POSITIVE ADAPTIVE RESPONSE OF WOMEN IN LOW SOCIO-ECONOMIC CLASS FOR CHANGE OF CONTRACEPTIVE METHOD FROM COMBINED CONTRACEPTIVE PILLS TO COPPER INTRAUTERINE DEVICE

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ABSTRACT

Objective: To ensure family spacing in our low socio-economic class.
Study Design: Quasi-experimental study.
Place and Duration of Study: Pak Emirates Military Hospital Rawalpindi, from Jan 2018 to Dec 2019.
Methodology: Two hundred females using oral contraceptive pills for spacing of children coming to Pak Emirates Military Hospital were selected. The problems of using contraceptive pills were identified. Out of these 87 women agreed to choose an intrauterine copper device (IUCD).
Results: Out of 200 women 87 converted from oral contraceptive pills to intrauterine copper device use. Most of them faced daily dosage problems 168 (84%). Nausea was encountered by 123 (61.5%) women and later settled in 89 (44.5%) women. About 31 (15.5%) were worried about the chances of uterine perforation and 56 (28%) were worried about lost intrauterine copper device resulting in laparotomy. About 65 (32.5%) were afraid of infection, backache and vaginal discharge. About 91 (45.5%) women thought to have gastric problems with the intrauterine copper device. About 71 (81%) agreed to have a spacing of children for about five years and removal whenever desired.
Conclusion: Intrauterine contraception is a very safe and efficient method for contraception as compared to oral pills. If expertise is, available it should be used and couples should be fully educated for its safety.

Keywords: Family planning, Intrauterine copper devices, Oral contraceptive pills.

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INTRODUCTION

More than 168 million women worldwide women use intrauterine devices (IUDs), and studies have shown that intrauterine copper devices have an efficacy of 99%, especially in the first year of use[1]. From 2009 to 2012, the use of intrauterine copper devices has exponentially increased from 8.5-11.6% among women living in the United States[2]. In Pakistan, intrauterine copper devices are a very popular method of contraception owing to their convenience of use, easy discontinuation if required, and long term protection against pregnancy. Moreover, it is the second most popular contraceptive technique, with a 99.2-99.8% success rate within the first year of use[3]. Furthermore, the failure rate of intrauterine copper devices is only 0.8% at one year[4]. The use of intrauterine copper devices is unrelated to the patients' age, comorbidities, and does not depend on patient compliance[5]. They can be used effectively in the postpartum period and can work as an efficient contraceptive for emergency contraception[6,7]. Recently, due to a decrease in overall cost and proper counselling, studies prove that a large number of women choose intrauterine copper devices over contraceptive pills[2]. Moreover, oral contraceptives, patches and vaginal rings were linked to 20 times higher pregnancy rates than intrauterine copper devices[8]. Results from recent studies have shown a shift towards intrauterine copper devices among women of reproductive ages. They are even being recommended for use among sexually active teenagers in some countries, and easier access to these devices has been facilitated[9,10]. However, despite the advantages of intrauterine copper devices, women in some countries are still hesitant about using them. This might be a result of a lack of technical training of providers, concerns about adverse effects, especially infertility and infection. Another reason could be a lack of implementation of proper services to provide intrauterine copper devices[10]. An important concern among intrauterine copper devices users is the increased risk of pain and heavy menstrual bleeding, however, studies show that the frequency of

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these side effects decreases a few months after intrauterine copper device use[8].

