



## Reproductive Health of Women Using Copper-Containing Intrauterine Contraception

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**ABSTRACT**

Within 1 year after insertion of the IUD (group 1), the duration of menstruation in those examined significantly increased, pain and scanty discharge appeared, and the volume of menstruation, which was absent before insertion of the IUD, increased. The problem of contraception, which provides effective birth control in recent decades, remains one of the most pressing in gynecology.

**Keywords:**

Contraception, gynecology, IUD, medical abortion.

According to the classic WHO definition, family regulation is ensuring control of reproductive function for the birth of only desired children. Currently, obstetricians and gynecologists have at their disposal a large arsenal of contraceptives that allow them to preserve the reproductive health of women.

The use of effective contraception reduces morbidity and mortality primarily by reducing the number of unwanted pregnancies and births, allowing you to follow the rules: do not give birth too early - before 18 years of age, too late - after 35 years of age, too many - more than 4 and too often - from 3 to 18 months interval between birth and conception [1,2,3,4,5,6,7].

The use of contraception for the birth of only desired children should be considered as a woman's inalienable right to preserve her health, the health of present and future children. From 36 to 53 million abortions are performed annually in the world, i.e. Every year, 4% of women of fertile age undergo this surgical intervention [1,8,9,10,11,12,13,14]. Preventing pregnancy in women under 19 years of age and over 35 years of age, as well as maintaining an interval between births of at least 2-2.5 years

reduces maternal and child mortality by more than 2 times.

Contraception helps reduce the impact of an important negative factor in women's reproductive health - the number of abortions. Complications of medical abortion account for 20% of the causes of maternal mortality [Kurbanov D.D. et al., 2004; Radzinsky V.E., Ordiyants I.M., 2007]. Overall, the incidence of early, late and long-term complications after abortion ranges from 16 to 52% [1,15,16,17,18,19,20].

Short intervals between pregnancies negatively affect the health of the newborn and mother, increasing the incidence of preterm birth, low birth weight infants, and early neonatal and infant mortality [1,21,22,23,24,25,26,27,28,]. This relationship is primarily due to the incomplete recovery of the mother's body from birth stress and the lack of vital substances in her body. In this regard, contraception is of paramount importance for maintaining a woman's general and reproductive health.

Among the various methods of preventing unwanted pregnancy, intrauterine contraception (IUC) is the most popular.

According to WHO, more than 60 million women use it. In the USA, 77.9-89.9% of women resort to postpartum contraception [WHO, 2008]. In the Russian Federation, this figure is 22.9% [Verbenko A.A. et al., 2001; Prilepskaya V.N., 2009]. Many researchers believe that intrauterine contraceptives (IUDs) are the method of choice for breastfeeding women who have no contraindications to their use [1,29,30,31].

Among women of reproductive age, these methods remain the most popular method of contraception in many countries in Asia, the Middle East and Latin America. In terms of the absolute number of users, the leaders are China - 49.0%, Tajikistan - 68.9% [5] and Uzbekistan - 46.0% [1], while in Russia it is slightly lower - 22.9% [1].

In Uzbekistan in 2009, copper-containing intrauterine contraceptives were used by 46.1% of women of reproductive age [9]. VMK remains in the leading position in terms of demand. This is due to its high efficiency, the absence of a systemic effect on the woman's body, the rapid restoration of fertility after removal of the device, which is important, availability for any women of fertile age, the lack of connection with sexual intercourse and the need for daily monitoring of use, which is mandatory when taking oral contraceptives.

At the same time, when using IUDs, side reactions and complications develop in the form of expulsion, the development of inflammatory phenomena [11], menstrual irregularities, manifested by hyperpolymenorrhea, menometrorrhagia, which are observed in 11-24% of women with ICH [13] and can lead to anemia.

IUDs, despite their high efficiency, are often accompanied by the occurrence of metabolic disorders, which can have a negative impact on the state of the hemostasis system and be one of the important factors in the development of iron deficiency anemia - IDA [12].

