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HIV and Syphilis Coinfection, Epidemiological and Clinical Profile at the Simbaya Institut of Neurology, Conakry

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Abstract:-

- ***Introduction:***

HIV and Syphilis co-infection is a simultaneous infection by the human immunodeficiency virus and by treponema pallidum that can lead to clinical polymorphism.

- ***Material and Methods:***

We conducted a retrospective descriptive study over a period of 2 years (from January 1, 2022 to December 31, 2023 on patients received in outpatient consultation at the Simbaya Institute of Neurology (INS). We included all patients received in outpatient consultation at the INS for neurological symptoms related to HIV and syphilis co-infection confirmed by biology. The epidemiological and clinical variables were evaluated for each patient.

- ***Results:***

We found 121 cases of co-infection out of 1420 patients (8.5%), with a mean age of 51.8±15.1 years, and a sex ratio of 0.95. Housewives were the most represented in the socio-professional stratum (35.5%). The majority of patients came from urban areas (73.6%). Fever (100%), motor deficit (90.9%), memory disorders (74.4) and vigilance disorders (61.9%) were the dominant neurological signs.

- ***Conclusion:***

It emerges from this study that HIV and Syphilis co-infection is of increasing frequency at the Simbaya Institute of Neurology with a predominance of young subjects. Housewives were the most represented and mostly living in urban areas, neurological manifestations are often late during a syphilitic infection unlike HIV and Syphilis co-infection.

Keywords:- *Coinfection, HIV, Syphilis.*

I. INTRODUCTION

HIV/Syphilis co-infection is a simultaneous infection by the human immunodeficiency virus and by treponema pallidum that can lead to clinical polymorphism [1]. Syphilis is a chronic multisystemic infection caused by a cosmopolitan bacterium, treponema pallidum [2]. The human immunodeficiency virus is a retrovirus that attacks cells of the immune system, destroying them or rendering them ineffective, which can lead to acquired immunodeficiency syndrome [3]. People with HIV/AIDS are more vulnerable to contracting and transmitting syphilis, because susceptibility to infections such as syphilis worsens when the immune system is weakened [4]. The epidemiology of syphilis is more or less well known depending on the country [5]. WHO estimated 12 million new cases of HIV/Syphilis co-infection per year worldwide in 2015 [6]. In the USA, the prevalence of HIV was 60% and that of Syphilis 20% in 2010 [5]. In Africa, the incidence of syphilis/HIV is growing rapidly because the available studies are seroprevalence surveys conducted in specific populations [7]. In Cameroon, 7.8% of HIV infections were associated with syphilis infections en 2014 [8]. Syphilis, like other genital ulcers (chancroid and herpes), promotes the acquisition of HIV through mucosal breaches and the influx of inflammatory cells infectable by HIV [9]. Syphilis serodiagnosis is established by means of blood tests, the most frequent combinations are VDRL and TPHA [10]. HIV antibodies are based on ELISA enzyme immunoassays. Syphilis treatment depends on the age of the disease; the existence of neurological damage or a contraindication to penicillin, which is always the first-line treatment [11]. The responsibility of each antiretroviral is difficult to assess due to the association of molecules within multi-therapies [12]. In the absence of antiretroviral treatment, almost all patients infected with HIV develop AIDS over the years. [13]. Syphilitic infection can be cured if it is diagnosed very early and completely treated. Without treatment, up to a third of patients have late complications with permanent disability that can lead to death [14]. Thus, the increasing frequency of HIV/Syphilis co-infection in outpatient clinics at the Simbaya Institute of Neurology motivated the choice of this work. in consultation at the Simbaya neurological clinic. The objective of this study was to determine the prevalence of HIV/Syphilis co-infection at the Simbaya Institute of Neurology.

II. MATERIALS AND METHODS

This was a retrospective descriptive study over a period of 2 years (from January 1, 2022 to December 31, 2023 on patients received in outpatient consultation at the Simbaya Institute of Neurology (INS). We included all patients received in outpatient consultation at the INS for neurological symptoms related to HIV / syphilis co-infection confirmed by biology. The epidemiological and clinical variables were evaluated for each patient. We used the EPI Info software in its version 7.2.2 and the SPSS 22 software for the analysis of our data. The quantitative variables were expressed in number, mean, standard deviation and classified into ranges. The qualitative variables are expressed as a proportion in ratio for sex. Our results were presented in the form of figures and tables. Microsoft Word and Excel software were used for the entry and design of tables and graphs. Informed consent was obtained from patients and our data were collected anonymously and confidentially.

