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Research Article

**THE EFFECTIVENESS, ACCEPTABILITY OF IMPLANTATION
SUBCUTANEOUS CONTRACEPTIVE AND ITS EFFECT ON THE
NATURE OF THE MENSTRUAL CYCLE.**¹Petrov U.A., ²Kupina A.D., ³Arndt I.G.

FGBOU VO «Rostov State Medical University» of the Ministry of Health of the Russian Federation, 344022, Rostov-on-Don, Russia.

¹ Doctor of Medicine, Professor, Department of Obstetrics and Gynecology № 2, Federal State Budgetary Educational Institution of Higher Education «Rostov State Medical University» of the Ministry of Healthcare of the Russian Federation, Rostov-on-Don, Russian Federation - mr.doktorpetrov@mail.ru²Clinical Resident of the Department of Obstetrics and Gynecology №2 Federal State Budgetary Educational Institution of Higher Education «Rostov State Medical University» of the Ministry of Healthcare of the Russian Federation, 344022, Rostov-on-Don, Russian Federation – anastasya1997@bk.ru³Assistant of the department of Obstetrics and Gynecology № 2, Federal State Budgetary Educational Institution of Higher Education «Rostov State Medical University» of the Ministry of Healthcare of the Russian Federation, Rostov-on-Don, Russian Federation - arndtigor@yandex.ru**Abstract:*****Aim.** In the modern world, there is a tendency to reduce the number of children born by a woman during her life.**That's why family planning and the creation of safe and reliable methods of contraception come to the fore. The aim of this work was to study effectiveness and safety of subcutaneous contraceptives containing etonogestrel, as well as their effect on the menstrual cycle in women of reproductive age.****Materials and methods.** An assessment of the nature of the menstrual cycle and the developed side effects when using Implanone NXT was performed 8 months after implant placement. All patients were divided into two groups: group I included 37 women of reproductive age with no pregnancy for 2 years or more, group II included 35 women in the postpartum period. At the end of the study, all women filled out a questionnaire, which indicated satisfaction with this method of contraception.****Results.** During the study it was revealed that the structure of menstrual irregularities in the studied women changed. Disorders by type of polymenorrhea decreased in both groups; in group II new types of cycle disturbances appeared amenorrhea, menstrual retardation and metrorrhagia. Menstrual irregularities didn't affect the satisfaction of women with this method of contraception and didn't lead to the abandonment of the use of a subcutaneous hormonal releasing system of prolonged action. Also at the end of the study during the survey it was found that the severity of side effects decreased.****Keywords:** menstrual irregularities, side effects, Implanone NXT, implantation subcutaneous contraceptive.***Corresponding author:****Kupina Anastasia Dmitrievna,**

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INTRODUCTION:

In the modern world, family planning comes to the forefront, which reduces the incidence of artificial termination of pregnancy. The global trend in demographic indicators is such that in developed countries the average number of children born by a woman during her life is 1-2 children, and the reproductive period of women is quite long [1]. In this regard, there is a need to develop new effective and safe methods of contraception to maintain women's reproductive health and reduce the number of abortions. Currently, the most popular are long-acting reversible contraceptives (LARCs), characterized by stability and accuracy of the release of small doses of hormones, the absence of diurnal fluctuations in excretion, ease of use, high efficacy and safety, as well as the absence of the need for daily self-control [1]. The LARCs group includes subcutaneous implantable contraceptives, which are recognized by the WHO as the most effective and safe (Pearl index is 0.05) [2, 3]. They are purely progestogen contraceptives. The advantages of using subcutaneous contraceptives are prolonged use (up to 3 years, followed by removal and / or replacement), rapid restoration of fertility, the absence of an estrogen component, which can significantly reduce the list of contraindications, safety during breastfeeding, and improvement of sexual function [3,4,5,6]. The mechanism of action is associated with inhibition of follicle-stimulating hormone (FSH) and luteinizing hormone (LH) production, suppression of ovulation, increased viscosity of cervical mucus, impaired sperm penetration and atrophy of the uterine mucosa [4,7,8]. The most common complication of the use of this method of contraception is the occurrence of irregular bleeding resulting from a decrease in the density of estrogen receptors in the uterus, a decrease in the influence of vascular endothelial growth factor, and the prevalence of antispasmodic and anticoagulant processes in the blood flow [7,9,10].

The purpose of this study was to evaluate the effectiveness and safety of subcutaneous contraceptive containing etonogestrel, as well as differences in the frequency and nature of side effects in women of reproductive age (absence of pregnancy 2 years or more) and in women in the postpartum period.

MATERIALS AND METHODS:

In Russia, two subcutaneous implant contraceptives are used - implanon and Implanone NXT. The study used the pure gestagen drug Implanone NXT containing 68 mg of etonogestrel and 15 mg of barium sulfate, which provides X-ray contrast properties. Implanone NXT is an implant placed in a sterile disposable applicator, 4 cm long and 0.2 cm in diameter [11]. Before installing Implanone

NXT, pregnancy was excluded in the women studied.