In our region today, IUDs are one of the most popular methods of contraception among women. In some cases, IUDs are inserted into women with iron deficiency. In turn, side effects of the IUD such as hyperpolymenorrhea in the

form of prolonged and heavy menstruation lead to worsening iron deficiency.

Thus, despite the provision of an intergenetic interval using the IUD, the desired effect is not achieved - preparing women for future childbirth. By the time the next pregnancy occurs, the woman still has an iron deficiency, which gets worse during pregnancy. In the literature of recent years, there are conflicting opinions on this matter.

However, today, given the obvious disadvantages of using the IUD, practitioners are actively offering this method of contraception to women in our region. There is no data in the literature on the timing of prevention or treatment of iron deficiency in women using IUDs, depending on the timing of wear.

Purpose of the study: to establish the most significant factors that determine the nature of the course, predicting outcomes depending on the timing of wearing the IUD, the formation of IDA based on clinical, hematological, biochemical studies, studying endogenous blood intoxication in women in the dynamics of wearing the IUD.

**Research methods.** The examined women had an IUD inserted according to Muthal-RathoreA. [2004], who recommends inserting copper-containing T-shaped IUDs (CuT380A) no later than 48 hours after birth, taking into account the absence of infection and inflammation in the birth canal.

The surveyed women of the main (n=450) and control groups (n=40) kept a diary on the menstrual cycle, pain, amount and shape of discharge, duration and volume of menstruation.

The criteria for inclusion in the main study group were: wearing a copper-containing T-shaped IUD (CuT380A), absence of pelvic inflammatory diseases and cancer, women's age from 20 to 45 years.

All examined women using IUDs underwent a study of the nature and duration of menstruation before and after the introduction of an intrauterine contraceptive.

The studies showed that initially in the examined women of group 1 (n=150), the duration of menstruation ranged from 3 to 5

days (on average  $3.8 \pm 0.1$  days). Of these, in 114 (76.0%) menstruation lasted up to 4 days, in 25 (16.7%) women the duration of menstruation was 4-5 days, and in 11 (7.3%) patients this figure was 6-7 days.

After insertion of the IUD, the duration of menstruation in 6.7% of women was 4-5 days, in 88.6% of women it extended to 6-7 days, and in 4.7% of women to 8 or more days. At the same time, pain appeared in 2.7% of cases, discharge in 67.3% of cases (n=86), the volume of menstruation increased in 48.7% of cases (n=73), especially by the end of the first year of wearing an IUD. Frequent, heavy discharge was not observed.

Thus, within 1 year after insertion of the IUD (group 1), the duration of menstruation in the examined women significantly increased ( $P < 0.001$ ), pain appeared (2.7%), discharge (67.3%), and the volume of menstruation increased (48.7%), which were absent before insertion of the IUD.

In the examined women of group 2, the duration of menstruation ranged from 3 to 8 days (on average  $4.0 \pm 0.1$  days). Of these, 108 (72.0%) had up to 4 days, 24 (16.0%) had 4-5 days, and the remaining 18 (12.0%) women had menstruation lasting 6-7 days.

2-3 years after insertion of the IUD, the duration of menstruation remained at 4-5 days in 15 (10.0%) women, extended to 6-7 days in 120 (80.0%) women, in the remaining 15 (10.0%) women. %) of patients up to 8 days or more. At the same time, pain appeared in 4.0% of cases (n=6), scanty discharge in 10.0% of cases (n=15), frequent, heavy discharge in 69.3% of cases (n=104), the volume of menstruation increased in 59.3% of cases (n=89).

Thus, during 2-3 years of wearing an IUD (group 2), the examined women, as well as patients of group 1, significantly increased the duration of menstruation ( $P < 0.001$ ), pain (4.0%), and discharge (10.0%), frequent, heavy discharge (69.3%), increased volume of menstruation (59.3%), which was absent before insertion of the IUD. In contrast to group 1, women in group 2 had a higher severity of the above symptoms.