III. RESULTS

We found 121 cases of co-infection out of 1420 patients (8.5%), with a mean age of 51.8±15.1 years, and a sex ratio of 0.95. Housewives were the most represented in the socio-professional stratum (35.5%). The majority of patients came from urban areas (73.6%). Fever (100%), motor deficit (90.9%), memory disorders (74.4) and vigilance disorders (61.9%) were the dominant neurological signs. The associated neurological conditions were ischemic stroke (19%) followed by meningoencephalitis (17.3%). All our patients benefited from ARV and Peni G (100%), 11% developed complications, 76% had a favorable evolution and 13% died.

IV. DISCUSSION

We received a total of 121 cases of HIV and Syphilis co-infection out of 1420 patients, i.e. a frequency of 8.5%. Our result is lower than that of Haddanh and Coll in Canada in 2017 [15] who reported in their study an increase of 17.1% since 2014. This low frequency could be linked to the poor hospital attendance of patients due to the stigmatizing and socio-cultural nature of HIV in our society. In our study, the female sex was the most represented, i.e. 51.2% against 48.8% of the male sex with a sex ratio (M/F) = 0.95. This result is similar to that of Caumes E and Coll in Paris in 2011 [3] who found that women were the most affected by HIV / Syphilis with respective frequencies of 48% and 30%. And contrary to that of Cissé A and Coll in Guinea who reported in their study a male predominance of 59 cases against 50 female cases [16]. This female predominance could be explained by the high frequency of women in consultation compared to men during our study period but also by the considerable number of females in our population. The average age of our patients was 51.8 ± 15.1 with extremes of 22 and 81 years. This result is higher than that of Caumes and Coll in Paris in 2011 [3] and of Ghrari K EL and Coll in Morocco in 2007 who reported in their study respective average ages of 33 years and 32 ± 12 years. These data show the importance of the age factor in the occurrence of HIV and Syphilis co-infection. Housewives are the most represented socio-professional category, i.e. 35.5%, followed by civil servants, i.e. 25%, and traders, i.e. 16.5%. Our result is different from that of Diallo B et al. in 2015, who reported a predominance of workers, i.e. 33.04%. This could be explained by the lack of awareness and education on sexual behavior, which remains taboo in our societies. Polygamists (47.1%) were the most affected. Our result is different from that of Ghrari K et al. in Morocco in 2007 [17] who reported a high frequency of singles (31%). This difference could be explained by infidelity, the lack of protection by wearing a condom, and the multiplicity of partners in our communities. The majority of our patients came from the urban area, i.e. 73.6%. This could be explained by the fact that patients from rural areas used self-medication before reaching the reference structures, more often in the complication phase and the low literacy rate in our context can delay care and access to specialized services. The clinic was dominated by fever (100%), motor deficit (90.9%), memory disorders (74.4%), and consciousness (61.9%). These data show the importance of knowing all possible neurological manifestations for adequate and early management. The treatment regimen consisted of Peni G 2.4 MIU 100% and ARVs i.e. 100% followed by corticosteroids 8.3%. This result is different from that of Janier M et Coll in Europe in 2014 who administered IV penicillin G in 50% of cases with neurological signs and ARVs i.e. 100% [18].

V. LIMITATIONS AND DIFFICULTIES

Limited access to magnetic resonance imaging (MRI) and the high cost of the scanner for most of our respondents, but also the refusal of some patients for CSF analysis for cultural and mystical reasons were our difficulties encountered.

VI. CONCLUSION

HIV and syphilis coinfection is a major public health problem in developing countries, which can increase the likelihood of developing neurosyphilis. HIV infection significantly damages the immune system, which accelerates the natural progression of syphilis, which can lead to a shorter incubation period, atypical symptoms and an increased incidence of neurosyphilis This study shows that HIV and syphilis coinfection is increasing in frequency at the Simbaya Institute of Neurology with a predominance of young subjects. Housewives were the most represented and mostly living in urban areas, neurological manifestations are often late during a syphilitic infection unlike HIV and Syphilis co-infection. Ischemic stroke (19%) and meningoencephalitis (17.3%) were the neurological conditions associated in the majority of cases. We treated all our patients with ARVs and Peni G, i.e. (100%), 11% with a death rate of 13% died.

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ATTESTATION

We hereby certify that we assign the copyright to the publisher, that this work has not been published before, and it is not under consideration for publication elsewhere. We certify that all authors have read and approved the final version together and that the ethical aspects have been respected throughout this study.

CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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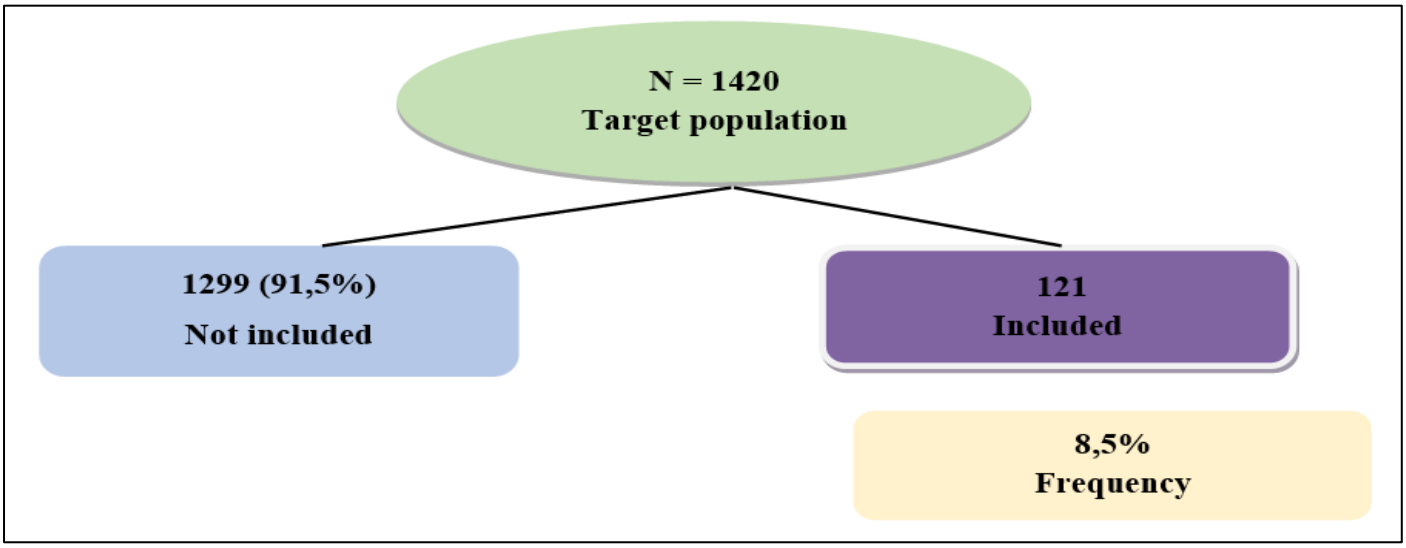
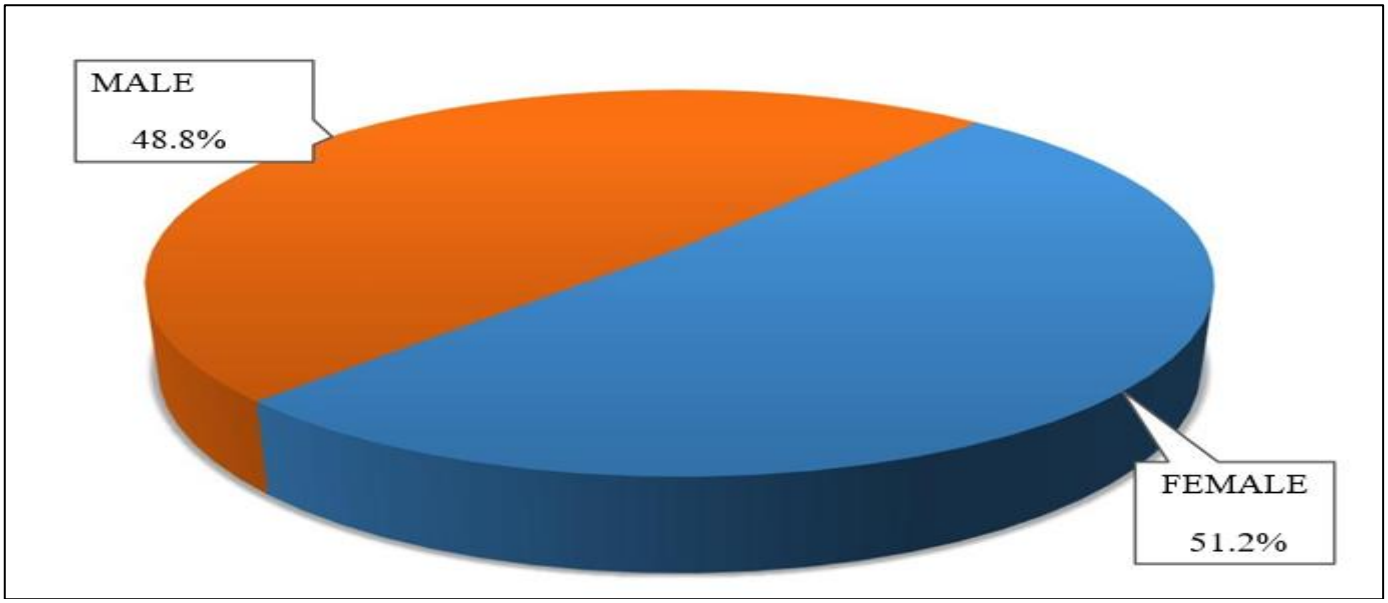


