



Sociodemographic, Clinical and Therapeutic Characteristics of Serodiscordant Couples for the Human Immunodeficiency Virus Followed in Kinshasa: A Case of CH Monkole and Saint Anne Health Center

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Abstract

Background: The transmission of the Human Immunodeficiency Virus (HIV) during heterosexual intercourse is one of the leading modes of transmission at the origin of the global epidemic of HIV infection. Studies have indeed shown that in Sub-Saharan Africa, most women infected today are infected by their spouses, in the context of marital sexual relations. **Objective:** The objective of this study was to describe the sociodemographic, clinical and therapeutic characteristics of HIV serodiscordant couples in Kinshasa. **Methods:** This study is a cross-sectional descriptive study of HIV serodiscordant couples followed in Kinshasa. Data on socio-demographic, clinical and therapeutic characteristics were collected from a questionnaire during couples' interviews. **Results:** 17 serodiscordant couples were included in the study. The average time spent as a couple was 8.6 ± 1.8 years. 71.4% of HIV-positive partners were in the age group between 36 and 45 years. According to the BMI, 35.2% of HIV-positive people have normal weight, 11.7% are overweight and 2.9% are thin. 47% of serodiscordant couples had intercourse 4 to 10 times, 41.7% had 1 to 3 times and 11.7% had more than 10 times per month. For the duration of ARV

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treatment, 28.5% of the seropositive have been under ARV treatment for 1 year, 21.4% for 10 years old, and 14.2% for 3 years. **Conclusion:** All partners were informed of the serological status of their spouses. It appears in this study, more than half of the infected people are women.

Subject Areas

HIV

Keywords

Discordant Couple, HIV, Socio-Demographic, Clinic, Therapy

1. Introduction

For a long time, the epidemic of Human Immunodeficiency Virus (HIV) infection was mainly studied from the angle of key populations: Pregnant Women, Professional Sex Workers (PSWs), Truck Drivers, Migrants, etc [1]. It now appears necessary to also consider its repercussions in the general population, widely threatened in countries with high prevalence, and in particular in couples. Studies have indeed shown that most women in Sub-Saharan Africa (SSA) infected with HIV had been infected by their spouse, within the framework of conjugal sexual relations [1].

Heterosexual transmission of HIV is one of the major modes of transmission driving the global HIV epidemic [2]. In Sub-Saharan Africa, where HIV transmission is essentially heterosexual [3] [4], the vast majority of people newly infected with HIV are infected during unprotected heterosexual intercourse [5]. Unprotected sex with multiple partners remains the most important HIV transmission factor in this region [5]. The incidence of the epidemic can only be controlled if new infections are prevented among those not yet infected [3]. Studies have indeed shown that in Sub-Saharan Africa, most women infected today are infected by their spouse, through sexual intercourse [4] [6]. The frequency of HIV transmission in discordant couples in Africa is estimated between 20% and 25% per year [7].

In African societies, where various types of unions coexist (polygamous and monogamous unions, formal and informal unions, customary and legal unions), defining what the notion of couple covers is a perilous undertaking. The types of couples are multiple, and conjugal relationships are currently undergoing profound changes [6].

The use of HIV testing remains rare on the African continent. The vast majority of people living in Africa have not been tested for HIV and live in fear of being infected, without knowing their HIV status [6].

The objective of this study was to describe the sociodemographic, clinical and therapeutic characteristics of serodiscordant couples for HIV in Kinshasa, Democratic Republic of the Congo.

2. Methods

2.1. Study Framework and Design

This study was a descriptive cross-sectional one that was conducted among discordant couples for HIV infection in Kinshasa. The type of sampling was appropriate given the rarity of discordant couples. Were included in this present study all discordant couples for HIV followed at the Monkole Hospital Center and at the Sainte Anne Health Center. The two centers were selected because of the attendance of couples of interest and accessibility. All couples freely agreed to participate in the study and signed the informed consent.

