted that our work, however, provides interesting information that will serve as a basis for future prospective work, but also to alert geriatric services to the difficulties of monitoring elderly PLHIV patients.

- ***Sociodemographic data***

Our sample was 63.6% female and 36.4% male (sex ratio = 0.57). The median age was 55 years with 90.9% belonging to the class [50 - 59 years]. Housewives (unemployed) represented 45.5% of the cases, followed by civil servants with 27.3%. (Table 1).

- **Clinical aspects of HIV in the elderly**

A total of 3 patients (27.3%) had pruriginous dermatosis of the prurigo type; 2 subjects (18.2%) had oral-pharyngeal candidiasis. We noted a chronic cough, a generalized lymphadenopathy with one patient affected in each case.

At inclusion, 45.5% of the patients were classified as stage 2 and one patient had severe esophageal candidiasis, thus WHO stage 4 (Table 2).

Table 1. Socio-demographic data of patients.

Socio-demographic characteristics		Number	Percentage
Sexe	Male	4	36.4
	Female	7	63.6
Age	50 - 59 years	10	90.9
	60 - 69 years	1	9.1
Profession	Housewife	5	45.5
	State employee	3	27.3
	Trader	2	18.2
	Employee	1	9.1

Table 2. Clinical parameters of HIV in the elderly.

Clinical parameters	Number	Percentage
Weight loss > 10	5	45.5
Chronic cough	1	9.1
Pruritic dermatosis	3	27.3
Pruritic candidiasis	2	18.2
Generalized lymphadenopathy	1	9.1
WHO Classification		
Stage 1	3	27.3
Stage 2	5	45.5
Stage 3	2	18.2
Stage 4	1	9.1

- **ARV treatment and evolution of parameters**

Immunocompromised patients with HIV1 (10 cases) were treated with the first line regimen (two nucleoside reverse transcriptase inhibitors and one non-nucleoside reverse transcriptase inhibitor), and the only HIV-2 case was treated with a regimen combining two nucleoside reverse transcriptase inhibitors and a protease inhibitor.

- **Evolution of weight on antiretroviral therapy:**

At initiation of triple antiretroviral therapy, the average weight was 52.3 ± 13.34 kg with extremes at 42 kg and 90 kg and a median at 51 kg. At D15 the average weight was 54.04 ± 8.02 kg with extremes of 42 kg and 65.5 kg and a median of 53 kg; the average weight gain was 5.1 kg. At M6 the mean weight was 59.14 ± 13.23 kg with extremes of 44 and 90 kg and a median of 54 kg; the average weight gain was 6.84 kg. At M12 the average weight was 58.1 ± 8.09 kg with extremes of 47 and 74 kg and a median: 55.5 kg; at M12 there was a weight loss of 1.04 kg compared to the previous average weight (Table 3).

- **Dynamics of CD4 T cell evolution under antiretroviral treatment**

At D_0 (Day-0), 7 out of 11 patients or 63.6% of cases had a CD4 T cell count

below 200 cells/mm^3 (mean CD4 = 192.73 ± 110.51 cells/mm^3 [3 - 378 cell/mm^3, median = 152 cell/mm^3] (Table 4).

At M_6 (Mouth-6), only one patient out of 6 with an available CD4 count had a count below 200 cells/mm^3 mean CD4 = at 294.5 ± 170.66 cells/mm^3 with extremes at 1 and 523 cells/mm^3 a median at 316.5 cells/mm^3 (Table 4).

At M_{12}, 8 of 11 patients had available CD4 cell counts; mean CD4 cell count at 481.75 ± 135.81 cells/mm^3 [301 - 641 cells/mm^3 and median = 480.5 cells/mm^3] (Table 4).

The mean CD4 T-cell gain was +102/mm^3 at M6 and +188/mm^3 at 12 months.

- **Evolution of viral load under antiretroviral treatment**

At D_0, only 4 patients out of 11 were able to benefit viral load measure (36.36%); mean viral load at 565024.75 copies/mm^3 with extreme values at 99 and 1100000 copies/mm^3 and a median at 550000 copies/mm^3.

At M_6, only one patient was able dto benefit a viral load measure.

At M_{12}, two patients had a viral load measure and that is undetectable (Figure 1).

Table 3. Weight change on triple antiretroviral therapy.

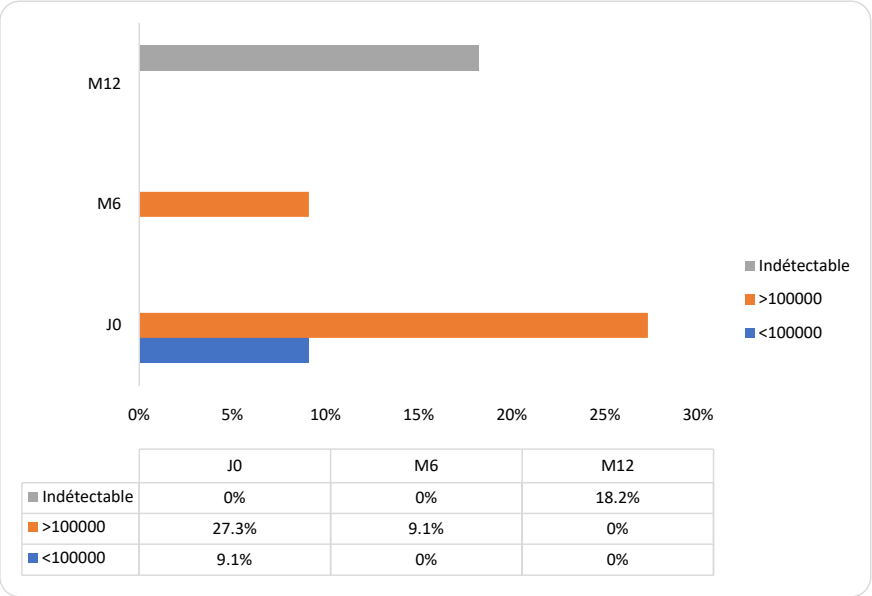
Weight (Kg)	J0	J15	M6	M12
<45	18.20%	18.20%	18.20%	0
45 - 54	45.50%	36.40%	36.40%	27.30%
55 - 65	27.30%	36.40%	27.30%	45.50%
>65	9.10%	9.10%	18.20%	18.20

J0: first day of admission, J15: fiftheen days after the start of ART treatment (HAART). M6: six month after the start of ART treatment (HAART). M12: Twelve months after the start of ART treatment.

