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The Immediate Post-Partum Intrauterine Device at the University Hospital of Bouake: A Cross-Sectional Study of 396 Cases

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Abstract

Objective: Determine the frequency of IUD insertion in the immediate postpartum period, specify the side effects and/or complications of the PPIUD, and identify the reasons for abandoning the IUD. **Methods:** This was a descriptive cross-sectional study with prospective data collection conducted at the CHU of Bouaké over a period of 6 months. **Results:** Out of 728 sensitized clients, 396 accepted the postpartum IUD (DIUPPI), resulting in an acceptance rate of 54.40%. The age group of clients was between 35 - 39 years (30.5%), and the average age of the population was 33 years, with a range from 15 to 46 years. Most clients were married (84.09%), had no fixed income (49.5%), and were not educated (61.62%). Counseling for DIUPPI was mainly done during labor (60%). Follow-up after insertion at 6 weeks was effective in 70.94% of cases. Complications were observed in 12.63% of cases. The abandonment rate of DIUPPI was 25.50% due to the use of other contraceptive methods (90%). **Conclusion:** The IUD is a long-acting and effective contraceptive method. Improved client awareness would further enhance its utilization, contributing to the reduction of maternal mortality.

Keywords

DIUPPI, Contraception, Complications, Bouaké

1. Introduction

Every day, approximately 800 women around the world die from complications

related to pregnancy and childbirth, and 80 million women globally become unintentionally pregnant each year [1]. Modern family planning or contraceptive methods are considered among the most health-promoting and cost-effective in the field of public health, with the potential to prevent about 30% of maternal deaths and 10% of infant deaths [2]. Many contraceptive methods are provided during counseling approaches, including the intrauterine device (IUD). In 2021, the contraceptive prevalence rate in Côte d'Ivoire, for all methods combined, was estimated at 21%, with a majority using modern methods at 18% and a low rate of 0.3% for IUDs [3].

Family planning (FP) is a major pillar of reproductive health care that can be provided before pregnancy, immediately after childbirth, and during the first year following delivery [4]. The periods before and immediately after childbirth represent a valuable opportunity for women or couples to learn about and benefit from FP services [5]. These are times when women are more likely to have access to formal health care [5]. Through prenatal consultations and assisted delivery, women are informed about spacing or limiting pregnancies [5].

The immediate postpartum intrauterine device (PPIUD) is the IUD inserted immediately postpartum, meaning from the end of childbirth up to 48 hours after [6]. The insertion of the PPIUD is an activity carried out in the Department of Obstetrics and Gynecology at the Bouaké University Hospital Center since 2020. We conducted this study with the objectives of determining the frequency of IUD insertion in the immediate postpartum period, specifying the side effects and/or complications of PPIUD, and identifying the reasons for IUD discontinuation.

2. Methods

This was a descriptive cross-sectional study with prospective data collection over a period of six months, from October 1, 2022, to March 31, 2023. It was conducted in the Obstetrics and Gynecology Department of the Bouaké University Hospital Center. Included in the study were all women who delivered at the maternity ward of the Bouaké University Hospital, whether the birth was by vaginal delivery or cesarean section, whether referred or not, all who delivered in the immediate postpartum period and were admitted to the obstetric emergency room, all who met the criteria for IUD insertion, and those who agreed to participate in the study. Excluded were all clients who had contraindications, were beyond 48 hours postpartum, or did not provide informed consent.

A training session on the technique of intrauterine device insertion was organized for the staff, along with awareness-raising on the method. The chosen IUD was the TCu 380A, inserted either manually or instrumentally. Clients were reviewed 15 days after insertion, then six weeks postpartum, and whenever they had concerns about potential IUD-related issues.

For each patient, we studied sociodemographic characteristics, delivery, and IUD insertion modalities (periods of PPIUD acceptance and insertion, post-insertion complications, side effects, discontinuation, and subsequent method, is-

sues related to the strings, PPIUD expulsion).

Sampling technique: the minimum sample size was determined using Schwartz's formula: $N = t^2p \times (1 - p)/m^2$, where p = 21.63% (prevalence of modern contraception according to a study conducted in Côte d'Ivoire); t = confidence level (the standard value for the 95% confidence level is 1.96), thus t = 1.96; m = margin of error set to 5%; n = 290 subjects. Quantitative variables were expressed as averages and extreme values, and qualitative variables were proportions. Data analysis was performed using Epi-Info7 software. Proportion analysis involves the Chi-square or Fisher's test, depending on the validity conditions. The chosen alpha level was 5%.

3. Results

3.1. Acceptance Rate

During the study period, we had 728 eligible patients. All 728 received informed counseling, and 396 accepted the immediate postpartum IUD (PPIUD) and agreed to participate in the study. This gives us an acceptance rate of 54.40%.