Sociodemographic, clinical and therapeutic data and data on the risks of sexual transmission of HIV, as well as information relating to their life as a couple were collected using a pretested questionnaire during couples' interviews.

2.2. Study Population

The population of this study was composed mainly of adults in couples where one of the spouses/partners was tested positive for HIV infection in the treatment center.

2.3. Parameters of Interest

The sociodemographic and anthropometric data studied were: age group, level of education, religion, profession, height, weight and Body Mass Index (BMI).

The clinical data studied were: the screening method used, the frequency of sexual intercourse, the clinical status of the partners, and the clinical stage of the partners according to the WHO.

The data on the therapeutic attitude were: the therapeutic regimen, the duration of treatment, previous exposure to Antiretroviral Treatments (ARTs) and the rational use of condoms.

2.4. Collection of Data

All these information was collected on anonymous forms. Only the investigators were in direct contact with the patients. Once the survey sheets were completed, the rest of the study was carried out using the numbers assigned to the sheets. The information was recorded on the survey sheets, and entered on the Windows Excel software. Statistical data analyzes were performed on SPSS version 20.0.

2.5. Operational Definitions

- People living in a couple: according to the African connotation, *i.e.* people living in a union for several years.
- Normal clinical state: state of the patient in which the vital functions of the patient are normal, the patient is able to do everything without assistance.

- Couples serodiscordant for HIV: A couple is said to be serodiscordant for HIV, when one of the spouses or partners is positive for HIV after tests and not the other, both live under the same roof for some years.

2.6. Ethical Consent

This study had received the approval of the Ethics and Scientific Committee of the Kinshasa School of Public Health (*ESPI/CE/115/2021*). The agreement of the managers of the centers in which the study was done was also obtained.

3. Results

Seventeen couples were included in the study, 14 couples at the Monkole Hospital Center (CHM) and 3 at the Saint Anne Health Center (SAHC), after signing the informed consent (**Table 1**).

3.1. The Socio-Demographic Characteristics of HIV-Discordant Couples

It appears from this study that 52.9% of female partners are affected by HIV. The most represented age groups are that of 36 and 45 years and that of more than 46 years or 41.18% of the patients each. The revival religion was the majority with 35.2% of couples, followed by the Catholic religion with 29.4% of couples. The majority of partners (61.7%) had a level of education limited to secondary school, followed by 41.7% at primary level and 23.5% at university level. The informal employment sector was the majority with 44.1% of partners, followed by 11.7% of housewives, 8.8% of electronics technicians, and 5.8% of taxi drivers... For positive spouses, 35.2% had a Body Mass Index (BMI) equivalent to a normal weight, 11.7% was overweight and 2.9% was lean; while among negative spouses, 23.5% were overweight, 20.5% had normal weight and 5.8% had mild obesity.

3.2. The Clinical Characteristics of HIV Discordant Couples

All patients were screened by an indirect method as recommended by the national HIV/AIDS program; these are rapid diagnostic tests (Determine and Unigold). Most couples (47%) declare having had 4 to 10 sexual intercourses per month over the past twelve months, 41.7% declare having had 1 to 3 sexual intercourses per month, and 11.7% declare having had more than 10 sexual

Table 1. Identification of serodiscordant couples in each health facility.

Serological State	CH Monkole		CS Saint Anne		Total	
	Men	Women	Male	Women	Men	Women
Seropositive	7	7	1	2	8	9
Seronegative	7	7	2	1	9	8
Total	14	14	3	3	17	17

intercourses per month. All the negative spouses had a normal clinical state while 70.5% of the positive spouses had a normal clinical state and 29.5% had a good clinical state. Nevertheless, 47.1% were at clinical stage 2 according to the World Health Organization (WHO), 29.4% were at clinical stage 3, and 23.5% were at clinical stage 1. **Table 2** and **Table 3** present some of the data mentioned above.