In the examined women of group 3, the duration of menstruation ranged from 3 to 8 days (on average  $3.8 \pm 0.1$  days). Of these, in 123 (82.0%) women the duration was up to 4 days (3-4 days), in 15 (10.0%) patients it was 4-5 days, and in 12 (8.0%) women the duration of menstruation was 6-7 days.

3 years or more after insertion of the IUD, the duration of menstruation was 4-5 days in only 5 (3.3%) women, extended to 6-7 days in 123 (82.0%) women, in 22 (14.7%) ) over 8 days. At the same time, pain appeared in 6.0% of cases (n=9), scanty discharge in 12.0% of cases (n=18), frequent, heavy discharge in 75.3% of cases (n=113), the volume of menstruation increased in 66.7% of cases (n=100).

Thus, after 3 years or more of wearing an IUD (group 3), the examined patients, as well as women of groups 1 and 2, significantly increased the duration of menstruation ( $P < 0.001$ ), and in terms of the percentage of occurrence, no significant differences were noted between the groups. By detecting cases of pain (6.0%), scanty discharge (12.0%), frequent, heavy discharge (75.3%), increased volume of menstruation (66.7%), no significant differences were noted between groups 2 and 3. The depth of differences in the percentage of pain (2.7% versus 6.0%), volume of discharge (48.7% versus 66.7%) and scanty discharge (0% versus 12.0%) compared to the parameters of group 1 became even more noticeably, cases of frequent, heavy discharge also increased (75.3%).

The results of the control group (n=40) were also close to those of the main group before insertion of the IUD, so the duration of menstruation was generally up to 4 days (3-4 days) in 80.0% (n=32) of cases, there were cases when menstruation lasted 4-5 days (12.5%, n=5) and 6-7 days (7.5%, n=3). Presenting results on pain, volume of menstruation and the nature of discharge was considered not appropriate, since although these signs were rare (2.5%-7.5%) in women in the control group, they were associated with various reasons not related to the IUD.

A comparative analysis of the data obtained on the detectability of the duration of menstruation in women before and after

insertion of an IUD, depending on their wearing, allowed us to identify the following patterns: firstly, in almost all women of the main groups, after insertion of an IUD, the duration of menstruation increased; secondly, there is a sharp increase in the percentage of women with menstruation lasting 6-7 days - from 80.0% to 88.6% versus 7.3-12.0% before insertion of the IUD; thirdly, the percentage of women with a menstrual duration of 8 days or more increases depending on the time of wearing the IUD, respectively in group 1 4.7%, in group 2 10.0% and in group 3 14.7%; fourthly, there is an inverse relationship between the detection of the duration of menstruation in women and wearing an IUD; fifthly, a clear cause-and-effect relationship has been identified between an increase in the duration of the menstrual cycle and wearing an IUD.

The next stage of the research was to conduct a comparative analysis of the detection of symptoms associated with the duration of wearing an IUD by women in our region.

The results obtained show that pain, scanty and heavy discharge from the genital tract and the volume of menstruation depend on the duration of women wearing the IUD.

As can be seen from Table 3.2, all of the above symptoms appeared in women after insertion of the IUD. A characteristic feature is the fact that the percentage of detection of pain depends on the duration of wearing the IUD and increases with the duration of wearing the IUD, respectively, in groups - 2.7%, 4.0% and 6.0% ( $P < 0.05$ ).

According to the literature [Prilepskaya V.N. et al., 2006] the incidence of pain when using an IUD is up to 3%. In our case, when wearing an IUD for a long time, the percentage of pain detected was significantly higher than the literature data ( $P < 0.05$ ). The pain was localized in the lower abdomen and lower back and was observed in the first months after the insertion of the IUD, before and during menstruation. Cramping pain, usually during IUD expulsion.