3.2. Socio-Epidemiological Characteristics

According to Table 1, the average age of the population was 33 years, with a range from 15 to 46 years. Most were married (84.09%), uneducated (61.62%), and without a fixed income (44.95%). They were predominantly Muslim (63.13%) and from monogamous households (83.59%). The average number of pregnancies was 5.18 ± 2.452, with extremes ranging from 1 to 13, and grand multiparas accounted for 49.24% of the cases. Regarding parity, the average was 4.57 ± 2.243, with extremes from 1 to 12, and multiparas accounted for 30.30% of the cases. The intergenic interval between the last two deliveries was greater than 24 months in 73.99% of cases. In our study population, 42.42% had a history of surgery, predominantly cesarean section (92.86%), followed by salpingectomy (2.98%).

Table 1. Distribution according to socio-epidemiological characteristics.

Variables	No.	Percentage
Age (years) (n = 396)		
<19	27	6.83
[20 - 24]	50	12.63
[25 - 29]	58	14.64
[30 - 34]	82	20.7
[35 - 39]	109	30.05
≥40	60	15.15
Marital Status (n = 396)		
Married	333	84.09
Cohabiting	59	14.90

Continued

Widowed	4	1.01
Level of Education (n = 396)		
Uneducated	244	61.62
Primary	80	20.20
Secondary	62	15.66
Higher	10	2.52
Profession (n = 396)		
Informal sector	178	44.95
Unemployed	119	30.05
Homemakers	59	14.90
Students	23	5.81
Civil servants	17	4.29
Religion (n = 396)		
Muslim	250	63.13
Christian	143	36.11
Atheist	03	0.76
Gravidity (n = 396)		
Grand multigravida	195	49.24
Multigravida	101	25.50
Paucigravida	82	20.71
Primigravida	18	4.55
Parity (n = 396)		
Grand multipara	120	30.30
Multipara	109	27.53
Paucipara	99	25
Primipara	49	12.37
Nullipara	19	4.80
Type of Household (n = 396)		
Monogamous	331	83.51
Polygamous	65	16.49

3.3. Immediate Postpartum Intrauterine Device (PPIUD)

Counseling regarding the PPIUD was conducted during the cesarean section waiting period in 30.81% of cases, while 48.48% of clients had never heard of this type of contraception. The IUD was inserted during the cesarean section in 60.10% of cases. Follow-up of the patients was conducted six weeks after insertion in 70.94%

of cases. During follow-up, clients experienced side effects in 38.64% of cases, primarily pelvic pain (73.68%). As for complications, we recorded 43 cases, or 12.63%, mainly expulsions (81.40%). The continuation and discontinuation rates for the PPIUD were 70.20% and 25.50%, respectively. Expulsion and the presence of side effects were the main reasons for discontinuing the IUD. After discontinuation, all clients switched to other contraceptive methods. (Table 2).

Table 2. Parameters related to the postpartum intrauterine device.

Variables	No.	Percentage
Timing of PPIUD Counseling (n = 396)		
Waiting for Cesarean	122	30.81
Latent Phase	111	28.03
Prenatal	86	21.72
Immediate Postpartum	77	19.44
Timing of IUD Insertion (n = 396)		
Trans-Cesarean	238	60.10
Early Postpartum	94	23.75
Post-Placental	64	16.16
Follow-up (n = 396)		
6 Weeks	281	70.96
3 Months	102	25.76
6 Months	06	1.51
Lost to Follow-Up	07	1.77
Side Effects (n = 153)		
Pelvic Pain	136	88.89
Dysmenorrhea	10	6.53
Metrorrhagia or Menorrhagia	07	4.32
Post-insertion Complications (n = 43)		
IUD Expulsion	35	81.40
Foul-smelling Vaginal Discharge	07	16.28
Inflammatory Diseases	1	2.32
Discontinuation (n = 396)		
Continuation	278	70.20
Discontinuation	101	25.50
Lost to Follow-Up	17	4.30

4. Discussion

4.1. Acceptance Rate

The acceptance rate for the PPIUD in the study was 54.40%. This was lower than

the 66.1% reported by N'Guessan [7] in Abidjan but higher than the 10.5% reported by Guie [8] in Abidjan and the 6% reported by Kouakou [9] in Bouaké. The relatively high acceptance rate in our study could be due to the fact that patients received good counseling from healthcare staff in the delivery room. The timing of the counseling, primarily during the cesarean section waiting period (30.81%), followed by the postpartum period (28.03%), may have contributed to this high acceptance rate. We also believe that the provision of the PPIUD at no cost during our study could have been a factor in this elevated frequency. If not for the inconsistent supply of IUDs, with frequent stockouts, and the inability of some patients to make a decision without consulting their partners, we might have achieved better results. According to the literature, a 2021 study on the effectiveness of informative intervention for postpartum women in western Jamaica showed that providing comprehensive information on PPIUD use improved acceptability by dispelling social prejudices about the device.

