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## RESEARCH ARTICLE

### PREVALENCE OF HIV INFECTION IN CHILDREN IN 2017 AND 2019 AT THE GENERAL REFERENCE HOSPITAL OF KINKONDJA IN THE DEMOCRATIC REPUBLIC OF CONGO

Fiston Ilunga Mbayo<sup>1,2</sup>, Yannick Bienge Nsenga<sup>1,2</sup>, Gloire Kasongo Lupitshi<sup>1,2</sup>, Kennedy Twite Nyemba<sup>1,2</sup>, Gaetan Kabongo Muzinga<sup>1,2</sup>, Mukeya wa Mpanga<sup>2</sup>, Tamilarassan King<sup>3</sup>, Boaz Bakamwimba<sup>4</sup> and Igor Mujinga Wa Mujinga<sup>4</sup>

<sup>1</sup>Malemba General Reference Hospital, Malemba, Democratic Republic of Congo

<sup>2</sup>University of Malemba Nkulu, Malemba, Democratic Republic of Congo

<sup>3</sup>Mining Company MMR Malemba, Malemba, Democratic Republic of Congo

<sup>4</sup>University of Lubumbashi, Lubumbashi, Democratic Republic of Congo

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#### ABSTRACT

**Introduction:** The human immunodeficiency virus infection pandemic remains extremely dynamic; it increases and changes in time and space as new transmissions occur. No country in the world is immune to infection. If science, despite its countless progress, has not yet succeeded in eradicating infection in children, the disease continues to decimate our children and its damage is incalculable.

**Material and method:** Our study is descriptive cross-sectional on the frequency of HIV in children aged 0-15 years. Our study took place over a period from January 2017 to December 2019. **Results:** Out of 2231 patients who consulted KINKONDJA hospital from January 2017 to December 2019, 29 children were infected with HIV, i.e. a proportion of 1.3%. Only 25 files met the inclusion criteria and were analyzed. In our study, the male sex was predominant with 60% against 40% of the female sex, ie a sex ratio of 1.5. The most represented age group in our series was that of 0 to 5 years old with 40% followed by that of 11 to 15 years old with 36% with an average age of 8 ( $\pm 4.9$ ) years. Reason consultation The majority of patients reside in the Kipamba district, i.e. 28%. **Conclusion:** The prevalence of HIV infection during the period of our study was 1.3%. The most affected age group is that of 0 - 5 years with a proportion of 40%. The mean age was 8 ( $\pm 4.9$ ) years. Most of our patients reside in the Kipamba district.

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#### INTRODUCTION

The human immunodeficiency virus (HIV) infection pandemic is far from being controlled, despite major global interventions. It remains extremely dynamic, it increases and changes in time and space as new transmissions occur. No country in the world is immune to infection. If science, despite its countless progress, has not yet succeeded in eradicating infection in children, the disease continues to decimate our children and its damage is incalculable. Beyond the efforts that the scientific world spares to overcome the problems posed by HIV, the persistence of the pathology implies the continual search for possible solutions to overcome this pandemic.

\*Corresponding author: Fiston Ilunga Mbayo<sup>1,2</sup>,

<sup>1</sup>Malemba General Reference Hospital, Malemba, Democratic Republic of Congo.

<sup>2</sup>University of Malemba Nkulu, Malemba, Democratic Republic of Congo.

It is with this in mind that our research is part of contributing somewhat to this scientific outbreak by making available an additional research tool within the scope of research.

##### Goals

**Overall objective:** The general objective of this study is to determine the frequency of HIV infection in children with HGR Kinkondja.

**Specific objective:** Describe the clinical stages of patients on admission. Describe the epidemiological and clinical profile of children infected with HIV. Assessing the therapeutic profile of the waning treatment Anti-Retroviral (evolution ARV).

#### MATERIALS AND METHODS

**Study type:** Our study is descriptive cross-sectional on the frequency of HIV in children aged 0-15 years.

**Study period:** Our study took place over a period from January 2017 to December 2019.

**Sampling and recruitment of patients:** Census of all infected children at Kinkondja general hospital during the period of our study. For the recruitment of patients, we used the consultation sheets for each patient. The total size of our sample is 25.

