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HIV PREVALENCE IN PREGNANT WOMEN IN BENGUELA

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Abstract: The Human Immunodeficiency Virus seriously affects human development at a global level, with greater expression in African countries. Its devastating impact on health is enhanced in poverty environments, and has repercussions on demographic indicators, such as average life expectancy at birth, health care, age, gender distribution. One of the main mechanisms of transmission of the virus is vertical transmission, both through breastfeeding and at the time of delivery. At the Centro Materno Infantil N.ª Sr.ª da Graça, in Benguela/Angola, the HIV diagnosis process in pregnant women is carried out, as part of prenatal surveillance. In the study, the prevalence of HIV is identified, and the respective therapeutic process is described, with a view to preventing vertical transmission. The HIV diagnostic procedures carried out are carried out by elements subject to specific training and comply with the guidelines issued by the Ministry of Health of Angola and the World Health Organization. The observed prevalence value was 2.10 (n=95/4466). The protocol applied in pharmacological therapy is in line with MINSA guidelines, both for mothers and newborns. HIV prevalence in observed women shows a growing trend, and is associated with age. ($X^2(2)=7.9$; p=0,019). It is significantly elevated in pregnant women aged between 25 and 34 years. The calendar year is associated with HIV+ prevalence, with a chronological increase, ($X^2(3)=24,31$; p<0,001). The procedures carried out at the Center, regarding the treatment of HIV infection and PMTCT, are in line with the objectives of the intervention and national and international standards.

Keywords: Angola; HIV; Maternity; Nursing; Benguela.

INTRODUCTION

The Human Immunodeficiency Virus (HIV) affects, in a particularly serious way, human development at a global level, with greater expression in African countries. This is due to its devastating impact on health, potentiated in environments of poverty, which has repercussions on demographic indicators, such as average life expectancy at birth, health care, age, gender distribution. But also at the level of other indicators such as workforce, economic growth, education and acquisition of knowledge. (Boutayeb, 2009). The HIV pandemic caused more than 35 million deaths by 2016. Africa is the most affected region, both in the number of deaths and in the number of people living with the infection – about 25.6 million. (WHO, 2017) In sub-Saharan Africa, women are the most affected by this virus, with an infection rate 4 times higher than in men. (Patrão, 2015) Together, adolescents and young women represent 25% of new HIV infections. (UNAIDS, 2014). At the same time, Sub-Saharan Africa has the highest fertility rate in the world, around 5.2 children (WHO, 2012). The main mechanisms of transmission of the virus are sexual practices with infected partners, use of contaminated objects and vertical transmission. (Taraphdar, 2011). In view of this evidence, it is concluded that the issue of HIV infection assumes special relevance in the sexual and reproductive health of women, so the real knowledge of the prevalence of the disease, based on data collection and systematic monitoring, is a strategy which must be used to enhance the efforts of health professionals to control the disease, namely at the local level. In this context, it becomes very relevant to maximize the processes of early diagnosis and treatment of infected women, the moments in which they consume health resources, namely family planning consultations and pregnancy surveillance.

In the case of Angola, the first case of Immunodeficiency Syndrome was diagnosed in 1985. (W.H.O., 2005) It was estimated that,

in the country, by the end of 2004, 400,000 adults and children were HIV positive, with a prevalence of 2.6 %. In 2010, the prevalence of seropositivity in adults and children reached 2.4% (CPLP, 2012), leading to the intensification of multisectoral preventive measures, both in the community and in the workplace, through the action of the Instituto Nacional de Luta Against AIDS. The integration of the Prevention of Vertical Transmission (PMTCT) in the health centers of the state network and the inclusion of HIV testing at clinics with antenatal surveillance services allowed for the expansion of prevention activities. (Republic of Angola, 2014). The HIV PMTCT strategy reduces transmission of the infection in exposed children to less than 5%. In the absence of this intervention, disease progression is rapid, leading to a 50% mortality before the age of two. About 90% of HIV infections in newborns and children occur through mother-to-child transmission. In the absence of any intervention, between 20 to 45% of newborns of HIV-positive mothers become infected, with an estimated risk of 5 to 10% during pregnancy, 10 to 20% in labor and breastfeeding (Ministry of Health of Angola, 2015).