The same trend is observed when analyzing indicators of the volume of menstruation - respectively, by group 48.7%, 59.3% and 66.7% ( $P < 0.05$ ). The indicators of

quantity (scanty, abundant) and frequency of discharge also differ significantly from each other ( $P < 0.05$ ) and tends to increase depending on the length of time the IUD is worn.

Thus, the appearance of pain, scanty and heavy discharge, as well as an increase in the volume of menstruation in women is directly and closely related to wearing an IUD, and as the period of wearing the IUD increases, the percentage of detection of these symptoms in women also increases.

Next, the detection of other complications from wearing an IUD was analyzed, such as the presence of expulsions and nosological units of the genital tract.

It was found that of all the women examined, expulsions were noted in 18 women out of 450 examined, most often in group 3 (6.0%,  $n=9$ ). Diseases of the genital tract of women were noted from 4.0% to 22.0% of cases. Most often, colpitis was detected (in groups 10.0%, 18.0% and 22.0%, respectively); in subsequent places there were cervicitis (in groups 8.0%, 6.0% and 14.0%, respectively), exacerbation salpingoophoritis (4.0%, 10.0% and 12.0% in groups, respectively) and endometritis (4.0%, 6.0% and 10.0% in groups, respectively).

A comparative analysis by group shows that as the period of wearing an IUD increases, the percentage of detection of diseases of the genital tract also increases ( $P < 0.05$ ). This is especially clearly seen in the detection rates of endometritis and colpitis. The Pearl index was 240, 480 and 840, respectively, for the groups, depending on the period of wearing the IUD.

The anti-inflammatory therapy carried out in all patients was successful; therefore, the contraceptive was not removed. During the observation process, not a single patient in the main group became pregnant.

In women with an IUD, against the background of a burdened gynecological history, infectious and inflammatory processes develop, which manifest themselves in the form of diseases of the genital tract (endometritis, cervicitis, colpitis, exacerbation of salpingoophoritis), leading to the manifestation of an already existing latent iron deficiency.

The peculiarities are: with an increase in the period of wearing the IUD, the percentage of diagnoses of inflammatory diseases of the genital tract (cervicitis, colpitis), as well as exacerbation of existing diseases (salpingoophoritis), also increases; In the control group, the above nosological units were practically absent, and colpitis and cervicitis were also rarely diagnosed.

The next stage of the research was to discover cause-and-effect relationships between the duration of wearing the IUD and the development of IDA in the patients we examined.

The studies showed that in group 1, 42 (28.0%) women had grade I anemia, diagnosed by clinical and laboratory methods.

In group 2, degree I anemia was diagnosed in 102 (68.0%) subjects, and degree II anemia was observed in 15 (10.0%) women.

A study conducted in the 3rd group of women using IUDs revealed that 42 (28.0%) women had grade I anemia, 87 (58.0%) women had grade II anemia and 6 (4.0%) women had anemia III degree.

Dynamic observation of women with IUDs showed a significant decrease in hemoglobin levels as the duration of their wearing increased ( $P < 0.05$ ), but did not reach a critical level.

The results of our research have shown that IUDs, for all their advantages, have a number of disadvantages: an increase in the duration of menstrual days and the amount of blood lost. They apparently lead to the development of IDA. This, in turn, dictates the need for timely preventive treatment of IDA in women using IUDs. Dynamic monitoring of laboratory blood parameters is also necessary for all women using IUDs.

In **conclusion**, we came to the following conclusions:

within 1 year after insertion of the IUD (group 1), the duration of menstruation in those examined significantly increases, pain and scanty discharge appear, and the volume of menstruation, which was absent before insertion of the IUD, increases;

- within 2-3 years of wearing an IUD (group 2), in women, as in patients of group 1,

the duration of menstruation significantly increases, pain, scanty discharge, frequent, heavy discharge appear, and the volume of menstruation increases. In contrast to group 1, in group 2 the percentages of detection of pain and the volume of discharge increase, and frequent, heavy discharge appears during menstruation.

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