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CLINICAL ARTICLE

Feasibility, acceptability, and uptake of postpartum intrauterine contraceptive devices in southern Nigeria

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ABSTRACT

Objective: To evaluate the effect of postpartum intrauterine contraceptive device (PPIUD) implantation on existing low contraceptive uptake and utilization in Nigeria. *Methods:* A prospective analytical cohort study was conducted at eight medical facilities in southern Nigeria between June 1, 2014 and May 31, 2015. Patients undergoing delivery during the study period were considered for eligibility and the exclusion criteria included any contraindications to PPIUD implantation. Following counselling, participants underwent PPIUD insertion within either 10 minutes (post-placental) or 48 hours (immediate) of delivery, or at cesarean delivery. All participants were scheduled to attend 14-day and 6-week follow-up. The primary outcome measure was the PPIUD-uptake rate and secondary outcome measures included patient satisfaction and complication rates. *Results:* There were 1061 deliveries recorded during the study period; 746 patients were offered PPIUDs, with 374 (50.1%) accepting and undergoing insertion. Immediate post-partum insertion was performed for 199 (53.2%) participants, with 169 (45.2%) and 6 (1.6%) undergoing post-placental and intra-cesarean insertion, respectively. *Conclusion:* PPIUD was safe and acceptable to Nigerian women. Increasing the education of patients and training of healthcare providers is recommended to scale-up PPIUD use in Nigeria.

1. Introduction

The intrauterine contraceptive copper T 380A device has been known as a safe and reliable contraceptive method for decades and its use as a postpartum intrauterine contraceptive device (PPIUD) has been successfully demonstrated in many countries including Egypt, Mexico, and China [1]. Long-acting reversible contraceptives such as the intrauterine device (IUD) can help to significantly address unmet contraceptive needs when available to women at various stages and circumstances of life. IUDs can also help to reduce the rate of unintended pregnancy by providing reliable, safe, effective, and long-term contraception [2,3]. However, women desiring an interval IUD (inserted 6 weeks after delivery) for postpartum contraception often do not receive one; there are various potential reasons for this, including the fact that some individuals are already pregnant by the 6-week postpartum follow-up visit. A study in the USA that enrolled 193 women who requested an interval IUD found that 35% did not return for a postpartum visit and only 60% actually received an IUD [4], with some participants becoming pregnant before IUD insertion [4,5].

The postpartum period is an ideal time, and could be the only opportune time, to provide contraception to women who only attend a hospital during pregnancy, labor, and delivery, or who only have limited access to medical care [6,7]. The use of PPIUDs has been shown to be safe, practical, and an effective form of contraception for many women [1,6,8,9].

The advantages of inserting an IUD immediately after delivery include the assurance that a patient is not pregnant, a high level of motivation for using contraception, masking of mild bleeding associated with insertion, non-interference with breastfeeding, and a healthcare setting that ensures convenience for women and healthcare providers [6,7]. PPIUD insertion can be post-placental (within 10 minutes of delivery), immediately postpartum (>10 minutes but within 48 hours of delivery), and intra-cesarean (before closing the uterus following a cesarean delivery) [5]. However, PPIUD insertion can increase the risk of adverse events including perforation, bleeding, infection, and device expulsion [7].

Intra-cesarean PPIUD insertion has demonstrated lower expulsion rates compared with both post-placental and immediate insertion following vaginal delivery [7]. Expulsion rates of 1–4.5% during the first year following interval IUD implantation have been reported, whereas expulsion rates of 6–20% have been recorded following post-placental insertion [6,10–12]. Post-placental IUD implantation has demonstrated lower expulsion rates compared with immediate postpartum

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insertion, when performed by skilled healthcare providers [7,10,11]. The method of postpartum insertion, whether inserted using Kelly/ring forceps or by hand, does not appear to affect expulsion rates [6,7].

In the literature, PPIUD expulsion rates of 6–20% have been noted by various authors [1,4,13]. A Turkish study [14] reported 12-month partial and complete expulsion rates of 14.3% and 22.6%, respectively, among patients who had undergone either post-placental or immediate postpartum insertion of a copper T 380A IUD; when interval insertion was performed, the 12-month complete and partial expulsion rates were 3.8% and 3.1%, respectively [14].

Knowledge of contraception appears good in Nigeria, with 68%–99% of men and women reporting awareness of some contraceptive method [15] however, contraceptive use remains quite low, with 25% of currently married Nigerian women having unmet family-planning needs [15]. Reasons for the non-use of family-planning services include a lack of awareness, inaccessibility of family planning services, and cultural limitations on the mobility of women [1].

The ideal tool for the immediate postpartum insertion of a PPIUD is the Kelly forceps but ring/sponge-holding forceps can also be used. Post-placental insertion is usually accomplished manually or with Kelly forceps, whereas intra-cesarean insertion is performed manually or using ring/sponge-holding forceps prior to closure of the uterus. Counselling at the time of insertion and early follow-up in the community are important in assisting with the early identification of expulsion and other complications.