The Health Units in Angola, namely the first line health units (Health Centers and Posts), carry out an intense activity of health surveillance and intervention with sick people and have official mechanisms for recording the situations addressed. These Services, where many HIV testing centers fit, are an important resource for HIV prevention and treatment, as well as for the care and support of people. Within the scope of these, there is also the monitoring and distribution of Antiretroviral Therapy (ART) whose protocol consists of the combined administration of three drugs, with the aim of preventing the replication of the virus. ART has the potential not only to reduce mortality and morbidity rates among infected people, but also to improve their quality of life. (WHO, 2017) Nevertheless, it is emphasized that any testing and treatment dynamics must respect personal choices and be based on ethical principles and the order of human rights. 5 criteria stand out; Consent; Confidentiality; Counseling; Reliable results; Network work. (WHO/UNAIDS, 2017)

Knowledge of the epidemiological data of a given community and the dissemination of daily health care practices, by local units, are key elements for the construction of knowledge and for the design of intervention strategies. It is therefore essential that proximity health units (Postos and Health Centers) maintain a record and summary of the data resulting from their activity, in order to be able to self-assess. (Republic of Angola, 2014)

GOALS

The present study results from the intervention integrated in an international cooperation project, "Forvida", which had two major strategic objectives;

i) to develop the capacity of nurses at the Centro Materno-Infantil N.ª Sr.ª da Graça, (CMI-NSG) in the use of data arising from their daily activities, and, ii) consolidate the partnership between the Centro Materno-Infantil and the authorities of Angolan health, in epidemiological surveillance related to HIV.

We evaluated, if the procedures carried out by the nurses, in the initial diagnosis phase; in the application of the medication protocol, as well as in the application of the Prevention of Mother-to-Child Transmission (PMTCT) protocol, they followed the MINSA guidelines. (Angola Ministry of Health, 2015)

The objectives were:

i) to know the prevalence of HIV seropositivity in pregnant women who attended the CMI-NSG, in the years 2013 to 2018; *ii*) verify compliance with the HIV testing protocol; *iii*) verify the compliance of

the therapeutic procedures with the protocol for the treatment of HIV-positive and PMTCT women. (Angola Ministry of Health, 2015) (WHO, 2015)

METHODOLOGY

It was a descriptive and inferential observational study. The approach was quantitative and also qualitative. Authorizations were obtained from the CMI-NSG and MINSA.

The study population consisted of all women who attended the Prenatal Consultation between January 2013 and December 2018 and who met the inclusion criteria: being pregnant, being between 14 and 55 years of age, and demonstrating consent. to participate in the study by consenting to an HIV screening test.

For technical reference, in HIV testing, the protocol scheme recommended by MINSA was taken: (Ministry of Health of Angola, 2015) (WHO, 2015)

With regard to the second objective, the nurses built an observation guide for the care, in order to clarify the steps to be taken in the consultation and, on the other hand, to assess compliance with the rules. These data were collected through direct observation. The steps are:

A. Informs that it is possible to take an HIV test and asks the mother for permission.

B. It guarantees the confidentiality of the results.

C. She informs that she can continue to be monitored at the Center, whatever the outcome.

D. Performs the correct technique and confirmation test (Unigold), if the first test (Determine) is Positive.

E. Forward to start ART, if the result is positive or Indeterminate. (WHO, 2015)

The observation of compliance with the HIV testing protocol was carried out through 60 observations, carried out on interpolated days (between 2014 and 2018). The observations were recorded individually, in the previously defined categorical structure, allowing the observer to maintain his objectivity without, however, formatting/ conditioning his appreciation of the facts.

For the purpose of analyzing the prevalence of seropositivity, the sample of this study is random, consisting of 4466 pregnant women, that is, all those who attended the Prenatal Consultation at the CMI-NSG, between the aforementioned dates and who met the inclusion criteria.

With regard to the PMTCT protocol, the steps of the same, adopted at the Center and posted in the proper place, namely in the dilatation room and in the delivery room, were known. As a result of the protocol with the Provincial Health Directorate (DPS), the CMI-NSG distributes antiretroviral therapy.

As for the participants, they are routinely asked for authorization to test for HIV and are provided with the necessary clarifications regarding the purpose of the test and referral of the result, framing this procedure in the care of the mother and the baby. Authorization is given by consent to the test, which is part of the routine diagnostic auxiliary exams, of the pregnancy surveillance consultation.