Fig 1: Flow Diagram of Inclusions



Sex Ratio : M/F =0,95 0.95

Fig 2 : Distribution of Patients by Gender

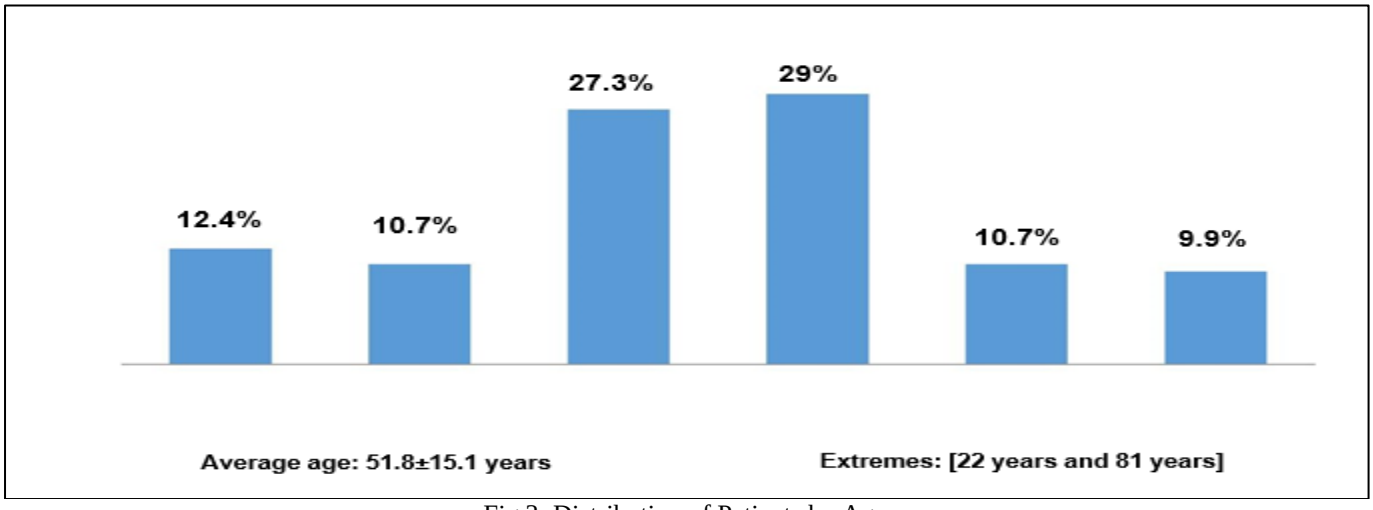


Fig 3: Distribution of Patients by Age

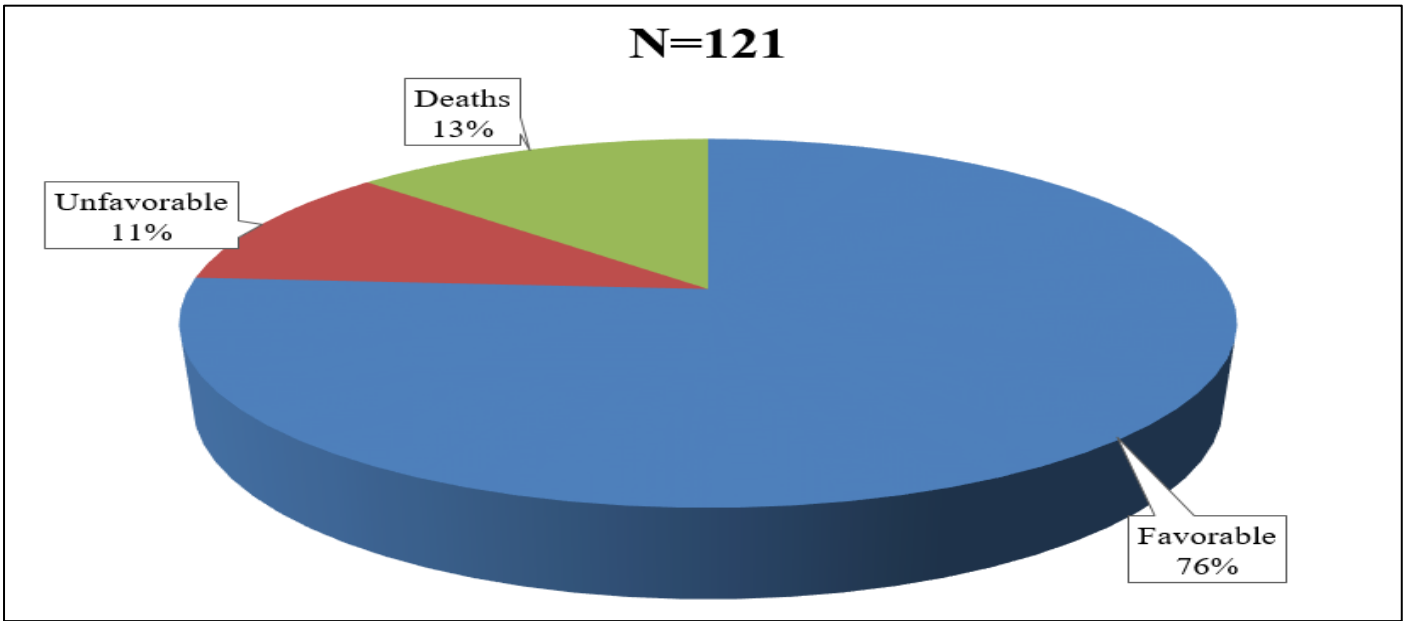


Fig 4: Distribution of Patients According to Evolution

Table 1: Distribution of Patients According to Socio-Professional Class

Occupation	Staff	Proportion (%)
Housewives	43	35,5
Officials	30	25
Traders	20	16,5
Military	14	11,5
Workers	5	4,1
Drivers	6	4,9
Students	3	2,5
Total	**121**	**100**

Table 2: Distribution of Patients According to Marital Status

Marital Status	Staff	Proportion (%)
Polygamists	57	47.1
Monogamous	37	30.6
Singles	20	16.5
Widowers	7	5.8
Total	**121**	**100**

Table 3: Distribution of Patients According to Origin

Origin	Staff	Proportion (%)
Urban area	89	73,6
Semi-urban area	27	22,3
Rural area	05	4,1
Total	**121**	**100**

Table 4: Distribution of Patients According to Neurological Symptoms and Signs

Clinical Signs	Staff	Proportion (%)
Fever	121	100
Motor deficit	110	90,9
Memory disorder	90	74,4
Disturbance of consciousness	75	61,9
Headache	98	80,9