4.2. Sociodemographic Characteristics

The average age of our population was 33 years, which is higher than the 28.6 years reported by Kanakuze [10]. It was comparable to the 33.1 years found by N'Guessan [7] in a study on the immediate postpartum intrauterine device among women infected with HIV. The majority of our patients were married, accounting for 84.09% of cases. These married clients were more likely to visit our family planning unit than single women. More than half of the pregnant women were uneducated (61.62%). Fane [11] in Mali found a similar result to ours (69.9%). Maluchuru [12] noted that primary education affected the acceptance of PPIUD use. Grand multigravidas and multiparas represented 49.24% and 30.30% of our study population, respectively. Guie [8] in Abidjan also found a predominance of grand multigravidas and multiparas (58.1% and 47.6%). These high proportions of multiparas may be explained by the fact that counseling for PPIUD insertion was more readily accepted by these clients because they already had children.

4.3. Immediate Postpartum Intrauterine Device (PPIUD)

Counseling was conducted in 58.84% of cases during labor, including 30.81% while waiting for a cesarean section. Issa [13] reported that 87.5% of counseling sessions were conducted during prenatal consultations. These results highlight the need to strengthen counseling during prenatal consultations, which is the ideal time to increase the acceptance rate of postpartum IUDs. Cesarean delivery was performed in 60.10% of cases with IUD placement. In our study, the insertion of the PPIUD during vaginal delivery was not negligible (39.90%). Multifibroid uterus was the leading indication for cesarean sections (37.8%). Follow-up occurred after six weeks in 70.94% of cases, with a continuation of the method in 70.20% of cases. This continuation rate for the PPIUD was lower than that reported by Vishwakarma *et al.* [14] (88.8%). This level of continuation could be explained, on the one hand, by the low rate of complications and side effects and, on the other hand,

by awareness-raising during prenatal follow-up. We observed complications in 12.63% of cases, represented by IUD expulsion (81.40%) and foul-smelling vaginal discharge (16.28%). This rate was higher than that reported by Sereme [15] (5.75%). Expulsion could be related to the competency of the provider who inserted the PPIUD. Furthermore, we have no information on the state of the uterus prior to insertion, *i.e.*, constitutional or acquired uterine anomalies, which could explain this rate. All our devices were fitted without ultrasound, which is a means of assessing the effectiveness of insertion. According to the literature, Ultrasonography is the most common initial method of evaluation due to its cost-effectiveness, lack of ionizing radiation, and greater detail of pelvic anatomy [16]. As for side effects, they were mainly pelvic pain (88.89%) and vaginal bleeding (4.32%). The frequency of pelvic pain was higher than that reported by Kouakou [9] (44.5%).

In contrast to Vishwakarma [14], bleeding predominated (22.6%). In our work, patients who had undergone a cesarean section may have confused surgical pain with actual PPIUD-related pelvic cramps. The majority of clients continued using the IUD in 70.20% of cases, with only 25.50% discontinuing it. This discontinuation rate was higher than that of Sereme [15] (3.27%). This could be attributed to the fact that counseling was conducted during labor (30.81% while waiting for the cesarean section and 28.03% during the latent phase). Reasons for discontinuation included the existence of side effects (43.56%), PPIUD expulsion (34.65%), complications (11.88%), and partner pressure (8.91%). In contrast, Kouakou [9] noted that the desire for motherhood was the main reason for PPIUD discontinuation.

After discontinuation, the majority of our postpartum women continued with another long-acting contraceptive method (90%). Our result could be explained by the fact that 58% of these postpartum women were multiparous and grand multiparous and had received good counseling on the necessity of proper family planning to limit the number of births. Injectable Depo-Provera was the most used contraceptive method (39.60%). In Fane's [11] study, the subcutaneous implant was the first method chosen after PPIUD discontinuation (58.3%), followed by the interval IUD (25%). These results mainly show that after discontinuing the PPIUD, patients chose to continue contraception with another long-acting method, such as the IUD.

5. Conclusion

During our study, it emerged that the insertion of the IUD in the postpartum period was an opportunity for the majority of patients to accept this contraceptive method of choice. It is therefore important to strengthen awareness, especially during prenatal consultations, to increase the use of PPIUD for better family planning and to reduce maternal and fetal mortality and morbidity.

Comment

As this was a pilot study, we did not include patients who refused in the study, so it would be difficult to identify the factors associated with acceptance. Through this pilot study, we are in the process of carrying out a study that will take this

aspect into account.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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