



A Retrospective Analysis of Copper T380A Intrauterine Device in Rivers State, Nigeria: Side Effects and Discontinuation Rate

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Authors' contributions

This work was carried out in collaboration among all authors. Author NEE designed the study, wrote the protocol and wrote the first draft of the manuscript. Author ESN performed the statistical analysis. Authors AIJ and NEE managed the analyses of the study and the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Background: Intrauterine contraceptive devices (IUCDs) are long term, effective and reversible methods of contraception used worldwide by millions of women. The users discontinue its use despite the effectiveness due to various reasons.

Objective: To determine the prevalence rate, side effects, discontinuation rate and indications for discontinuation of Cu T380A at Rivers State University Teaching Hospital (RSUTH), Port Harcourt.

Methods: A retrospective study of 874 clients attending family planning clinic at the RSUTH from 1st January, 2015 – 31st December, 2019. Their records were retrieved from the clinic and reviewed. Data was extracted, coded and analyzed using the statistical package for social sciences (SPSS) IBM version 25.0 (Armonk, NY).

Results: Of the 874 acceptors of contraceptives, 221 accepted and used Cu T380A within the

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study period giving a prevalence rate of 25.3%. The mean age was 37.87 ± 5.01 years. The modal age group was 35-39 years accounting for 81 (36.7%). Age range was 23-51 years and most (63.8%) were multiparous. Majority of the clients had formal education 217 (98.2%) and were married, 219 (99.1%). Discontinuation rate was 29.4% and the common reasons for discontinuation were menorrhagia, 14 (21.6%); desire for pregnancy, 13 (20%); irregular vaginal bleeding and menopause each contributing 8 (12.3%). Others were missing string, 6 (9.2%), vaginal discharge, sexual problems, lower abdominal and waist pains each accounting for 5 (7.7%) respectively. There was one unintended pregnancy.

Conclusion: Copper T380A is safe and effective. Menorrhagia and irregular vaginal bleeding were the commonest side effects. Pregnancy desire and side effects were the reasons for its discontinuation.

Keywords: Intrauterine device; prevalence; side effects; discontinuation rate; RSUTH.

1. INTRODUCTION

Worldwide, the use of copper intrauterine contraceptive devices (Cu-IUDs) has increased in the past decades and remains the most widely used long term, effective, safe and reversible method [1]. The lowest use of intrauterine device (IUD) is seen in Sub-Sahara Africa (0.8%) [2]. Nigeria has a contraceptive prevalence of 15% which is still low [NDHS 2014]. Copper T380A is popular among Nigerian women as it is cost effective and long acting [3,4]. It is inserted at any time of the menstrual cycle provided that the client is not pregnant. Intrauterine device has undergone several modifications from old inert devices to modern ones with either copper or levonorgestrel (LNG-IUS) attached to their frame. It comes in different shapes and sizes with improved efficacy and reduced side effects [4-6].

The LNG-IUS reduces menstrual loss and is more popular in developed countries [7,8]. It is not used for emergency contraception unlike Copper T380A which is a very effective form of emergency contraception. The IUCDs stimulate marked inflammatory reaction in the uterus and fallopian tubes. The concentration of the macrophages, leucocytes, prostaglandins and various enzymes in both uterus and tubal fluid interfere with the transport of spermatozoa and ova. They also prevent implantation should a healthy fertilized ovum reach the endometrial cavity [9,10]. Generally, pregnancy rates for current IUCD (including the TCU380A) are less than 1 per 100 women year [11,12].

Known side effects and complications associated with the use of copper T380A include displacement, expulsion from the uterus, perforation of the uterus, vaginal discharge, abnormal uterine bleeding, accidental and ectopic pregnancies.

The major reasons for discontinuation are desire for pregnancy and side effects [6,13,14]. It is on this background that this study aims at determining the acceptance rate, effectiveness, side effects, discontinuation rate and the reasons for discontinuation of copper T380A at the RSUTH. The outcome of which will improve the services and lead to a reduction in discontinuation rate among women who have completed their family size and those for childbirth spacing.