For data analysis regarding the prevalence of seropositivity, descriptive and inferential statistics were used, using the software Statistical Package for the Social Sciences (SPSS) version 23.0, omitting the name of the participants.

RESULTS

A. HIV seropositivity diagnosis process

Systematizing the set of observations made, we conclude that, at the Center under analysis, the diagnosis of HIV seropositivity is integrated into the prenatal surveillance

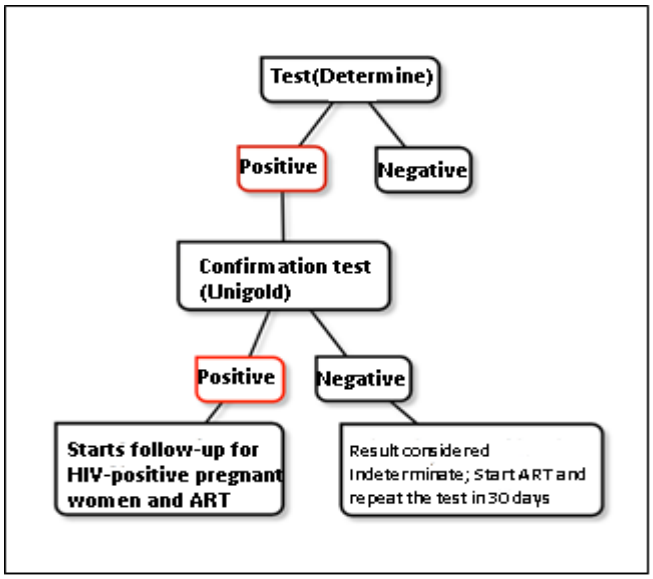


Figure 1 - HIV testing process

Procedure Protocol	Positive Observations	%
It communicates that it is possible to take the HIV test and asks the mother for authorization	57 in 60	95,0
It guarantees the confidentiality of the results.	55 in 60	91,7
It informs that she can continue to be monitored at the Center, whatever the outcome.	60 in 60	100,0
It performs the correct technique and confirmation test (Unigold), if the first test (Determine) is positive.	60 in 60	100,0
It indicates for initiation of ART, if positive or, Indeterminate.	3 in 3	100,0

Table 1 - Procedures in HIV analysis at the CMI-NSG

	Average (dp)	Min	Max	Median
Age	27,3(6,3)	14,0	55,0	27,0

Table 1 - Ages of women participating in the HIV prevalence study

process (Process A), particularly in the prenatal consultation. This consultation is carried out by two nurses who comply with the protocol established for this activity.

The first nurse assesses the anthropometric data, recording them in the Pregnant Woman's Health Bulletin (a document that the woman keeps in her possession) and on the patient's Clinical Process sheet. After this first assessment, which takes place in a reserved space, and in the case of a first consultation, the HIV testing protocol is applied.

Of the 60 observations made, the following resulted:

The technical testing procedure, which follows the sequence shown in Figure 1, was followed in all observations made.

B. Prevalence of HIV seropositivity

After HIV testing, the result is recorded, in addition to the mother's clinical file documents, in the Provincial Health Directorate (DPS) book, which the Center is obliged to keep.

The sample consists of 4466 pregnant women who, between January 1, 2013 and December 31, 2018, performed their test at the Center. The average age of the sample is 27.3 years, with the Mode and Median being 27.0 years.

Categorical variables were described by absolute and relative frequency (%).

Associations between HIV+ prevalence and sample variables were analyzed using the chi-square test.

Statistical tests were performed bilaterally considering a significance level of 5%. Statistical analysis of the data was performed using the statistical program Statistical Package for the Social Sciences (SPSS) version 23.0.

The study sample consists of 4466 women. The prevalence of seropositivity in the sample was 2.1% (n=95). The most representative age group in the sample was the group from 25 to 34 years old with 2248 individuals (50.3%), followed by the younger group (14 to 24 years old) with 35.8%. The most representative year in the sample was 2014 with 1386 individuals (31.0%).

There was a significant association between age group, year of analysis and HIV+ prevalence ($p < 0.05$).

The age group was significantly associated with HIV+ ($p=0.034$), with the age group from 25 to 34 years old being the group with the highest prevalence (2.6%) and the age group from 14 to 24 years having the lowest prevalence (1.4%).