The choice of the implantation time was selected individually depending on the presence or absence of breastfeeding in women in the postpartum period, as well as on the type of contraception used in the previous month and the day of the menstrual cycle in other women. The implant was placed under the skin using a special applicator in the area of the medial shoulder surface of the non-dominant arm 10 cm higher than the epicondylus medialis humeri, which avoided damage to large blood vessels and nerve trunks [12, 13]. Previously, the incision site was treated with an antiseptic solution and injection anesthesia was performed using 1% lidocaine. Women were informed about the possibility of removing Implanone NXT at any time.

The study involved 72 women who were divided into groups I and II. Group I included 37 women of reproductive age with no pregnancy for 2 years or more. Group II included 35 women in the postpartum period. Depending on the indications, Implanone NXT was established for women on individual dates in accordance with the instructions for the drug. The results of a prospective study were evaluated 8 months after the establishment of Implanone NXT in both groups.

The age distribution in group I was as follows: 13.5% - 20-24 years (5 people), 19% - 25-29 years (7 people), 27% - 30-34 years (10 people), 13.5% - 35-39 years (5 people), 27% - 40-44 years (10 people). In the gynecological history of 1 birth was in 8 women (22%), 2-3 in 12 (32%), more than 3 births in the history of 15 women (41%), 2 were nulliparous women (5%). An analysis of the methods used in the past to prevent unwanted pregnancy revealed that 7 women did not use any contraceptive methods (19%), barrier methods of contraception (male condom) used 9 women (24%), intrauterine devices - 11 (30%), combined oral contraceptives 10 (27%). Among gynecological diseases, in this group of studied, chronic infectious and inflammatory diseases of the uterine appendages predominated were most often found - in 57% (21 women), in the second place was cervical erosion in 16% (6 women), menstrual irregularities in the form of hypermenorrhea and polymenorrhea - in 19% (7 women), tumors of the uterus, fallopian tubes or ovaries - in 8% (3 women). In the structure of extragenital pathology, chronic pyelonephritis (24%) and chronic gastritis (22%), body mass index (BMI) of 30-34.9 kg / m² (11%) were most often found. The following complications were revealed against the background of 8 months of using Implanone NXT in group I: menstrual irregularities were detected in

6 women (16%), of which menstrual periods were delayed in 5 women (13.5%), polymenorrhea in 1 (3%); headache in 5 women (14%), engorgement and tenderness in the mammary glands in 4 women (11%), weight gain in 2 women (5%).

The age distribution in group II was as follows: 20% - 20-24 years (7 people), 23% - 25-29 years (8 people), 28.5% - 30-34 years (10 people), 17% - 35-39 years (6 people), 11.5% - 40-44 years (4 people). In the gynecological history of 1 birth were in 12 women (34%), 2-3 in 14 (40%), more than 3 births in the history of 9 women (26%). An analysis of methods used in the past to prevent unwanted pregnancy revealed that 9 women did not use any contraceptive methods (26%), barrier methods of contraception (male condom) used 7 women (20%), and intrauterine devices used - 17 (49%) combined oral contraceptives - 11 (31%). Among gynecological diseases in this group of studied, chronic infectious and inflammatory diseases of the uterine appendages prevailed were most often found - in 67% (23 women), erosion of the cervix in 17% (6 women) was in second place, menstrual irregularities in the form of hypermenorrhea and polymenorrhea - in 12% (4 women), tumors of the uterus, fallopian tubes or ovaries - in 34% (12 women). In the structure of extragenital pathology prevailed chronic pyelonephritis (23%) and BMI of 30-34.9 kg / m² (17%), thyroid pathology, accompanied by diffuse increase in tissue volume according to ultrasound (6%). The following complications were revealed against the background of 8 months of using Implanone NXT in group II: menstrual irregularities were detected in 12 women (34%), of which menstrual periods were delayed in 6 (17%), polymenorrhea in 2 (6%), amenorrhea 1 (3%), metrorrhagia 3 (9%); headache in 2 women (6%),

engorgement and tenderness in the mammary glands, weight gain weren't detected.

RESULTS AND DISCUSSION:

Based on our study, we can identify the difference in menstrual irregularities in the two groups. Both groups didn't have significant differences in the BMI, age and number of births in history. In both groups, among extragenital diseases, chronic pyelonephritis prevailed - 24% in group I and 23% in group II. The first place among gynecological disorders in group I and II was occupied by chronic infectious and inflammatory diseases of the uterine appendages - 57% and 67%, respectively, the second place - cervical erosion - 16% in group I and 17% in group II. As a previous method for preventing unwanted pregnancy, women in both groups preferred intrauterine contraceptives - 30% in group I and 49% in group II, followed by combined oral contraceptives - 27% and 31%, respectively.