3.3. Therapeutic Characteristics of Couples

Most couples (88.2%) do not rationally use condoms, while 11.8% affirmed they

Table 2. Profile of serodiscordant couples in each health facility.

Parameters	CH Monkole		CS Saint Anne		Total	
	VIH+	VIH-	VIH+	VIH-	VIH+	VIH-
<i>Age Interval (years)</i>						
18 - 25	1	0	0	0	1	0
26 - 35	0	3	1	1	1	4
36 - 45	10	4	0	0	10	4
>46	3	7	2	2	5	5
Total	14	14	3	3	17	17
<i>Body Mass Index (kg/m²)</i>						
<18.5	0	0	1	0	1	0
18.5 - 25	11	6	1	1	12	7
25 - 30	3	7	1	1	4	8
30 - 35	0	1	0	1	0	2
>35	0	0	0	0	0	0
Total	14	14	3	3	17	17
<i>Prior Exposition to ART</i>						
YES	13	2	0	0	13	2
NO	1	12	3	3	4	15
Total	14	14	3	3	17	17

Table 3. State of patients.

Clinical State of PLHIV	CH Monkole	CS Saint Anne	Total
State 1	4	0	4
State 2	8	0	8
State 3	2	3	5
State 4	0	0	0
Total	14	3	17

do. Less than half of the patients (44.1%) had been previously exposed to ART. All positive spouses were put on the Dolutegravir + Lamivudine + Tenofovir (DTG/3TC/TDF) regimen as the first-line regimen. More than a quarter (28.5%) of positive spouses have been on ART for less than a year, 21.4% have been on ART for 10 years, and 14.2% have been on ART for 3 years. **Table 4** present some of the data mentioned above.

4. Discussion

The objective of this study was to describe the sociodemographic, clinical and therapeutic characteristics of serodiscordant couples for HIV infection in Kinshasa, Democratic Republic of the Congo. Seventeen couples were recorded for this study, 14 couples at the Monkole Hospital Center and 3 couples at the Saint Anne Health Center. For it is unusual to officially record serodiscordant couples for HIV in Kinshasa.

4.1. On the Socio-Demographic Characteristics of HIV-Discordant Couples

32.3% of the partners are from the province of Bandundu followed by the province of Kongo Central with 29.4% of the partners. Of 100% of people from Bandundu, 54.5% are HIV-negative. Of 100% of people from Kongo Central, 55.5% are also HIV-negative. We observe that in these two provinces the percentage of seronegatives is high compared to the percentage of seropositives. Further studies will allow us to understand the mapping of serodiscordant couples in the Democratic Republic of the Congo to better elucidate and understand the rate of HIV-negative people living in a couple in all the 516 health zones of the country. **Table 5** presents some of the data presented above.

61.7% of the partners had a secondary level against 23.5% of the university level, 41.7% had a primary level. The level of knowledge improves the management

Table 4. Sexual activities.

Parameters	CH Monkole	CS Saint Anne	Total
<i>Rational Use of Condoms</i>			
YES	2	0	2
NO	12	3	15
Total	14	3	17
<i>Frequency of Sexual Intercourses on the Last 12 Months</i>			
NON	0	0	0
1 - 3 time/month	6	1	7
4 - 10 time/month	6	2	8
>10 time/month	2	0	2
Total	14	3	17

Table 5. State and ethnical origin.