2. MATERIALS AND METHODS

This retrospective study was carried out at the family planning clinic of the Rivers State University Teaching Hospital (RSUTH) Port Harcourt, southern Nigeria. The clinic gets its clients from within and outside the hospital. It has its own records section different from the hospital records and this makes it easy to retrieve the clients' case notes. The clinic is headed by a consultant family physician with the support of trained family planning nurses. Resident doctors, medical students and student nurses rotate through the clinic in batches. The clinic opens for eight hours daily from Monday to Friday.

At presentation, the clients were welcomed by trained family planning nurses and physicians who also counseled them. The clients could make informed choice based on their needs and available contraceptives suitable for them. Thereafter medical history and clinical examination were done. Other contraindications to Cu T380A insertion are huge uterine fibroids and acute pelvic inflammatory disease (P.I.D). The Cu T380A acceptors were also counseled on the side effects and the need to continue with this method of contraception. In the absence of complications, post insertion visits are at 6 weeks and thereafter 3 monthly. The clients were

advised to report any side effects and complications. These complaints were well documented and managed appropriately. Clients were considered lost to follow up if they default 2 or more consecutive visits.

The record cards of all the clients that accepted and used Cu T380A between 1st January, 2015 and 31st December, 2019 were retrieved and studied. The information extracted from the cards included the socio-demographic characteristics of the clients, previous contraceptive methods used and their sources, side effects and complications of the current contraceptive, discontinuation and the reasons for discontinuation. The data was analyzed with the statistical package for social sciences (SPSS) IBM version 25.0 (Armonk, NY) using frequency counts and percentages.

3. RESULTS

During the study period, there were 874 contraceptive acceptors. Of this figure, 221 accepted and used Cu T380A intrauterine device giving an acceptance rate of 25.3%. It is the second most accepted contraceptive after implanon. The age range was 23-51 years and the mean age was 37.87 ± 5.02 years. The modal age group was 35-39 years accounting for 81 (36.7%). No teenager used the IUCD during the study period. Majority of the clients, 141 (63.8%) were multiparous, married 219 (99.1%) and Christians 220 (99.5%). The parity range was 0 to 10 and modal parity was para 4. Seventy four (33.4%) grandmultipara, five (2.3%) primipara and only one (0.5%) nullipara used Cu T380A. Two hundred and seventeen (98.2%) women had formal education out of which 94 (42.6%) had tertiary level of education while 113 (51.1%) and 10 (4.5%) had secondary and primary levels of education respectively. The socio-demographic characteristics of Cu T380A acceptors are shown in Table 1.

Fig. 1 shows the sources of previous contraceptives used by the clients. One hundred and thirteen (51.1%) clients got their previous contraceptives from government owned hospitals, 15 (6.8%) got theirs from private hospitals and 93 (42.1%) did not use any form of contraceptives. Most of the clients 81 (36.7%) previously used IUCD, 79 (35.8%) did not use any form of contraceptives, 18 (8.1%) previously used barrier method and 14 (6.3%) used oral contraceptive pills (OCPs). Others were withdrawal method 8 (3.6%), injectable 7 (3.2%),

implant 6 (2.7%), Calendar method 6 (2.7%) and postinor 2 (0.9%). This is shown in Table 2.

Table 1. Socio-demographic characteristics of the clients

Variable	No.	Percentage (%)
Age		
20-24	2	0.9
25-29	7	3.2
30-34	43	19.4
35-39	81	36.7
40-44	67	30.3
45-49	18	8.1
> 50	3	1.4
Educational status		
No formal education	4	1.8
Primary	10	4.5
Secondary	113	51.1
Tertiary	94	42.6
Religion		
Christianity	220	99.5
Islam	1	0.5
Parity		
Nullipara	1	0.5
Primipara	5	2.3
Multipara	141	63.8
Grand multipara	74	33.4
Marital status		
Single	2	0.9
married	219	99.1

