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ORIGINAL ARTICLE

Immediate Postpartum Intrauterine Device in HIV-Infected Women: Experience from a Tertiary Care Center in Côte d'Ivoire

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Abstract

Background Immediate postpartum intrauterine device (PPIUD) is a good solution for reducing low contraceptive coverage in developing countries. However, its use in HIV-infected women is poorly documented. The objective of this study was to assess whether the risk of PPIUD complications was higher in HIV-infected women.

Methods A retrospective cohort study compared 64 HIV-infected women to 128 HIV-negative women who had had a PPIUD at the University Hospital of Treichville between January 2016 and March 2017, with a match at the insertion time of the PPIUD. The complications considered were pelvic pain, metrorrhagia and genital infections. Chi-squared test and relative risk were used to investigate the association between HIV infection and PPIUD complications.

Results HIV-infected patients had an average age of 33.1 years, and 85.9% of them were on antiretroviral therapy. PPIUD was inserted during cesarean section in 66.1% of cases. There was no significant association between HIV infection and PPIUD complications (RR = 0.7, 95% CI [0.4–1.3], $p = 0.3$). The risk of genital infections was not increased in HIV-infected women (RR = 0.6 [0.1–2.7], $p = 0.7$).

Conclusion HIV infection does not increase the risk of PPIUD complications. This effective contraceptive strategy can be offered to HIV-infected women. It is therefore necessary to strengthen the training of maternity staff in the installation of PPIUD.

Keywords HIV · AIDS infection · PPIUD · Copper IUD · Complications

Introduction

In most sub-Saharan countries, the prevalence of HIV/AIDS among women of childbearing age and the maternal mortality ratio are at levels of concern. According to UNAIDS, nearly 60% of adults infected with HIV in this region are women of childbearing age [1]. In addition, this region alone accounts for more than half of all maternal deaths worldwide each year [2].

Family planning by preventing unwanted pregnancies prevents almost one-third of maternal deaths [3]. In HIV-infected women, effective contraception prevents maternal mortality and vertical transmission of HIV [4].

Almost all countries in sub-Saharan Africa have low contraceptive prevalence [5]. Thus, according to United Nations, modern contraceptive prevalence in Côte d'Ivoire was only 16.3% in 2017 [6].

Moreover, in these countries, few women return to the postnatal visit and the gravid-puerperium remains their main moment of contact with the reproductive health services.

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Hence in recent years the emphasis is laid on immediate postpartum contraception, including the intrauterine device (IUD) and implant, to increase contraceptive coverage in these developing countries. The IUD is a safe, effective and inexpensive contraceptive method with good acceptability in the immediate postpartum [7]. A Cochrane review also provided evidence regarding the safety and feasibility of the IUD inserted in the immediate postpartum period [8]. Previous studies have shown that the IUD is safe for women infected with stable HIV, that is, patients who have no opportunistic infection or coexisting infection in progress [9]. However, the IUD in these studies was not inserted in the immediate postpartum period. The objective of this study was therefore to assess whether the risk of complications after insertion of PPIUD was higher in HIV-infected women than in uninfected women.

Materials and Methods

This is a retrospective cohort study carried out in the obstetrics and gynecology department of the University Hospital of Treichville between January 2016 and March 2017. It focused on women who refused the use of condom during sexual intercourse but who accepted the insertion of a PPIUD with a follow-up of at least 6 weeks during the study period. The IUD used was TCu 380A, and the insertion was done in eligible patients after counseling. An ultrasound was performed 6 weeks after the insertion of the PPIUD to check its right location. Among these women, those who were HIV-infected were identified and compared to HIV-negative women with a matching time of insertion of the PPIUD and at a rate of 1 HIV-positive woman for 2 HIV-negative women.

The criteria for non-inclusion were as follows: lost to follow-up patients, cases of IUD expulsion, incomplete files and patients with advanced stages of the HIV infection (coexisting infection or an extremely low CD4 count).