Table 4. Evolution of biological parameters under antiretroviral treatment.

Biological parameters		J0	M6	M12
Lymphocyte rate TCD4	<200	7 (63.6%)	1 (9.1%)	0 (0)
	200 - 349	3 (27.3%)	3 (27.3%)	2 (18.2%)
	350 - 499	1 (9.1%)	1 (9.1%)	3 (27.3%)
	≥500	0 (0)	1 (9.1%)	3 (27.3%)
	Non informé	0 (0)	5 (45.5%)	3 (27.3%)
Creatinine clearance in ml/min	>60	6 (54.5%)	3 (27.3%)	7 (63.6%)
	<60	5 (45.5%)	1 (9.1%)	1 (9.1%)
	Non informé	0 (0)	7 (63.6%)	3 (27.3%)
Hemoglobin rate	Normal	4 (36.4%)	2 (18.2%)	6 (54.5%)
	Anemia	7 (63.6%)	2 (18.2%)	2 (18.2%)
	Non informé	0 (0)	7 (63.6%)	3 (27.3%)

J0: first day of admission. M6: six month after the start of ART treatment (HAART). M12: twelve months after the start of ART treatment (HAART).



	J0	M6	M12
Indétectable	0%	0%	18.2%
>100000	27.3%	9.1%	0%
<100000	9.1%	0%	0%

Figure 1. VIRAL LOAD (copies). Jo: first day of admission. M6: six month after the start of ART treatment (HAART). M12: 1 year after the start of ART treatmet (HAART).

4. Discuss

The incompleteness of the patient records and the retrospective nature of the study did not allow us to take into account all HIV-infected patients aged 50 years or older. Thus, of the 161 patients included and followed up in the Internal Medicine Department during the study period, 38 subjects were 50 years of age or older (prevalence = 23.6%) and only eleven (11) had sufficiently complete records retained in the departments and others transferred from other organ specialty departments. In Cameroon, in Bafoussam, subjects aged 50 years and over represented 14.1% of the HIV positive patients in their cohort [7]. Like other authors [8], our study confirms an underestimation of the prevalence of HIV in the elderly. Moreover, this age group is not taken into account in HIV prevalence studies, although it has been established that elderly men and women are sexually active and do not use condoms because they are unaware of HIV infection [9] [10]. This proportion of elderly patients is increasing due, as mentioned, to the combined effect of a decrease in mortality as a result of hight and active antiretrovrat treatment (HAART) and effective triple therapy and the ageing of the population of patients treated. We observed a female predominance (63.6%) and a sex ratio F/H = 1.75 in our series. The feminization trend of HIV in our cohort is a characteristic reflection of the population of PLHIV in our context where women are more affected than men [11].

Clinically, the majority (72.8%) of our patients were symptomatic at inclusion, with only one (9.1%) at WHO stage 4. The diagnosis of HIV infection is most often made late in elderly patients. If HIV infection is sufficiently evoked and investigated in young adults, the situation is even worse in the elderly, who are often considered to be at low risk or for consideration of their age. Indeed at the

social level in our culture the proposal of HIV testing in the absence of obvious clinical signs could be considered as a lack of respect.

However, in Switzerland 71% of men and 51% of women over 60 years of age reported that they were still having regular sexual intercourse [12]. Major *et al.* reported that older people are less well informed about the risks of HIV transmission and less likely to take up prevention messages, which are not targeted at them [12]. Also, older people do not consider themselves to be at risk also for other cultural considerations condom use is lower.

In the course of this work, we noted a favourable response to antiretroviral treatment. Indeed, the average CD4 gain was 188 cells/mm^3 after 12 months on ARV (**Table 4**). In Abidjan, the mean annual CD4 gain was +51 CD4/mm^3/year in elderly HIV-infected individuals [8]. Other authors have reported lower rates of annual CD4 gain in elderly subjects compared to young subjects [13].

The difficulty of monitoring PLHIV is generally in countries with limited resources is linked to the constant availability of immunological tests, viral load measurements and other hematological and biochemical tests. The frequent breakages of reagents do not facilitate the task as is the case in our work context where free care is the rule. Reagent shortages and untimely equipment failures did not allow for viral load testing of all patients at initiation of treatment and every six to 12 months for optimal follow-up. Indeed, at initiation, 36.4% had a viral load with an average of 565025 copies/mm^3 [99 - 1100000 copies/mm^3]. At M6, the only patient with a viral load had more than 100000 copies/mm^3 due to discontinued treatment. At M12, the two patients with available viral load were below the limit of detectability [Graphi 1]. Clinical and immunovirological improvement was confirmed by the weight gain, regression of the anemia frequency and disturbances of renal function of our patients.

5. Conclusion

The prevalence of HIV in the elderly is certainly underestimated. Their management is also delayed because of diagnostic erraticity. It deserves to be more structured in geriatric services such as internal medicine in our context. The attention of practitioners should be drawn to the proposal of HIV screening and the need for early management of HIV in this category of population. Elsewhere, it is necessary to reinforce communication while avoiding the age criterion.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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