The year of analysis was significantly associated with HIV+ ($p<0.001$). Over the years under study, there was an increase in the prevalence of HIV+ until 2016, and in the last 2 years a decrease in prevalence.

C. Therapeutic process to prevent mother-to-child transmission of HIV

When the rapid test (Determine®) is performed and it shows a positive result, a rapid test (Unigold®) is performed in order to obtain confirmation of HIV seropositivity.

Both in the case of a Positive result and in the case of an Indeterminate result, it is assumed that the mother is a carrier of the virus. The process of administering drug therapy begins at that moment. The news is always given to the user, in a private environment, by a nurse, in order to allow the expression of feelings and exposure of all issues considered relevant. At this point, special care is taken with adherence to therapy. For this, information about vertical transmission of HIV is transmitted to the mother and it is emphasized that the possibility of this transmission will be much smaller, if the medication is taken. It is also reported that taking this medication can reduce the possibility of complications for the mother herself.

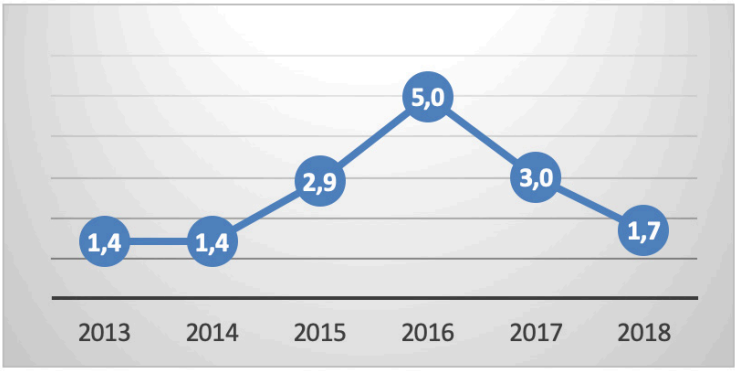
Once the Center under analysis is considered suitable by the Provincial Health Directorate of Benguela, the mother

	N	%
Age group		
14 to 24 years	1598	35,8
25 to 34 years	2248	50,3
35 to 55 years	620	13,9
Year		
2013	1148	25,7
2014	1386	31,0
2015	698	15,6
2016	359	8,0
2017	467	10,5
2018	408	9,1
HIV test		
Negative	4371	97,9
Positive	95	2,1

Table 2 - Sample characterization (n =4466)

	Test HIV+					
	Negative		Positive			
	N	%	N	%	X^2	p
Age group						
14 to 24 years	1576	98,6	22	1,4	6,79	0,034
25 to 34 years	2190	97,4	58	2,6		
35 to 55 years	605	97,6	15	2,4		
Year						
2013	1132	98,6	16	1,4	24,31	< 0,001
2014	1366	98,6	20	1,4		
2015	678	97,1	20	2,9		
2016	341	95,0	18	5,0		
2017	453	97,0	14	3,0		
2018	401	98,3	7	1,7		

Table 3 - Associations between the HIV+ test and the variables in the sample



Graphic 1- Evolution of the prevalence of seropositivity between 2013 and 2018

is informed that she can continue to be followed, at the same Center, and there receive the medication and all the necessary clinical follow-up.

The therapeutic protocol has two options, the first one (preferred) does not include Zidovudine. In the event that the woman does not react well, namely when she presents significant hematological alterations or gastrointestinal alterations, the alternative regimen is chosen.

Product	Active principle
1 pill (with 2 inhibitors of Nucleoside Analog Reverse Transcriptase)	**Tenofovir**(TDF)300mg **Lamivudina**(3Tc) 300mg
1 pill (with 1 transcriptase inhibitor Reverse Non-Analog Nucleside)	**Efavirenz**(EFV) 600mg

Table 2 - Therapeutic regimen for HIV carriers - Option A (Preferred regimen)

Product	Active principle
1 pill (with 2 Nucleoside Analog Reverse Transcriptase Inhibitors)	**Zidovudina**(AZT)300mg **Lamivudina**(Etc) 150mg
1 pill (with 1 Non-Nucleoside Reverse Transcriptase Inhibitor)	**Efavirenz**(EFV) 600mg

Table 3 - Therapeutic regimen for HIV carriers - Option B (Alternative regimen)

This therapy must be administered every day, preferably at night, and the woman is informed that she must take it for life. The distribution of medicines is free of charge and to receive them, she must go to the Center and carry out the surveillance consultation. During pregnancy, you can make the prenatal consultation coincide with the ART follow-up consultation.