The data needed for our study were collected using a standardized questionnaire from the birth registry and medical records. The variables studied included socio-demographic data and medical data related to HIV infection (and PPIUD). PPIUD complications that were sought were pelvic pain, bleeding and genital infections.

Diagnosis of genital infections was based on the following criteria: abnormal vaginal discharge with positive sexually transmitted infection from vaginal swabs or pelvic tenderness with at least one of the following signs: temperature above 38 °C and positive C-reactive protein.

Data analysis was performed using SPSS.22 software. The relationship between PPIUD complications and HIV infection was investigated using the Pearson Chi-squared test or Fischer's exact test (when recommended). A p value < 0.05 was accepted as the significance level. The risk of PPIUD complications related to HIV infection was estimated by the calculation of relative risk with a 95% confidence interval (95% CI).

The study being retrospective, it was not necessary to have the consent of patients. However, their confidentiality has been respected.

Results

During the study period, 901 PPIUDs were inserted, 67 of which (that is 7.4%) in HIV-infected women. But 64 of them were involved in the analysis, with an eligibility rate of 95.5% (Fig. 1).

Table 1 presents the socio-demographic features of HIV-infected women in whom a PPIUD was inserted. Their mean age was 33.1 ± 5.8 years. They had a median parity of 3 with extremes at 0 and 7. Among them, 24 (37.5%) had scarred uterus.

The medical data of the infected women in whom a PPIUD was inserted are summarized in Table 2. For 53.1% of women, the HIV-positive status was known before pregnancy and 85.9% of them were on antiretroviral therapy. The IUD was inserted in the majority of them (65.6%) during cesarean section. The median duration of patients follow-up was 8 weeks (extremes at 6 and 24 weeks).

The incidence of PPIUD complications was 18.7% in HIV-infected women versus 25.8% in the control group. This was a genital infection in two HIV-infected women (3.1%) and seven uninfected women (5.5%).

At the statistical analysis, HIV infection was not associated with a significant increase in the overall incidence of PPIUD complications (RR = 0.7 [0.4–1.3], $p = 0.3$). In addition, the risk of complications occurring in isolation was similar in both groups (Table 3).

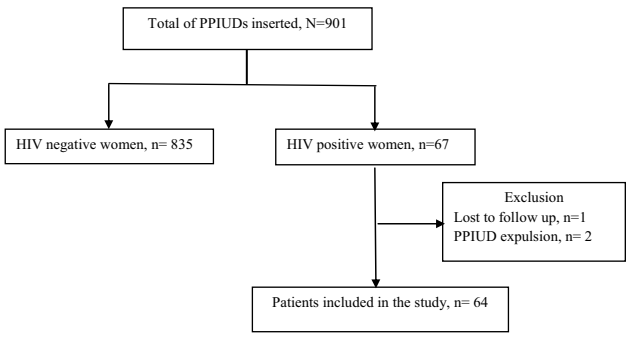

Fig. 1 Enrollment process in the study

Table 1 Socio-demographic features of HIV-infected women with PPIUD ($n=64$)

Features	Number ($N=64$)	Percentage (%)
Age (years)		
<20	1	1.6
20–29	21	32.8
30–39	36	56.2
≥40	6	9.4
Parity		
Primiparous (1 delivery)	4	6.2
Paucipara (2–3 deliveries)	25	39.1
Multiparous (≥4 deliveries)	35	54.7
Occupation		
Liberal	36	56.2
Housewife	20	31.3
Employee	6	9.4
Pupil/student	2	3.1
School education level		
Uneducated	19	29.7
Primary school level	18	28.1
Secondary school level	20	31.3
Higher level	7	10.9
Marital status		
Single woman	6	9.4
Married woman	58	90.6
Scarred uterus		
Yes	24	37.5
No	40	62.5

Table 2 Medical data of HIV-infected women with PPIUDs ($n=64$)