■ private ■ Government hospitals ■ none

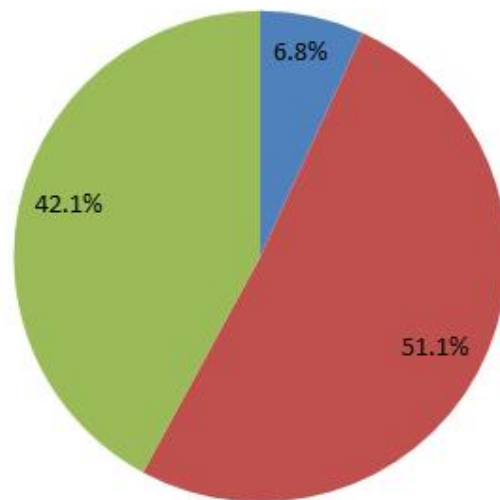


Fig. 1. Sources of previous contraceptives used by clients

Table 2. Previously used contraceptives by the clients

Methods	Frequency	Percentage
Postinor	2	0.9
Calendar	6	2.7
Implant	6	2.7
Injectable	7	3.2
Withdrawal	8	3.6
OCP	14	6.3
Barrier	18	8.1
No method	79	35.8
IUCD	81	36.7

OCP: Oral contraceptive pills

Side effects associated with the use of Cu T380A which also contributed to the reasons for discontinuation of this contraceptive method are shown in Table 3. One hundred and fifty six (70.6%) clients did not have any complaints and did not discontinue its use. Of the 65 clients that discontinued use, fourteen (21.6%) had menorrhagia, 8 (12.3%) clients each had irregular vaginal bleeding and attained menopause respectively. Six (9.2%) women complained of missing string and 5 (7.7%) women each complained of vaginal discharge, sexual problems, lower abdominal and waist pains respectively. Thirteen (20%) clients desired to get pregnant and there was one unintended pregnancy giving a Pearl pregnancy rate of 0.45 per 100 woman years.

Table 3. Side effects and reasons for discontinuation of Cu T380A (n=65)

Reasons and side effects	Frequency	Percentage
Menorrhagia	14	21.6
Desire for pregnancy	13	20.0
Irregular vaginal bleeding	8	12.3
menopause	8	12.3
Missing string	6	9.2
Vaginal discharge	5	7.7
Lower abdominal/waist pain	5	7.7
Sexual problem	5	7.7
pregnancy	1	1.5

Fig. 2 shows the discontinuation rate of Cu T380A intrauterine device. Sixty five clients discontinued its use during the study period giving a discontinuation rate of 29.4%. Fifty two (23.5%) out of this 65 clients, discontinued use due to the side effects.

■ continuation rate ■ discontinuation rate

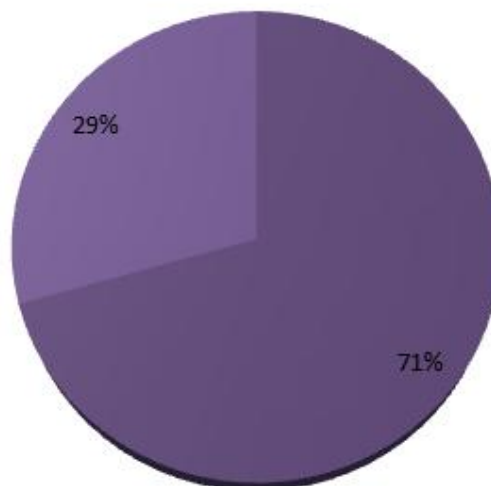


Fig. 2. Continuation and discontinuation rates of Cu T380A

4. DISCUSSION

Copper T380A intrauterine device is the second most frequently accepted and used contraceptive method among women attending the family planning clinic of Rivers State University Teaching Hospital (RSUTH) following implanon. In a previous, though larger study done by Nonye-Enyidah et al, it was the most frequently used contraceptive [15]. The uptake rate of Cu T380A during the study period was 25.3%. This is corroborated by a study done earlier in Port Harcourt where the uptake rate was 25.5% [7]. The finding is higher than 13.2% and 16.2% reported in Abakaliki and Port Harcourt respectively [5,16] but less than 64.1% recorded in another study in southern Nigeria [17]. The mean age of the acceptors was 37.87 years. This is similar to 37.8 years from a previous study [6] and higher than 30.7, 33.3, 33.5, and 33.7 years respectively in other centres[5,7,16,17].