Another popular method of contraception is the use of oral contraceptive pills. However, oral contraceptive pills use has been linked to a large number of side effects. When the risk and benefits of intrauterine copper devices were compared with those of oral contraceptive pills, it was reported that oral contraceptive pills had a higher risk profile than intrauterine copper devices. The most harrowing issue involved with oral contraceptive pill use is patient compliance. Oral contraceptives pills have been linked to poor patient compliance leading to a high risk of contraception failure[6]. Imperfect use of oral contraceptive pills increases the risks of ovulation and in turn, increases the risk of unwanted pregnancy by 8% in 1 year[10]. As far as the side effects of oral contraceptive pills are concerned, the most common disadvantage reported was breakthrough vaginal bleeding. A study conducted by Archer *et al* reported that 18.5% of patients withdrew from the trial due to breakthrough bleeding[10]. However, another study reported improvement in the bleeding patterns with continuous use. Other side effects such as headaches, mood swings, bloating also seemed to improve with continuous use[10]. Other side effects of oral contraceptive pills reported in the literature are nausea, weight gain, and headaches. Oral contraceptive pills have also been reported to increase the risk of deep vein thrombosis (DVT), cholelithiasis, and increased risk of liver adenomas[1]. These side effects of oral contraceptive pills make intrauterine copper devices more favourable and efficient for the prevention of pregnancy. In this study, we have summarized the benefits of intrauterine copper devices over contraceptive pills as documented during our study.

METHODOLOGY

The quasi-experimental study on 200 females, at Pak Emirates Military Hospital was carried out from January 2018 to December 2019. Ethical Approval was obtained by the Institutional Review Board (IRB No. A/28/EC/ 86).

Inclusion Criteria: Females using combined oral contraceptive pills.

Exclusion Criteria: Non-consenting females were excluded.

Most of them were from low socio-economic class and were using these pills for a period of six months to five years. Most of them were not living with their husbands as they were away due to army service requirements. They were asked about the problems during use of this method and issues were identified. Patient consent was obtained before commencing the study and patient confidentiality was ensured. Most of them reported being non-complaint to oral contraceptive pills. A number of side effects were faced by these women and nausea was mostly encountered side effect. They were also worried about vomiting, headache, weight gain, acne, abdominal distention and mood swings. Those who were uncomfortable with this method were educated for intrauterine copper devices. Out of these 200 women 87 were convinced and intrauterine copper devices was placed. Those who were not convinced were 113 and there were reasons for continuing of pills. The most common reason was that the husband comes home on planned vacation usually for few days to a month only in intervals, so continued contraception is not required. They were willing to continue pills in spite of side effects and problems. The use of pills was for short duration of about one or two months with interval of two to three months. The patients were followed up after six months. All the data was spread in the form of tables and calculations were made. Percentages were figured out. Data was analyzed by using SPSS-22 and student t-test was applied. The *p*-value was calculated and was found to be significant if ≤5.

RESULTS

Out of 200 women, 87 were willing to change of family planning method from oral contraceptive pills to intrauterine copper devices (Table-I). There were certain reasons for which they were using oral contraceptive pills but they also had certain reservations with its usage. The problem mostly faced was difficulty in regular usage which was 168 (84%). Nausea was encountered by 123 (61.5%) women and was later settled in 89 (44.5%) of them. Similarly, vomiting was a problem with the usage of oral contraceptive pills in 40 (20%) women. Headache, weight gain and abdominal distention was suffered by 61 (30.5%), 44 (22%) & 22 (16.5%) of women respectively. Acne was seen in 10 (5%) of patients but it was bearable. There were a previous history of failed contraception with oral contraceptive pills in 29 (14.5%) women. After the counselling session, 87 (43.5%) women were convinced of the

Table-I: Division of women for choice of method of contraception (n=200).

Method of Contraception	n (%)
Women continuing oral contraceptive pills	113 (56.5)
Women adapted intrauterine copper devices	87 (43.5)

insertion of intrauterine copper devices and 113 (56.5%) wished to continue with the preexisting method of contraception (Table-II).

Our patients were apprehensive about the use of intrauterine copper devices due to their reported side effects. Out of 200 women, 71 (35.5%) were using oral contraceptive pills as they thought that intrauterine copper devices is a painful method. Similarly, 22 (11%) were afraid of bleeding followed by the procedure and almost the same number were afraid of the chances of device expulsion. About 31 (15.5%) were also worried about the chances of uterine perforation and 56 women were worried about lost intrauterine copper devices (28%) resulting in laparotomy. Out of our patients, 65 (32.5%) were afraid of infection, backache and vaginal discharge with the intrauterine device. Only 10 (5%) of women knew about the local reaction of copper in uterine walls. Approximately 91 (45.5%) of women were apprehensive of gastric problems following intrauterine copper devices use. A large number of women 131 (65.5%) had the perception that intrauterine copper devices caused heavy menstrual blood flow leading to weakness and anaemia (Table-III).