Features	Number ($N=64$)	Percentage (%)
Time of HIV testing		
Before the current pregnancy	34	53.1
During the current pregnancy	24	37.5
At the maternity hospital	6	9.4
Antiretroviral therapy		
Yes	55	85.9
No	9	14.1
CD4 count (elements/ml)		
200–349	7	10.9
≥350	45	70.3
Unspecified	12	18.8
Mode of admission		
Evacuated	35	54.7
Followed up in the department	29	45.3
Time of counseling for PPIUD		
During prenatal consultations	15	23.4
In labor lag phase	48	75.0
Immediate postpartum	1	1.6
Time of insertion of PPIUD		
Post-placental	14	21.9
Immediate postpartum	8	12.5
During cesarean section	42	65.6
Duration of follow-up		
8 weeks	25	60.9
≥9 weeks	39	39.1

Discussion

In this study, HIV infection was not associated with increased risk of PPIUD complications. In fact, our analysis found that the rate of complications of PUPs in HIV-infected women and women without HIV was similar. Better still, the risk of genital infections after insertion of the PPIUD has not increased in HIV-infected women. There is insufficient data in the literature to assess the safety of the IUD inserted in the immediate postpartum period in HIV-infected women. The available data concern only the inserted IUD in HIV-infected women outside this critical period [10, 11]. Thus, a prospective cohort study assessed the risk of complications after insertion of the copper IUD in 156 HIV-infected women compared to 493 uninfected women in two family planning clinics in Nairobi. The authors noted that the risk of IUD complications was not significantly higher in HIV-infected women [12].

Furthermore, a controlled randomized trial comparing copper IUD and hormonal contraception for 2 years in 599 HIV-infected women showed that hormonal contraception was associated with a more rapid progression of HIV infection [13]. Unlike the copper IUD, hormonal contraceptives can affect the effectiveness of antiretrovirals through drug interactions [14, 15]. However, despite the lack of effect of the copper IUD on the course of HIV infection, it is recommended to limit its indications before the stage of AIDS disease [16].

These results demonstrate the safety of copper IUD in HIV-positive women in terms of the overall incidence of complications, incidence of genital infections and the progression of HIV infection. These results also indicate that PPIUD, is a deemed effective and safe contraceptive strategy, which may be appropriate for women living with HIV.

Conclusion

The benefits of safe and effective contraception for women living with HIV are enormous as they encompass the prevention of both maternal and pediatric AIDS. In this study, the insertion of PPIUD in HIV-positive women did not

Table 3 Association between HIV infection and PPIUD complications

	PPIUD complications		Type of complications					
			Pain		Metrorrhagia		Genital infections	
	Yes	No	Yes	No	Yes	No	Yes	No
HIV + (n = 64)	12 (18.7%)	52	8	56	2	62	2	62
HIV − (n = 128)	33 (25.8%)	95	16	112	10	118	7	121
RR [95% IC]	0.7 [0.4–1.3]		1 [0.4–2.2]		0.4 [0.1–1.8]		0.6 [0.1–2.7]	
p	0.3		1.0		0.3		0.7	

RR relative risk, *CI* confidence interval, *p* p value

significantly increase the risk of IUD-related complications. In addition, HIV-infected women had no increased risk of developing genital infections after PPIUD insertion.

This study therefore suggests that IUD insertion in the immediate postpartum is safe for HIV-infected women. In an area of high prevalence of HIV infection such as ours, these results demonstrate that PPIUD should be considered as one of the appropriate contraceptive options for women living with HIV. This requires developing strategies to ensure the continued availability of IUDs in maternity hospitals and to train maternity care staff in counseling and PPIUD insertion. Further studies are needed to deepen the long-term impact of PPIUD on this population at risk.

Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

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Ethical Approval All procedures followed were in accordance with the ethical standards of the institutional ethics committee and with the Declaration of Helsinki 1975, as revised in 2008 (5). Ethical consent for the work has been given by the ethical committee of our hospitals.

Informed Consent Due to the retrospective nature of the study, patients' consent was not required. However, the confidentiality of patients' records was respected.

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