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ABSTRACT

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REASONS FOR THE DEVELOPMENT OF INFLAMMATORY COMPLICATIONS IN INTRAUTERINE DEVICE CARRIERS

Introduction. In the context of the deteriorating demographic situation in the country, the decline in the living standards of the majority of the population, the deterioration of their reproductive health, and family planning issues deserve special attention [1, 2, 9]. One of the methods of contraception, which is widely used by women of reproductive age, is intrauterine contraception [7, 8]. Worldwide, millions of women have been using the IUCD for over three decades as a highly effective, safe, and convenient form of contraception [4, 5]. However, in recent years, there has been a sharp increase in the number of complications associated with this method of contraception, the most dangerous of which, both at the time of administration and due to long-term consequences for the reproductive system of women, are inflammatory diseases [6, 10].

The aim of our study was to identify the risk factors for inflammatory complications in IUCD carriers.

Methods. The study was conducted on the basis of the Municipal Non-Profit Institution "Clinical Perinatal Center of the Blessed Virgin Mary" in 2015–2021 years. In order to analyze the causes of the inflammatory complications in IUCD carriers, we examined 101 patients hospitalized at a specialized gynecological hospital for acute inflammatory processes of the uterus and appendages.

Results. The control group consisted of 20 women who were carriers of the IUCD, registered in the dispensary in the city antenatal clinic. The average age of women was 22.2 years: from 19 to 45 years. The duration of IUCD usage ranged from 8 months to 6 years. The reason for hospitalization was pain in 98% of cases, fever in 92%, violation of the ovarian-menstrual cycle in 45%, a combination of symptoms and complaints in 96% of cases. In the hospital, the standard clinical, laboratory, immunological, and ultrasound examinations were repeatedly carried out. The causative agents of inflammatory diseases of the genitals were determined using bacteriological and PCR research methods.

We revealed the association between the incidence of purulent-septic complications and the frequency of examinations performed before the introduction of the IUCD. Consequently, only 48 (59.4%) patients underwent a full clinical and laboratory examination; in the future, only 26 (25.7%) of the admitted patients were constantly observed in the antenatal clinic. Moreover, an analysis was made of the dependence between IUCD type, the duration of carriage, and the prevalence of inflammatory diseases of the female genital organs.

Conclusions. Thus, there is reason to assume that the use of IUCDs, especially Copper Y Cu 380 for more than three years, in women of childbearing age is a risk factor for the occurrence of purulent-septic complications.

Keywords: contraception, intrauterine spirals, inflammatory diseases of the pelvic organs, bacteriological examination, purulent-septic complications.

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ПРИЧИНИ РОЗВИТКУ ЗАПАЛЬНИХ УСКЛАДНЕНЬ У НОСІЙНИЦЬ ВНУТРІШНЬОМАТКОВИХ СПРАЛЕЙ

В умовах погіршення демографічної ситуації в країні та зниження життєвого рівня більшої частини населення, на особливу увагу заслуговують питання планування сім'ї [1, 2, 3]. Одним з методів контрацепції, який зараз широко розповсюджений серед жінок репродуктивного віку, є внутрішньоматкова контрацепція [4, 5, 7, 8]. Однак, у останні роки відзначено різке збільшення кількості ускладнень, пов'язаних з застосуванням даного методу контрацепції, найбільш небезпечними з яких є запальні захворювання [6, 9, 10].

Метою нашого дослідження було визначення факторів ризику у розвитку запальних ускладнень у жінок - носіїв ВМС.

Дослідження проводилось на базі КНП "Клінічний перинатальний центр Пресвятої Діви Марії" протягом 2015–2021 років. З метою аналізу причин розвитку запальних ускладнень у носіїв ВМС було обстежено 101 пацієнтку, госпіталізовану до спеціалізованого гінекологічного стаціонару з приводу гострих запальних процесів матки та додатків.