Menstrual irregularities were observed in 19% of women in group I and in 17% of women in group II. In addition, before the use of the Implanone NXT, menstrual irregularities were noted only in the type of hypermenorrhea and polyhypermenorrhea. After 8 months of using the Implanone NXT, the structure of menstrual irregularities in the studied women changed. In group I, the frequency of menstrual irregularities decreased, cycle delay predominated (13.5%), polymenorrhea decreased by 16% and was observed in 3%. In group II, the frequency of menstrual irregularities increased by 17%, while cycle delay prevailed (in 17% of the women studied); the frequency of polymenorrhea decreased by 11%; new types of cycle disturbances appeared - amenorrhea (3%) and metrorrhagia (6%) (see diagram 1 and 2).

Diagram 1. Menstrual cycle in women before using subcutaneous contraceptive Implanone NXT.

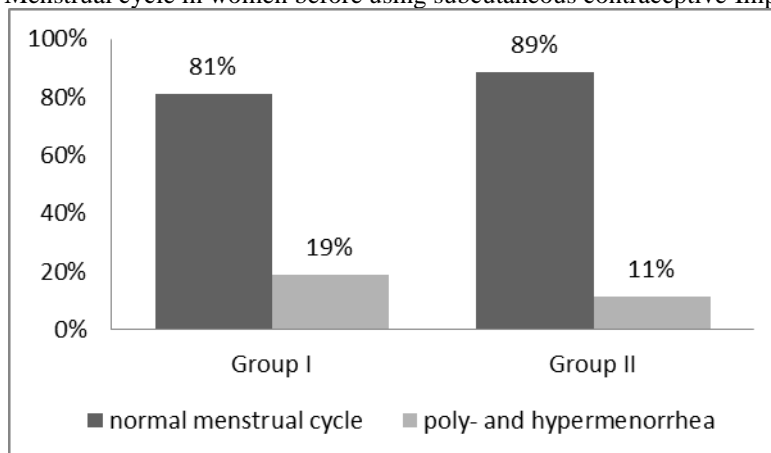
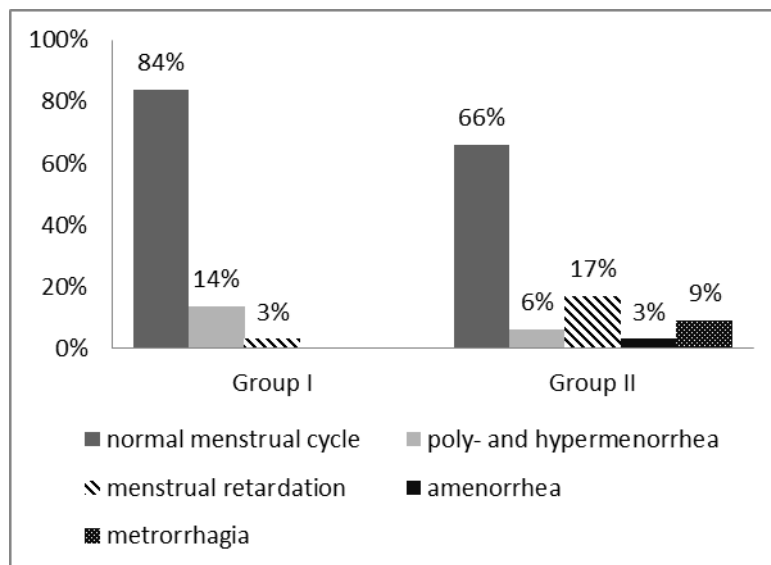


Diagram 2. Menstrual cycle in women after 8 months of using subcutaneous contraceptive Implanone NXT.



The acceptability and convenience of this method of contraception was also assessed by questioning women who participated in the study. The subcutaneous implant contraceptive was comfortable to use and was suitable for 92% of women from group I and 86% of women from group II. Despite the side effects that occurred with Implanone NXT, not a single woman wanted to remove the implant. Also, 82% of women from group I and 86% of women from group II who complained of side effects indicated that their severity decreased over time.

CONCLUSION:

1. Implanone is a highly effective contraceptive method that provides long-term continuous protection against unwanted pregnancy. Undesirable effects identified during the study didn't have a significant impact on women's health and well-being.
2. The severity of side effects after 8 months of using Implanone NXT decreased in most women in both groups.
3. Menstrual irregularities didn't affect the satisfaction of women with this method of contraception and didn't lead to the abandonment of the use of a subcutaneous hormonal releasing system of prolonged action. Thus, we can conclude that Implanone is a modern, convenient, affordable, effective and safe method of contraception for women of reproductive age.

List of symbols and Abbreviations

LARCs - long-acting reversible contraceptives
 FSH - follicle-stimulating hormone
 LH - luteinizing hormone
 BMI - body mass index

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