Table-II: Problems faced by women with use of combined oral contraceptive pills (n= 200).

Problems with Pills	No. of Women Experiencing the Problem (%)
Difficulty in Daily Dosage	168 (84)
Nausea	123 (61.5)
Nausea but settled later	89 (44.5)
Vomiting	40 (20)
Headache	61 (30.5)
Weight Gain	44 (22)
Abdominal Distention	22 (16.5)
Acne	10 (5)
Previous failed oral contraceptive pills	29 (14.5)

Table-III: Reasons to avoid intrauterine copper device (n=200).

Fears to Avoid Intrauterine Copper Device	No. of Women Fearing of Procedure due to Different Reasons (%)
Painful Method	71 (35.5)
Post procedure bleeding	22 (11)
Chance of Expulsion	21 (10.5)
Chance of Uterine perforation	31 (15.5)
Lost intrauterine copper devices & Laparotomy	56 (28)
Infection, Vaginal discharge, Backache	65 (32.5)
Local Copper Reaction	10 (5)
Gastric Problems	91 (45.5)
Heavy Menstrual bleeding, Weakness, Anaemia	131 (65.5)

Despite the above-mentioned problems with the intra-uterine system, a large number of women switched to copper intrauterine copper devices. Furthermore, the side effects seen with oral contraceptive pill use such as vomiting, headache, weight gain, and abdominal distention were reported in a very small percentage of intrauterine copper devices users, with 69 (79%) women reporting no side effects. Approximately 69 (79%) patients reported that they were psychologically better after using intrauterine contraception (Table-IV).

Table-IV: Reasons to adapt and continue intrauterine copper device in follow-up (n=87).

Reasons	Number of Women (%)
Better Compliance	67 (77)
Easy Follow up	55 (63.2)
Less chances of failure	62 (71)
Spacing for 5 years at a stretch	71 (81)
Easy removal when desired	71 (81)
Lesser Side Effects	69 (79)
Psychologically better	69 (79)

DISCUSSION

Despite the advantages of intrauterine copper devices, women in some countries are still hesitant about using them. This might be a result of a lack of technical training of providers, concerns about adverse effects, especially infertility and infection. Another reason could be a lack of implementation of proper services to provide intrauterine copper devices[11,12]. An important concern among intrauterine copper devices users is the increased risk of pain and heavy menstrual bleeding, however, studies show that the frequency of these side effects decreases a few months after intrauterine copper device use[13].

Another popular method of contraception is the use of oral contraceptive pills (OCPs). However, oral contraceptive pill use has been linked to a large number of side effects. When the risk and benefits of intrauterine copper devices were compared with those of oral contraceptive pills, it was reported that oral contraceptive pills had a higher risk profile than intrauterine copper devices[14]. The most harrowing issue involved with oral contraceptive pill use is patient compliance. Oral contraceptive pills have been linked to poor patient compliance due to their imperfect use due to missed pills. Imperfect use of oral contraceptive pills increases the risks of ovulation and in turn, increases the risk of unwanted pregnancy by 8% in 1 year[15]. As far as the side effects of oral contraceptive pills are

concerned, the most common disadvantage reported was breakthrough vaginal bleeding. A study conducted by Archer *et al* reported that 18.5% of patients withdrew from the trial due to breakthrough bleeding[10]. However, another study reported improvement in the bleeding patterns with continuous use[12]. Other side effects such as headaches, mood swings, bloating also seemed to improve with continuous use. Oral contraceptive pills have also been reported to increase the risk of deep vein thrombosis (DVT), cholelithiasis, and increased risk of liver adenomas[16,17]. These side effects of oral contraceptive pills make intrauterine copper devices more favourable and efficient for the prevention of pregnancy.