C. Therapy during Labor and Postpartum Guidance

The PMTCT Therapeutic Protocol, used for pregnant women in a situation of imminent childbirth, applies both to women with confirmed HIV seropositivity, who were tested during pregnancy surveillance, and to women whose analysis resulted in positive, it is performed at the time of admission, with signs of childbirth and has never had prenatal surveillance.

Thus, in the presence of an HIV-positive pregnant woman, with signs of delivery and more than three fingers of dilatation, intrapartum intravenous (IV) AZT is administered to pregnant women:

1. Intravenous infusion of injectable zidovudine (AZT), at a dose of 2mg/kg, diluted in 100 ml of 5% Glucose Serum. This infusion, called a loading dose, must last for 1 hour.

2. When labor lasts longer than one hour, a new infusion of injectable Zidovudine (AZT) is given. The dose is then 1mg/kg/h, in a 500 ml flask of 5% glucose serum, which runs until the umbilical cord is clamped.

3. Measures for the newborn include: clamping the umbilical cord, immediately after the expulsive period; exclusive breastfeeding and taking the antiretroviral medication, Nevirapine, in syrup, at a dose of 4 mg/kg in a presentation of 10 mg/ml, during the first 6 months of life. After stopping the antiretroviral therapy, he starts taking Cotrimoxazole, an antibiotic, in syrup, 5 ml/day, between 6 and 18 months of age, when he performs the HIV test. If negative, the therapy ends and the patient is discharged. If positive, initiates ART, in a scheme adapted to age, according to the guidelines of the Ministry of Health of Angola.

CONCLUSIONS

The HIV diagnosis process in pregnant women at the Center is integrated into the prenatal surveillance consultation and takes place in the first consultation. It is performed

by a nurse, in a reserved space. After evaluating the vital parameters, the mother is informed of the possibility of carrying out the test at that time. Assurances of confidentiality are conveyed to her and the benefit to the mother and baby of knowing her status is explained to her. The procedures found and described allow us to state that the MINSA guidelines are strictly complied with, through the norms published by the National Institute for the Fight against AIDS, as well as the guidelines of the World Health Organization, for this purpose.

- The prevalence of seropositivity in the sample, consisting of 4466 women, was 2.10% (n=95). Data collection took place over 6 years (2013 to 2018). The year of analysis was significantly associated with HIV+ ($p<0.001$). Over the years under study, there was an increase in the prevalence of HIV+, and this increase was greater in 2016, with an observed prevalence of 5.01%. The age group was also significantly associated with HIV+, with the 25 to 34 year-old group having the highest prevalence (2.6%) ($p=0.034$).
- The therapeutic protocol for PMTCT starts right after a Determine, Positive test, confirmed with a Unigold test, also Positive. If the confirmatory test gives a Negative result, the overall result is considered Indeterminate, and ART is also started, repeating the test within 30 days. At the Center, as the first choice medication, 1 tablet containing Tenofovir (TDF) and Lamivudine (3Tc) is used associated with 1 tablet of Efavirenz (EFV). If there is an intolerance reaction, the alternative regimen is chosen, in which Tenofovir (TDF) is replaced by Zidovudine (AZT). The distribution and monitoring of the therapeutic process is carried out at the Center itself, since it is recognized as suitable by the provincial health authorities. When the mother goes into labor and is diagnosed with HIV+, she continues to take ART, with a specific protocol for childbirth being applied, which includes the intravenous administration of Zidovudine solution (AZT) during labor. and I leave. The newborn of an HIV+ mother is subject to a specific protocol for PMTCT, with immediate clamping of the umbilical cord, daily intake of Efavirenz (EFV), during the first six weeks of life, after which a daily intake of Cotrimoxazole begins. , up to 18 months.

It was thus possible to reach the conclusion that the CMI-NSG complies with all the guidelines of the Ministry of Health of Angola, through the National Institute for the Fight Against AIDS, having them posted and systematized in an autonomous document. This fact highlights the adequacy of the work carried out at the Centre, in terms of diagnosis, therapeutic monitoring of HIV-positive pregnant women and PMTCT measures, thus justifying the accreditation by the Angolan health authorities.

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