Meningeal stiffness	65	53,7
Language disorder	10	8,3
Tonic epileptic seizures Generalized clonic	20	16,5

Table 5: Distribution of Patients According to CSF Result

LCR result	Moyenne	Extrêmes
Cytorachia (27 cases)	17,3	1 to 27
Glucorachia (5 cases)	0,61	0,25 to 0,90
Proteinorachia (9 cases)	0,83	0,12 to 1,51

Table 6: Distribution of Patients According to Neurological Conditions

Affections		Effectifs	Proportion (%)
Stroke	Ischémic	23	19
	Hémorrhagic	09	7,4
Méningo-encéphalitis		21	17,3
Démentia		20	16,5
Cerebral toxoplasmosis		20	16,5
Polyradiculoneuritis		7	5,8
Myélitis		6	5
Epilepsy		6	5
Méningitis		6	5
Sensory polyneuropathy		3	2,5
TOTAL		**121**	**100**

Table 7: Distribution of Patients According to Neurological Conditions

Affections		Staff	Proportion (%)
	Ischemic	23	19
Stroke	Hemorrhagic	09	7.4
Meningoencephalitis		21	17.3
Dementia		20	16.5
Cerebral toxoplasmosis		20	16.5
Polyradiculoneuritis		7	5.8
Myelitis		6	5
Epilepsy		6	5

Table 8: Distribution of Patients According to Treatment

Treatment	Staff	Proportion (%)
Penis G	121	100
ARV	121	100
Corticosteroids	10	8.3
Antiplatelet agents.	7	5.8
Antiepileptics	5	4.1