Контрольну групу склали 20 жінок-носіїв ВМС, які перебувають на диспансерному обліку у міській жіночій консультації. Середній вік жінок становив 22,2 роки: від 19 до 45 років. Тривалість використання ВМС коливалась від 8 місяців до 6 років. Підставою для госпіталізації слугували: біль у 98% випадків, підвищення температури у 92%, порушення оваріально-менструального циклу у 45%, поєднання симптомів у 96% випадків. У стаціонарі в динаміці проводилося клініко-лабораторне, імунологічне та ультразвукове обстеження. Визначали збудників запальних захворювань геніталій за допомогою бактеріологічних та ПЦР-методів дослідження. Виявлено зв'язок між частотою розвитку гнійно-септичних

ускладнень та обсягом обстеження жінок до введення ВМС. Так, повноцінне клініко-лабораторне обстеження пройшли лише 48 (59,4 %) хворих; надалі постійно спостерігалися в жіночій консультації лише 26 (25,7 %). Проводився аналіз залежності типу ВМС, тривалості носійства та частоти й розповсюдженості запальних захворювань жіночих статевих органів. В результаті наших досліджень можна зробити висновок, що застосування ВМС, особливо Copper Y Cu 380, більше трьох років у жінок фертильного віку, є фактором ризику виникнення гнійно-септичних ускладнень.

Ключові слова: контрацепція, внутрішньоматкові спіралі, запальні захворювання органів малого тазу, бактеріологічне дослідження, гнійно-септичні ускладнення.

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INTRODUCTION / ВСТУП

Abbreviation

IUCD – an intrauterine contraceptive device

Inflammatory diseases of the genital organs are one of the most common diseases [1, 2, 3]. Approximately 60 percent of them are caused by specific pathogens and have a subtle clinical picture. The danger of these diseases lies in the fact that they still occur in a chronic form, and research technologies are very expensive. Therefore, the majority of the population in the conditions of the economic crisis do not have the opportunity to conduct a comprehensive examination and treatment. As a result, not only the incidence rate increases, but also the number of chronic forms of these complicated diseases. One of the risk factors for the occurrence of inflammatory diseases of the genitals is intrauterine contraception [4, 5, 6]. The lower part of the genital tract of healthy women is populated by various microorganisms. The composition of this resident flora includes both aerobic and anaerobic microorganisms, which play an important role in preventing the colonization of the vaginal biotype by pathogenic microorganisms [7, 8, 9].

The results of recent studies demonstrate a significant role of infections, including chlamydia, bacterial vaginosis, and viral infections, in the development of inflammatory diseases of the genitals [6, 10].

The aim of our study was to identify risk factors in the development of inflammatory complications in women with IUCDs.

Material and research methods

In order to analyze the causes of the development of inflammatory complications in IUCD carriers, 101 patients were hospitalized in a specialized gynecological hospital with the diagnosis of acute inflammatory processes of the uterus and appendages. All women were examined. In the hospital, the traditional clinical, laboratory, immunological, and ultrasound examinations were carried out repeatedly.

The control group consisted of 20 women who were carriers of the IUCD, registered in the dispensary of the city women's health clinic.

Research results and discussion

The average age of women was 22.2 years (from 19 to 45 years). The duration of IUCD use ranged from 8 months to 6 years. The frequency of use of various types of IUCDs in the examined group is presented in Table 1.

The reason for hospitalization was: pain in 98% of cases, fever in 92%, violation of the ovarian-menstrual cycle in 45%, and a combination of symptoms and complaints in 96% of cases.

In the structure of complications in IUCD carriers, the following prevailed: endometritis – in 47 (46.5%) patients and tubo-ovarian tumors – in 48 (47.5%) patients. Chronic adnexitis was diagnosed

in 20 (19.8%) women and pelvioperitonitis – in 16 (15.8%). A small group of complications was made up of parametritis – 7 subjects, which was 6.9% of the number of admitted patients.

It should be noted that in three women who carried IUCDs for nine years, a combination of inflammatory processes with tumors was diagnosed: in two cases – with myoma of the uterus, in one case – with endometrial cancer. Moreover, in two cases, women had a history of pathogenetic prerequisites for the development of tumor processes. In all women, a decrease in the tension of target and humoral immunity was established. Changes in the immunogram were expressed mainly in the neutrophil-lymphocyte shift.

The relationship between the incidence of purulent-septic complications and the volume of examination of women before the introduction of the IUCD was revealed. Thus, only 48 (59.4%) patients underwent a full clinical and laboratory examination. Subsequently, only 26 (25.7%) of the admitted patients were constantly observed in the antenatal clinic.