In the study setting, a universal range of safe and reliable family planning methods is not available and, to the best of our knowledge, there are no published studies examining the safety and acceptability of PPUID in Nigeria. The aim of the present study was to evaluate the feasibility, acceptability, uptake, and safety of PPIUD in the context of provider training and supervision.

2. Materials and methods

A prospective analytical cohort study enrolled patients undergoing delivery between June 1, 2014 and May 31, 2015 at eight private medical centers and maternity clinics located in five states in South-South and South-East Nigeria, namely Edo, Delta, Anambra, Ebonyi, and Abia states. All patients undergoing delivery during the study period were considered for inclusion. Patients were excluded if they demonstrated any contraindications for PPIUD insertion, including chorioamnionitis, membrane rupture for longer than 18 hours prior to delivery, ongoing bleeding following delivery, or any uterine anomalies. The Ethics and Research Committee of the University of Benin Teaching Hospital (UBTH) approved the study protocol and written informed consent was obtained from all participants.

All providers (including doctors and midwives who had previously offered family-planning services and were franchises of Marie Stopes International, Nigeria) who participated in the present study underwent training at UBTH during a 5-day residential PPIUD training workshop during May 2014. During the training period, patients in labor attending UBTH received information on the training program and, if they consented to participate, healthcare providers from the study sites were trained during the subsequent PPIUD-insertion procedures. Training was delivered for post-placental and immediate insertion, and cesarean-delivery insertion. The training workshop also included detailed lectures, practice on manikins, and practical sessions focused on infection prevention and control, balanced counselling strategies, and the prevention and identification of adverse events following PPIUD insertion.

Following the training workshop, providers received PPIUD kits that included Kelly forceps. Participating healthcare providers received data extraction charts for recording data on PPIUD procedures including the number of parturients counselled, the number of deliveries, the number of patients who elected to receive a PPIUD, and the number of expulsions and other complications.

All patients who delivered at the study sites between June 1, 2014 and May 31, 2015 were considered for eligibility; additionally, patients attending prenatal clinics who were expected to deliver at these sites during the study period were counselled and considered for inclusion. All potential participants received counselling regarding the aims of the study and all participants provided written informed consent in early labor or following delivery to be included in the study and receive a copper T 380A PPIUD. Pre-insertion, participants received further counselling regarding the advantages of PPIUD, details of the procedure, alternative contraceptive methods, inclusion and exclusion criteria, as well as patient expectations, adverse effects, and possible complications. Participants were free to withdraw their consent to participate at any point during the pre-implantation period.

Following PPIUD insertion, participants received detailed post-insertion counselling regarding expectations, adverse effects, symptoms of complications, how to check the IUD thread, and reasons to make emergency visits to healthcare facilities related to PPIUD. Participants were asked to return to the healthcare facility where their PPIUD was inserted 14 days after delivery or immediately if they experienced PPIUD expulsion, resumed vaginal bleeding, fever, or malodorous lochia. Antibiotics were only administered to patients who underwent intra-cesarean PPIUD or who had other indications not related to IUD insertion. An in-clinic follow-up evaluation was scheduled for 6 weeks after PPIUD insertion. Patients who experienced PPIUD expulsion prior to 6-week follow-up were offered other methods of contraception, and were asked to return for interval insertion if they still wanted to have an IUD inserted. All study participants were expected to attend further evaluations in the future if they intended to keep their IUD in place.

Data recorded included patient demographic information, the delivery rate for the study facilities, the number of eligible patients counselled, the number of patients who agreed to participate, and the actual number of patients who received PPIUDs. Other data recorded included complication rates, scheduled follow-up visit attendance rates, patient satisfaction at 6-week follow-up (measured using a 5-point scale, with 1 indicating very dissatisfied and 5 indicating very satisfied), if patients intended to use a PPIUD again in the future, and if they would recommend PPIUD to others. Data were collated and submitted to UBTH on a monthly basis throughout the study duration. A clinical training officer competent in PPIUD insertion visited all participating healthcare providers monthly to collect data and provide continued technical assistance to improve patient care. The principal investigator (J.D.K.S.) visited each of the participating healthcare centers at least once during the study period as part of a quality technical assistance exercise to further improve the quality of PPIUD healthcare being provided.

Data were analyzed using SPSS version 20.0 (IBM Inc, Armonk, NY, USA), were expressed as absolute numbers and percentages, and were compared using the χ^2 or Fisher exact test. Satisfaction with PPUID insertion was compared between patients who experienced expulsions and those who did not; $P < 0.05$ was considered statistically significant.

3. Results

Across all eight participating healthcare centers, there were a total of 1061 deliveries during the study period; of these, 746 (70.3%) women were considered eligible for inclusion and received counselling regarding the study. Of the patients eligible for participation, 374 (50.1%) consented to participate and received a PPIUD. A further 42 (5.6%) patients consented to participate but developed PPIUD contraindications that resulted in their exclusion. The median age of participants was 38 years (range 19–49), and 187 (50.0%) were older than 35 years. The median parity of participants was 5 (range 1–11), and a majority (243 [65.0%]) had a parity between two and five. Of the patients who received a PPIUD, 56 (15.0%) were obese and 34 (9.1%) were in the lowest social-class group (Tables 1, 2, Fig. 1).