Majority of the clients 81 (36.7%) were within the age range of 35 and 39 years which is not in keeping with the findings from other centres where the modal age group was 30-34 years [6,7,16] but similar to findings from a study done in Abakaliki, south east Nigeria [5]. There was no adolescent that used Cu T380A during the study period as was seen in other studies [5,7]. Studies have shown increased risk of expulsion of IUCDs

and Pelvic Inflammatory Disease (PID) among teenagers and nulliparous women. They are also unlikely to be married and would benefit from abstinence or barrier methods to prevent sexually transmitted infections (STIs) as well as the contraception effects. Hence IUCD is not advisable to be the first choice of contraceptive in this age group of clients [16,18].

Multiparous women had the highest acceptance rate of 63.8% as they are the group who seek for contraception to limit the family size and space the childbirths [17]. This is in keeping with similar studies done in Calabar and Port-Harcourt [7,15,16,19]. Seventy four grandmultiparous women accepted and used Cu T380A instead of sterilization. In our environment, acceptance of sterilization due to cultural reasons is very low [17,20] therefore Cu T380A whose pregnancy rates have been shown to be consistently less than 1% and whose effectiveness rivals that of surgical sterilization [20] would be an excellent contraceptive option for these group of women. In studies done by Bello et al and Anyaka et al, most of the clients were grandmultipara who preferred IUCD for terminal contraception [6,21].

Majority of the acceptors (99.1%) were married since this method of contraception is particularly for those women who are in stable relationship as in marriage [16]. This finding is in keeping with the users of IUCD in other studies [16,19]. This also shows that our government family planning clinics are primarily directed towards mature females in stable relationship [16].

Majority of acceptors in this study are educated with most of them having secondary education similar to studies done by Iklaki et al and Bello et al [6,22]. This is in keeping with the observation by experts that educated couples are more likely to accept modern methods of contraception than the uneducated ones [16]. Most of the clients are Christians because majority of the population in southern Nigeria are Christians.

More than 70% of the clients had no side effects indicating a good safety profile of the contraceptive. Unlike previous studies in Nigeria-Jos [21,23], Abakaliki[5], Ibadan [24], Calabar[22], Port Harcourt [7] and Nnewi[17] where desire to get pregnant was the commonest reason for discontinuation, menstrual disorders were the commonest complications and reasons for removal of the IUCD in this study accounting for 33.9% of the total request for removal. This is in keeping with results of other

studies [6,25]. World Health Organization (WHO) has also reported that side effects of IUD are the commonest reasons for its discontinuation [1]. Eight women (12.3%) attained menopause during the use of the IUCD leading to the removal. All the missing strings were found within the uterine cavity and retrieved. Five (7.7%) women with recurrent vaginal discharge discontinued the use of IUCD. Studies have shown that the risk of vaginal discharge came from the insertion therefore the process of insertion must be aseptic and done in an aseptic environment [16]. Also 5 clients had their IUCD removed due to sexual problems. Their husbands complained about the strings in the vagina and wanted the device to be removed. This brings out the role of men in contraceptive decision.

Actual discontinuation rates of contraceptives vary by region, country and method of contraception [26]. The discontinuation rate of Cu T380A in this study is 29.4%. This corroborates to 29.6% and 29.5% seen in studies done in Abakaliki and Port Harcourt respectively [5,7]. Since Cu T380A has side effects that can lead to discontinuation of the drug, it is important that health care providers should counsel the clients adequately on the benefits and side effects before and during use to reduce the discontinuation rate caused by the side effects. One accidental pregnancy occurred while the women were on the contraceptive, indicating how effective this method of contraception is. This finding is also identical to other studies [7,16]. The limitation of the study is that it is a retrospective one therefore the authors were constrained to use only the information in the clients' cards.

5. CONCLUSION

The uptake rate of Cu T380A is relatively low. Menstrual disorders remain the major side effects of this contraceptive which could lead to its discontinuation. It has been found very effective in preventing accidental pregnancies therefore adequate counseling and support before and during use will reduce the discontinuation rate.

CONSENT AND ETHICAL APPROVAL

The Hospital's Ethics committee gave the ethical approval. Urine analysis and pregnancy test were also done for the clients and informed consent obtained before insertion.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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