Table 1 – Prevalence of IUD models in the study group

IUD type	Number of IUD carriers	
	Absolute number	%
Copper Y Cu 380	16	15,8
Cu 375 Sleek	17	16,9
Novaplus T 380 Cu	9	8,9
Ancora 375 Cu Normal	31	30,7
Silverline Cu 380 Ag Mini	28	27,7

The risk group for IUCD complications included women with chronic infections: chronic cholecystitis – 18 (17.8%) patients, chronic pancreatitis – 10 (9.9%), chronic pyelonephritis – 38 (37.8%) patients, as well as women with two or more sexual partners – 52 (51.4%).

The risk factors for complications associated with IUCDs included the duration of usage and the type of IUCD. After analysis of the correlation between purulent-septic complications and the duration of IUCD use, it should be noted that the smallest group consisted of women who were using IUCDs for up to a year – 8 (7.9%) patients. In this

group, chronic adnexitis was diagnosed in 2 (1.9%) patients, chronic endometritis in 5 (4.9%) patients. More severe complications in the form of pelvioperitonitis and parametritis in women who used IUCDs for up to a year were not detected. Only one patient developed a tubo-ovarian mass treated conservatively. In women who were using IUCDs for one to three years, purulent-septic complications were observed in 12.9%, three to five years – in 27.7%, five to 10 years – in 41.6%.

Characteristically, all 16 carriers of Copper Y Cu 380 intrauterine devices were included in the largest group of women who were using IUCDs for 2 to 6 years – 42 (41.6%) patients. Complications in this group differed not only in their severity and duration, but often in the ineffectiveness of conservative therapy. Operative treatment in these patients was used in 18 cases (42.9% of patients in this group), including 10 out of 16 carriers of the Copper Y Cu 380 IUCD.

In the group of women using IUCDs for 3 to 5 years, the frequency of severe complications decreased: surgical treatment was used in 9 cases (32.2% of patients in this group). In the group of carriers using IUCD for a period of 1 to 3 years, only 1 (7.6%) patient was operated on.

In order to determine the spectrum of the microbial flora of the vagina, vaginal discharge from 20 women admitted to the department was studied. Bacteriological examination of vaginal smears in 100% of the examined revealed contamination by various types of microorganisms. Chlamydia (72%), ureaplasmas (43%), trichomonads (35%), gardnerellas (32%) prevailed among the isolated infection's pathogens. Human papillomavirus and herpesvirus were found in 68% of cases.

An analysis of the spectrum of vaginal microflora showed that at the present stage, a characteristic feature of the course of inflammatory diseases against the background of IUCDs is a high frequency of microbial associations. A combination of 4 or more infectious agents occurred in 35% of cases, 3 – in 52% of cases; no mono-infections were found at all.

During the examination of 20 IUCD carriers, who were under dispensary registration in the antenatal clinic, including the collection of anamnesis, clinical blood tests, ultrasound, and bacteriological examination of the vaginal discharge, a change was noted not only in the qualitative, but also in the quantitative composition of the microflora. Among the isolated

microorganisms in this group of women, mycoplasmas (32%), gardnerellas (37%), and viruses (42%) predominated. The resident microflora was represented mainly by bacteroids, staphylococci, streptococci, and lactobacilli. Chlamydia and Trichomonas were found in 4

(20%) women. From the anamnesis, it was found that there were several sexual partners in 8 (40%) women. Due to the presence of clinical signs of an indolent inflammatory process in 4 women, the IUCDs were removed and a course of antibacterial and anti-inflammatory therapy was prescribed.

CONCLUSIONS / ВИСНОВКИ

Thus, there is reason to assume that the use of IUCDs, especially Copper Y Cu 380, for more than three years in women of childbearing age is a risk factor for the occurrence of purulent-septic complications.

In connection with the results of the obtained studies, it seems appropriate to do the following:

1) before the introduction of the IUCD: a gynecological and clinical-laboratory examination, including smears, complete blood count, and

ultrasound of the pelvic organs;

2) in women with extragenital pathology and chronic foci of infection: an assessment of the immunological status; in immunocompromised women: refusal to insert the IUCD until the rehabilitation of chronic foci of infection;

3) active dispensary observation of carriers of the IUCD in the women's health clinics;

4) using of silver, gold, or small-dose hormones-containing IUCDs of the latest generation, timely replacement or removal of IUCDs.

CONFLICT OF INTEREST / КОНФЛІКТ ІНТЕРЕСІВ

The authors declare no conflict of interest.

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AUTHOR CONTRIBUTIONS / ВКЛАД АВТОРІВ

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