Parameters	CH Monkole		CS Saint Anne		Total	
	VIH+	VIH-	VIH+	VIH-	VIH+	VIH-
<i>Province of Origin</i>						
BANDUNDU	5	6	0	0	5	6
EQUATEUR	1	1	0	0	1	1
KASAI ORIENTAL	2	0	0	0	2	0
KASAI OCCIDENT	2	1	1	0	3	1
KATANGA	0	2	0	0	0	2
KONGO CENTRAL	2	3	2	2	4	4
MANIEMA	0	0	0	1	0	1
NORD KIVU	1	0	0	0	1	0
SUD KIVU	1	1	0	0	1	1
Total	14	14	3	3	17	17
<i>Tribe of Origin</i>						
AKULA	1	0	0	0	1	0
BAMBOMA	0	0	1	1	1	1
KUBA	0	1	0	0	0	1
LODJA	0	0	1	0	1	0
LUBA	4	0	0	0	4	0
MBALA	2	3	0	0	2	3
MBATA	1	1	0	0	1	1
MUHUNDE	1	0	0	0	1	0
MUTANDU	0	1	1	1	1	2
NGANI	1	0	0	0	1	0
NGOMBE	0	1	0	0	0	1
REGA	1	1	0	1	1	2
SAKATA	0	3	0	0	0	3
SONGE	0	2	0	0	0	2
TANDU	1	1	0	0	1	1
WUNGANI	1	0	0	0	1	0
YANSI	1	0	0	0	1	0
Total	14	14	3	3	17	17

of the disease and also the level of acceptance of the pandemic. Because 71.4% of HIV-positive partners were already at the HIV disease stage. Understanding the disease could improve care for those concerned.

On the age group and sex affected, our data corroborate with that published by the journal of medicine and health sciences [8], the author found 42.7% of partners aged 31 to 40 affected by HIV. This period corresponds to maturity and intense sexual activity, which could explain the high frequency of infection in this population. 66.6% of those affected in the couple were female partners. The female predominance (52.9%) noted in our study is consistent with data from the literature [6] [7] [8] [9]. This feminization of the HIV epidemic in Sub-Saharan Africa is explained by the greater biological, economic and social vulnerability of women. Societies often marked by gender inequality and poverty, their particularly frequent exposure to infection [9]. While it is true that the monogamous diet was predominant in this study, the polygamous diet (28.2%) [9] could be a risk factor for HIV transmission. Because it constitutes in itself a high number of sexual partners for the man and the rivalries between co-wives are particularly exacerbated there with regard to sexuality and reproduction due to the strengthening of the position of women in the matrimonial space by the number children [10]. This increases the risk of exposure through the high frequency of sexual intercourse.

4.2. On the Clinical Characteristics of HIV Discordant Couples

35.2% of HIV-positive people had an ideal weight (in the range of the BMI interpretation recommendation) against 11.7% who were overweight and 2.9% who were lean. The overweight partners either knew how to overcome the disease and correctly follow the lessons taught during appointments for care or were exposed by our postman. The poor health status of thin partners was linked to opportunistic infections during treatment (Tuberculosis).

4.3. On the Therapeutic Characteristics of HIV Discordant Couples

Regarding the frequency of sexual intercourse and the use of condoms, 47% of serodiscordant couples had 4 to 10 sexual intercourse, 41.7% had 1 to 3 times and 11.7% had more than 10 times per month, compared to those who found the frequency of sexual intercourse per week in their study in Ivory Coast to be 1 or 2 times (20.9%), 2 times (29.1%) [11]. For the rational use of condoms, 88.2% of serodiscordant couples do not use condoms rationally compared to 11.7% who said they have used condoms rationally. A study published that 66.4% of partners did not have safe sex and 33.6% had safe sex [8]. In one published in Rwanda, 87% of discordant couples with an HIV-negative man used condoms at some point during the follow-up period compared to 70% condom use among discordant couples with an HIV-negative woman ($p = 0.12$). All but nine couples reported at least one episode of unprotected sex during the follow-up period [12].

5. Conclusion

All partners were informed of the HIV status of their spouses. The average life together as a couple was 8.6 years. It appears in this study, more than half of the infected people are women and the people allegedly healthy serologically were healthy from the clinical point of view.

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Conflicts of Interest

The authors declare no conflicts of interest.

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Abbreviations

ART: Antiretroviral Treatment;

BMI: Body Mass Index;

DRC: Democratic Republic of the Congo;

PCR: Polymerase Chain Reaction;

PLHIV: Person Living with HIV.