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Factors Influencing Discontinuation of Intrauterine Contraceptive Device (TCu-380A)

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Abstract: To estimate the frequency and the medical and general reasons for discontinuation of intrauterine device (TCu-380 A), duration of IUD use in patients who were admitted to our clinic for removal of IUD. We studied 271 cases of IUD removal with respect to duration of use, cause of removal and sociodemographic characteristics. All of IUD removed was Tcu-380 A. The relationships among duration of use, age, number of children were analyzed. The reasons for removal and their relationship to duration of use were investigated. The mean age of cases included in the study was 28.1 years, mean duration of use was 3.4 years and mean number of children was 2.3. Although there was no statistically relationship between causing discontinuation with number of children, we observed that women with any number of children removed IUD due to bleeding and spotting. The reasons for removal were frequently side effects related to IUD use. We observed that medical reasons specially bleeding and spotting were the commonest cause of discontinuation of IUD.

Key words: Intrauterine contraceptive device, discontinuation of IUD, TCu-380A, Iran

INTRODUCTION

Intrauterine Devices (IUD) are used extensively worldwide. In 1995, 106 million women were using IUDs for birth control (Nelson, 2000). IUDs are the most common method of reversible female contraception worldwide (Markovitch *et al*., 2002). Many contraceptive methods produce changes in the menstrual cycle. IUDs have been associated with increased menstrual bleeding and cramping. It was soon discovered that early copper IUDs (Tcu-200, Cu-7) had less adverse effects like pain and bleeding and they were equally effective in preventing pregnancies. The first generation of copper IUDs required replacement in several years and to correct this drawback, a second generation of IUDs were developed with longer life and more efficacy, such as TCu-380 A, TCu-220 C, Nova-T and multiload 375, later in the 1970s, hormone releasing IUDs were developed (Treiman *et al*., 1995).

Our aim in this study, was to assess a sample population of women in our region who requested removal of their IUDs for the duration of IUD use, causing discontinuation and some related sociodemographic characteristics of them.

MATERIALS AND METHODS

This descriptive-causative study was carried out at the Ardabil, Iran Health Clinics in the years 2005-2006. We reviewed 271 women of IUD removal with respect to sociodemographic characteristics, duration of IUD use and causing discontinuation. All of IUD removed was Tcu-380 A. The relationships among duration of IUD use, age, level of education and number of children the patient had were investigated. Statistical assessment of data was performed by using the SPSS 9.0 software. The relationship between causing discontinuation and patient's level of education was analyzed by unidirectional variation method (ANOVA) and number of children the patient had were assessed with the Kruskal-Wallis test. The relationship between causing discontinuation with age and duration of IUD use were assessed by X^2 test.

RESULTS

In our study of 271 cases, the mean age was 28.1 years, number of children was 2.3 and mean duration of IUD use was 3.4 years. The majority of the cases were not complete secondary school (65%), illiterate (22%),

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university graduated (13%) and unemployee (94%). Reasons for IUD removal were some medical factors (70.5%) and some general factors (29.5%). Medical reasons including heavy bleeding and spotting (24.4%), PID and cervicitis (18.1%), back pain and cramping (16.6%), spontaneous expulsion (9.2%), perforation (1.1%) and incomplete removal (1.1%).General reasons including desire for conception (23.6%), tuballigation (3.3%), getting divorce (0.7%), husband's disability (0.7%), vasectomy (0.4%), family desire to removal (0.4%), husband's death (0.4%) (Table 1). About 31.3% of cases used IUD for less than one year, 18.4% more than 5 years and 28.5% between 2-3 years and 21.9% between 4-5 years.

Table 2 show most common medical reasons for discontinuation among the less than five years users, were heavy bleeding and spotting in 62 cases, meanwhile for the more than five years users were PID and cervicitis in 18 cases and back pain and cramping in 14 cases. There was statistically significant relationship between duration of IUD use and causing discontinuation ($p = 0.003$). There were no significant difference between causing discontinuation and age (Table 3).

Table 1: Reasons for discontinuation of IUD

Medical reasons	Number	(%)
Bleeding and spotting	66	24.4
PID and cervicitis	49	18.1
Back pain and cramping	45	16.6
Spontaneous expulsion	25	9.2
Perforation	3	1.1
Incomplete removal	3	1.1
Total	191	70.5
General reasons		
Desire for conception	64	23.6
Tuballigation	9	3.3
Getting divorce	2	0.7
Husband's disability	2	0.7
Vasectomy	1	0.4
Family desire to removal	1	0.4
Husband's death	1	0.4
Total	80	29.5

DISCUSSION

The IUDs currently in use provide almost complete protection from pregnancy. IUDs save lives due to their efficacy in preventing pregnancy. In 1994, the FDA registered TCu-380A with a 10-year effective life, the longest duration for an IUD. TCu-380A is considered as one of the most effective contraceptive methods used to date (Rowe *et al*., 1993). When considered from the point of method continuity, IUDs are used longer than any of the other reversible contraceptive methods. In a study conducted by the World Health Organization, after 7 years, 44% of the women continued using TCu-380A (Treiman *et al*., 1995). Clinical studies have shown that the rate of continued use for IUDs is at least equal to or higher than Norplant and significantly higher than combined oral contraceptive, condom, or diaphragm (Sivin, 1983; Laing, 1985). Many research studies have documented the relationship between menstrual side effects of certain contraceptives and women's discontinuation of use (Paul *et al*., 1997).