**Selection of patients:** The selection of patients was based on the following inclusion and exclusion criteria:

#### Inclusion criteria

**Age:** At most 15 years old, Documented HIV infection. Patients with a complete medical record.

**Exclusion criteria:** Age over 15 years old. Patients who consulted for ailments other than HIV. Patients with incomplete medical records.

**Collection of data:** The data was collected using socio-demographic and clinical data collected on an individual survey form, register, individual PLWHA file, patient cohort register

#### RESULTS

Out of 2231 patients who consulted KINKONDJA hospital from January 2017 to December 2019, 29 children were infected with HIV, i.e. a proportion of 1.3%. Only 25 files met the inclusion criteria and were analyzed.

**Table I. Distribution of infected children by sex**

Sex	Effective	Percent (%)
Feminine	10	40%
Male	15	60%
Total	25	100

In our study, the male sex was predominant with 60% against 40% of the female sex, ie a sex ratio of 1.5.

**Table II. Distribution of children by age group**

age range	Workforce	Percent (%)
0 - 5 years	10	40%
6 - 10 years	6	24%
11 - 15 years	9	36%
Total	25	100

The age group most represented in our series was that of 0 to 5 years old with 40% followed by that of 11 to 15 years old with 36% with an average age of 8 ( $\pm 4.9$ ) years Reason for consultation

**Table III : Distribution of patients by residence**

District	Effective	Percentage
KATONGO	3	12%
KALENGE	1	4%
KABAYA	1	4%
KIBAMBA	6	24%
KIDIMA	1	4%
MALONGO	3	12%
KIPAMBA	7	28
OTHER	3	12%
Total	25	100%

Table III shows that the majority of patients reside in the Kipamba district, i.e. 28%

**Table IV: Breakdown of children according to the reason for consultation**

Reason for consultation	Effective	Percentage
No	0	0%
Convulsion	3	12%
Respiratory infection	11	44%
Gastroenteritis	8	32%
Other	3	12%
Total	25	100.00%

The reason for consultation was predominantly respiratory infections at 44% followed by gastroenteritis at 32%.

**Table V: Distribution of patients according to clinical stage**

Clinical stage	Effective	Percentage
Stage 1	0	0%
Stage 2	2	8%
Stage 3	5	20%
Stage 4	18	72%
Total	25	100.0%

It emerges from Table VII that 18 patients were at stage 4, ie 72%, whereas stage 1 is not represented in the series.

**Table VI: Distribution of patients according to ARV treatment**

TARV support	Effective	Percentage
Yes	19	76%
No	6	24%
Total	25	100.0%

From this table it emerges that only 19 patients, ie 76%, were treated with anti-retroviral treatment and 6, or 24% did not receive ART.

**Table VII . Distribution of PVV according to evolution**

Evolution	Effective	Percentage
Favorable	18	72 %
Death	7	28 %
Total	25	100.0%

Of the 19 patients ; the satisfactory outcome was observed in 71% of our patients against 29%.

#### DISCUSSION

The hospital prevalence of HIV infection in children at Kinkondja hospital during the period from January 2017 to December 2019 was 1.3%. The PNMLS 2011 report reports a prevalence of 6.6% in the city of Lubumbashi (Ministry, 2012) Compared to our results, a significant difference emerges which could be explained by the fact that our frequency is a hospital frequency and it related to a very limited sample, whereas that reported by the PNMLS is a global frequency which takes into account all layers of the population of Lubumbashi. Our results are much lower compared to KODIO which during its study found a frequency of 17.1%, (Kodio Adama, 2003) TRAORE which reports a frequency of 12% (Traoré Camara, 2009) and NTUMBI which finds a frequency of 12% in a study carried