The choice of method of contraception to suit a woman of low socio-economic class is a big challenge. Whatever method to be used, must be easy to adapt for the female. In our study, the focus is low socio-economic class and most of the ladies of this class are multi-parous and less educated. They cannot abide by the regularity of oral contraceptive pills as was being done by most of the study population. The women using oral contraceptive pills had problems with its side effects such as nausea, vomiting, headache, bloating, weight gain and acne. They were not happy about its use as previously they had a failure with this method of contraception. In our study group, 43.3% of women agreed upon the effectiveness of intrauterine copper devices. There were different reasons for continuing oral contraceptive pills or switching to intrauterine copper devices. Those who continued oral contraceptive pills despite side effects and problems were due to that their husbands were Government Servants. They usually come home on planned vacations and for almost two to three weeks after two to three months. Therefore, they chose oral contraceptive pills as they thought that continued contraception is not needed for them.

The other group of patients adopted intrauterine copper devices for contraception. They wanted to have contraception without oral medicine and lesser side effects. This study population was very apprehensive about using intrauterine copper devices, especially about the painful procedure, post-procedure bleeding, heavy periods, risk of infection, and risk of a lost intrauterine copper device and need for laparotomy. They also had wrong ideas about gastric problems with this method. Those patients who had intrauterine copper devices placed showed good compliance after six months of follow-up, keeping in mind that it was a safe method, provided five years of contraception, and could be removed when desired.

A study conducted by Azmat *et al* in Pakistan showed the reasons for use of intrauterine copper devices and their discontinuation. It showed that women did not want to use intrauterine copper devices due to side effects like heavy menstrual bleeding, infection and gastric problems. The study reported a discontinuation rate of 526 (18%)[1]. This study is comparable with our study as it showed the misconceptions and fears of women about the intrauterine device. However, our study reported better response with intrauterine copper devices, with 43% of women agreeing to intrauterine copper devices placement and 79% of women reporting psychological satisfaction with intrauterine copper devices to use.

A study conducted by Nelson *et al,* in the United States, showed new developments in the intrauterine device system and showed that more people preferred to use intrauterine devices over contraceptive pills. Furthermore, heavy menstrual bleeding reported with intrauterine device use was reported to decrease to 48% at 12 months follow up. Our study also reported lesser side effects with intrauterine copper device use as compared to OCP use in 79% of women[2]. The results from our study also show overall satisfaction with intrauterine copper device use, with 81% of individuals being satisfied with 5 year spacing of pregnancies.

In an article published by Yoost *et al* the benefits of using intrauterine devices were reported. It showed that intrauterine systems are safer, cheaper and easily available with lesser side effects[5]. It also reported an improvement in menorrhagia and dysmenorrhea. In our study, the same factors are discussed to choose intrauterine copper devices for choice of contraception in patients.

Birgisson NE and colleagues conducted a project for preventing unintended pregnancies in different groups. They showed that the method of choice of contraception should be adopted according to the situation and it should be effective to prevent unwanted pregnancy[8]. Folger SG and co-workers published Evidence-based guidance on Selected Practice Recommendations for contraception which showed the appropriate methods of choice for contraception in different scenicros[18].

LIMITATION OF STUDY

There were several limitations to our study. Firstly, our studies carry all the limitations of a single centre retrospective analysis design. Secondly, the

follow-up period was not adequate to assess compliance in patients using intrauterine copper devices. We were unable to account for the influence of residual unmeasured factors affecting the outcomes.

At the same time, however, to the best of our knowledge, our study is the first study done in Pakistan which reports a positive adaptive response towards intrauterine copper devices in women belonging to low socioeconomic class. This warrants a need for further studies to adopt an algorithm for suitable contraceptive methods according to patient needs.

CONCLUSION

Copper intrauterine copper devices are safe, cheap and commonly used methods of contraception with a lesser failure rate. If expertise is available, it should be a method of choice in the low socioeconomic group.

Conflict of Interest: None.

Authors' Contribution

TY: Conception, manuscript writing, NA: Design, FZ: Data analysis, FK: Supervision, validation, MSM: Manuscript writing, MM: Manuscript editing.

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