Among available devices, TCu-380 A is the most frequently used IUD type with efficacy duration of 10 years. Tugrul *et al*. (2005) in Turkey showed that mean duration of IUD use was 5.8 years (Tugrul *et al*., 2005). Enrico's studies in New Zealand showed that mean duration of IUD use was 899 days. The main results of this study indicated that the median duration of IUD use were 3.4 years. We found a statistically significant difference between duration of IUD use with causing discontinuation ($p = 0.003$).

Salhan and Tripathi (2004) in their study, conducted in India in 2004, reported that discontinuation was higher

Table 2: Causing discontinuation vs. duration of IUD use

Causing discontinuation/ Duration of IUD use	Bleeding and spotting	PID and cervicitis	Back pain and cramping	Spontaneous expulsion	Incomplete perforation	General removal	Reasons	Total
1> year	36	17	15	8	1	1	13	91
2-5 Years	26	14	16	9	1	1	32	99
5< years	4	18	14	8	1	1	35	81
Total	66	49	45	25	3	3	80	271

Significant at the 0.05 level

Table 3: Causing discontinuation vs. age

Causing discontinuation/ Age groups	Bleeding and spotting	PID and cervicitis	Back pain and cramping	Spontaneous expulsion	Perforation	Incomplete removal	General reasons	Total
25> years	28	19	18	12	1	1	25	104
25-35 years	27	26	16	10	1	1	40	121
35< years	11	4	11	3	1	1	15	46
Total	66	49	45	25	3	3	80	271

among younger acceptors (24 or less) as compared to those who had accepted the device at later ages (30 years and above) irrespective of residence (Salhan and Tripathi, 2004). Rivera *et al.* (1999) indicated that age has been significantly effect on expulsion rates throughout the first year. Women<20 years old had significantly higher 12-month expulsion rates than women 30-34 years old and those>35 years, at 8.2, 2.3 and1.8, respectively. However, age did not have any effect on discontinuation by 12 months because of bleeding and pain or personal reasons (Rivera *et al.*, 1999). Our findings showed that women 35< years had lower discontinuation rate as compared to women<35 years. There were no significant difference between causing discontinuation and age.

Assessed relationship between the level of education of the IUD users and causing discontinuation, we did not find a statistically significant difference between the level of education with causing discontinuation.

Although there was no statistically significant difference in the causing discontinuation with respect to the number of children. We observed women with any number of children removed IUD due to bleeding and spotting. Rajeshwari and Hasalakar (1996) reported among rural users, 38.8% with one child or no child living, 51.2% with two to three children and 11% with four or more living children had discontinued use (Rajeshwari and Hasalakar, 1996). Khanna *et al.* (1992) implies that those who had more living children at the time of acceptance were likely to continue to use the method for a longer duration than those with fewer children (Khanna *et al.*, 1992).

When we investigated the causes of discontinuation, we obtained that bleeding and spotting were the common adverse effects of causing discontinuation. indicated that more than 40% of discontinuers of each method cited heavy or long bleeding as one of the most common important reasons. Treiman *et al.* (1995) in their studies showed IUDs have been associated with increased bleeding and cramping (Treiman *et al.*, 1995). In their research in New Zealand showed that menorrahagia and pelvic pain in IUD users were more frequently Rakhshani and Mohammadi (2004) indicated that the commonest reason for discontinuation was side effects (Rakhshani and Mohammadi, 2004). Pelvic pain and menorrhagia reported by Shrestha *et al.* (1995) in TCu- 380A users in Nepal (Shrestha *et al.*, 1995). Studies done in Turkey indicated that menorrhagia and pelvic pain in IUD users observed more frequently (Tugrul *et al.*, 2005). A survey of the literature reveals that irregular bleeding is the most frequent complaint and one of the major causes for discontinuing use of IUD. Clinical trial has shown that 4-15% of the women using IUDs tend to discontinue using this method due to this cause (Cao *et al.*, 2000).

The risk of perforation depends on the specific device used, the operator's skill, the position of the uterus and the time span between delivery and insertion (Sogaard, 1993). The majority of perforations are reflective of the ability and experience of the clinician performing the insertion, as well as the configuration of the uterus (Tatum *et al.*, 1976).

Perforation of the uterus is one of the serious complications associated with insertion of intrauterine contraceptive devices (Mishell, 1998; Chen *et al.*, 1998). Perforation of the uterus after intrauterine contraceptive device insertions is rare, occurring in only 0.8 per 1000 cases (Markovitch *et al.*, 2002). Results of this study confirmed the high rate of perforation in our cases.

Since the late 1960s, the potential relationship between the use of an intrauterine contraceptive device and the development of Pelvic Inflammatory Disease (PID) has been an area of considerable concern and controversy (Burkman, 1996). In the other study IUD use was not associated with PID in low-risk younger women, but in women = 35 years, IUD use was associated with an increased risk of PID. Also they demonstrate an association between IUD use and complicated PID in women =35 years (Ilze *et al.*, 2005). Stanwood reported that the net discontinuation rates due to pelvic inflammatory disease was low, ranging from 0.0 -0.8 per 100 women at one year (Stanwood *et al.*, 2001). In our approach women <25 years of age had higher PID rates than older women, especially compared to women>35 years.

CONCLUSION

The present study confirms, in this Ardabil, Iran population, most of the reasons for discontinuation are medical reasons, but general reasons are the cause of about 30% of discontinuation of IUD.

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