out at Lubumbashi university clinics in 2011 (Traoré Camara, 2009). We also believe that their high frequency could probably be due to the different methodologies used. The male sex was predominant in our study (60%) against 40% female, i.e. a sex ratio of 1.5 in favor of the male sex. However, Djadou et al found a predominance of the female sex (ie 53%) in a study carried out in Cotonou in 2012 in the rural area (Traoré Camara, 2009) This rate is almost equivalent to that of Laurent K (52.1%) in Goma (Democratic Republic of Congo) in 2001 for the female sex (Laurent, 2006) Fragility to HIV infection is not linked to sex, because the pathology affects both sexes indiscriminately. We did not find a scientific reason that could justify why the male sex was more affected than the female sex and we attributed it to chance and according to the study environment. The mean age was 8 ( $\pm 4.9$ ) years. It is similar to that of the study by Agodokpessi et al who found 6 ( $\pm 3$ ) years in a study carried out in cotonou in 2012 in the rural area and to that of Laurent K who was 7 years (( 5.6 )). The absence of PCR during our study period for the early diagnosis of HIV infection could explain this higher age for the start of antiretroviral therapy, compared to other African series for Mbutiwi et al which have found 5.5 years old in Kinshasa in 2012 (Mbutiwi, 2012) and Ekouevi, DK, et al who found the age of 4 in 2014 in Togo (Mbutiwi, 2012) The advent of PCR should contribute to an early diagnosis of this HIV infection in children and allow the early initiation of antiretroviral therapy to reduce HIV / AIDS-related morbidity and mortality. In our study we found that a large proportion of the children came from the Kipamba district with 28% This could be explained by the fact that it is in this district where there are private health centers carrying out clandestine transfusions without many times. test blood for HIV test. In our study the reason for consultation was more marked by respiratory infections which were 44% followed by 32% of gastroenteritis.

These results are superimposable on those of Mbutiwi et al who had found as main infections, respiratory infections and gastroenteritis in 2012 in Kinshasa. Ekouevi, DK, et al had found in their series, respiratory infections and malaria which were predominant. The limited access to the laboratory and the low socioeconomic level did not allow the identification of germs for these infections. However, Ekouevi, et al. in Togo had identified streptococcus pneumoniae and salmonella typhimurium as the predominant agents of lung infections (Ekoueviet, 2014). According to our study 72% of patients were in WHO stage IV, 20% in stage III, 8% in stage II. These results reveal that the majority of patients were hospitalized at an advanced stage of the disease. The reasons for this delay could be attributed to insufficient information and awareness on HIV infection, the long journey of wandering in search of better care (self-medication, traditional medicine, prayers ...), the fear of being tested for HIV, the reference for hospitalization only intervening in the face of a therapeutic impasse of several possibilities. These results can be compared to those of Laurent K (Laurent, 2001) who in his study found 61.1% of patients in stage IV, 32% in stage III, and 4.9% in stage II. On the other hand, the results of TRAORE (3) do not agree with ours and are only 3% in stage IV, 19% in stage III and 44.6% in stage II. Our work shows that 19 patients, or 76%, received antiretroviral treatment, of which 17 or 89.5% were on the first line and 2 or 10.5 were on the second line. Our results are comparable to those of NTUMBI (Ntumbi Tukelebawu, 2011) which

reported 87.3% of patients on ARVs in its study and KODIO (Traoré Camara, 2009) which reported 70% of patients on ARVs. In addition, 6 patients, i.e. 24% did not benefit from ART for multiple reasons, including the state of unconsciousness, significant organ dysfunctions but also non-adherence to ART. A favorable outcome was observed in 72 % of cases and a death rate of 28 %. Laurent (6) found during his study 56.6% of patients having progressed well and a death rate of 7.2%. KODIO (Laurent, 2001) found 87.7% of satisfactory outcome and 7.54% of death. A case fatality rate observed largely in patients who did not receive ART with an 8.2 risk of death compared to those put on ART. This death rate seems to be linked to a late referral, a delay in diagnosis and specific management, to the numerous complications due to severe immune deficiency, or even to the inadequacy of the management of opportunistic conditions for which treatment is required. borne by patients who are often destitute.

## CONCLUSION

### This study allowed us to reach the following conclusions:

- The prevalence of HIV infection during the period of our study was 1.3%.
- The most affected age group is that of 0 - 5 years with a proportion of 40%.
- The average age was 8 ( $\pm 4.9$ ) years
- Most of our patients reside in the Kipamba district
- The majority of our patients, ie 72%, were at stage IV of the WHO clinical classification.
- The majority of patients were on first-line antiretroviral therapy.
- The results of our study revealed a favorable outcome in 72% of patients against 28 % of deaths.

### State of current knowledge on the subject

Prevalence of HIV infection in the general population

### Contribution of our study to knowledge

Determine the prevalence of HIV infection in the "child  
Describe the clinical stages of patients on admission.  
Describe the epidemiological and clinical profile of children infected with HIV

**Conflicts of interest:** The authors declare no conflict of interest.

**Contributions from authors:** All the authors contributed to the realization of this work; they read and approved the final version of the manuscript.

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