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**STUDY OF THE PECULIARITIES OF THE COURSE OF  
PREGNANCY AND CHILDBIRTH IN WOMEN WHO HAVE  
UNDERGONE THE PRACTICE IN VITRO FERTILIZATION**

**Resume:** In the modern world, there are many changes associated with the natural development of our society. One of these changes is an increase in the age of the first—time mother.

The course of pregnancy, childbirth and the postpartum period in women after IVF using donor eggs is associated with a high risk of complications such as gestational hypertension (11.9%), preeclampsia (18.4%), premature detachment of the normally located placenta (5%), hypotonic bleeding (6.7%), premature birth (26.4%).

**Keywords:** pregnancy, fertilization, extracorporeal method.

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**ИЗУЧЕНИЕ ОСОБЕННОСТЕЙ ТЕЧЕНИЯ БЕРЕМЕННОСТИ И  
РОДОВ У ЖЕНЩИН, ПЕРЕНЕСШИХ ПРАКТИКУ  
ЭКСТРАКОРПОРАЛЬНОГО ОПЛОДОТВОРЕНИЯ**

**Резюме:** В современном мире происходит множество изменений, связанных с естественным развитием нашего общества. Одно из этих изменений — увеличение возраста впервые родившей матери.

Течение беременности, родов и послеродового периода у женщин после ЭКО с использованием донорских яйцеклеток сопряжено с высоким

риском развития таких осложнений, как гестационная артериальная гипертензия (11,9%), преэклампсия (18,4%), преждевременная отслойка нормально расположенной плаценты (5%), гипотоническое кровотечение (6,7%), преждевременные роды (26,4%).

**Ключевая слова:** беременность, оплодотворения, экстракорпоральный метод.

**Relevance.** In the modern world, there are many changes associated with the natural development of our society. One of these changes is an increase in the age of the first—time mother[1]. The reasons for it are probably multifactorial: long-term education, high career goals, the evolution of a woman's social role, later marriage and an increase in the frequency of divorce, technological advances in reproductive science, increased availability of effective contraception, and other social and technical factors [2,3].

The reproductive potential decreases with the age of a woman, and modern technologies when using autologous oocytes remain limited due to the "biological clock" of the ovaries, therefore modern women increasingly resort to in vitro fertilization (IVF) with donation of oocytes (DO) — IVF-DO.

The first successful pregnancy achieved after BEFORE was reported in 1984 [4,8]. The initial indication was a premature decrease in ovulatory function [6]. At the present stage, indications for egg donation are late reproductive age, a decrease in the ovarian reserve of autoimmune or iatrogenic genesis (after surgical treatment, exposure to radiation and/or chemotherapy) [1], multiple unsuccessful IVF attempts [5], genetic diseases (Turner syndrome) and inherited maternal genetic abnormalities [3].

Initially, DO was promoted as a therapy for young women with premature decline in ovulatory function, and not as a means of overcoming age-related fertility decline. However, age—related infertility is now one of the most common reasons for using IVF, especially in women over 40 [2]. Y. Hibino and Y. Shimazono [4] conducted a survey of 679 women who used the IVF-DO

program. The most common reason for using a donor egg was "old age/menopause".

Currently, UP has become a common procedure, with the help of which thousands of children are born a year around the world. As with any other reproductive technologies, the primary task remains to assess possible obstetric and perinatal risks [5].

Post-PRE pregnancies are a unique group because they are achieved from an immunological point of view by the formation of an allogeneic embryo.

The results of foreign scientific studies have shown that the course of pregnancy after IVF is accompanied by an increase in the incidence of gestational diabetes mellitus [1,6], hypertensive disorders [2], placental abnormalities [6], premature birth [2], as well as an increase in the frequency of cesarean section [3].

Despite the increase in the number of pregnancies after BEFORE, we did not find data in the domestic literature on the course of pregnancy and perinatal outcomes in such patients.

**The purpose of the study.** Evaluation of the frequency and structure of obstetric complications and perinatal outcomes in pregnancy after IVF.

**Material and methods of research.** In accordance with the set goal, during 2021-2023, the AOPC analyzed the course of pregnancies, childbirth and perinatal outcomes in 201 women who became pregnant after IVF (the main group), and in 207 women who became pregnant after IVF with their own ovocytes (the comparison group). Only women whose pregnancies ended in childbirth were included in the study.

General and obstetric anamnesis was collected in all patients according to generally accepted criteria. The presence of transferred diseases was detected, reproductive function and outcomes of previous pregnancies were investigated. The course of a real pregnancy was evaluated.

The outcomes of the present pregnancy were studied in the examined patients (terms, methods of delivery, indications for early delivery, structure of indications for operative delivery, type of anesthesia).

The condition of newborns was assessed on the Apgar scale at the 1st and 5th minutes, the need for artificial lung ventilation and its duration, neurological status, duration of hospitalization were assessed.

**The results of the study.** The age of female recipients of oocytes ranged from 24 to 51 years (with a predominance of the age category from 35 to 40 years — 41.3%), and women after IVF with their own (s) — from 23 to 48 years (with a predominance of the age category up to 35 years — 64.7%). There were 154 (76.6%) primiparous women in the main group, and 173 (83.6%) in the comparison group. At the same time, among the primiparous of the main group, 65 (32.3%) were pre-pregnant and 89 (44.3%) were re-pregnant, and in the comparison group 91 (44%) were pre-pregnant and 82 (39.7%) were re-pregnant (medical and spontaneous abortions, ectopic pregnancy, antenatal and intranatal fetal death were in the anamnesis of the re-pregnant primiparous).

When assessing extragenital diseases in the main group, 26 (12.9%), and in the comparison group, 24 (11.6%) women had chronic diseases of the cardiovascular system (varicose veins, mitral valve prolapse, vegetative vascular dystonia), 37 (18.4%) patients of the main group and 34 (16.4%) comparison groups — endocrine system (hypo- or hyperthyroidism, violation of fat metabolism), in 15 (7.5%) and 12 (5.8%), respectively — urinary system (chronic cystitis, chronic pyelonephritis, urolithiasis), in 4 (2%) and 5 (2.4%), respectively, the hepatobiliary system (chronic cholecystitis, Gilbert's disease); in 5 (2.5%) patients of the main group and in 6 (2.9%) of the comparison group, respiratory system diseases were detected (bronchial asthma, chronic bronchitis).

When assessing the gynecological history, attention was paid to the presence of uterine fibroids in 34 (16.9%) patients of the main group and in 16

(7.7%) of the comparison group, in 31 (15.4%) and 24 (11.6%), respectively, scarring on the uterus (after myomectomy or cesarean section), in 3 (1.5%) patients the main group — a bicornular uterus and 1 (0.5%) female recipient of oocytes had a history of cervical amputation.

The course of this pregnancy in more than 50% of the women of the main group was accompanied by the phenomena of threatening miscarriage (59.2% in the first trimester and 46.2% in the second trimester) and in 29 (14.4%) of them was complicated by the development of isthmic-cervical insufficiency, which in 13 (6.5%) patients was corrected by suturing the cervix, and in 16 (8%) women with the help of an obstetric pessary (Table 2). In 41 (20.4%) pregnant women, the course of the first trimester was complicated by the onset of miscarriage. In the comparison group, isthmic-cervical insufficiency was diagnosed in 20 (9.7%) pregnant women, 15 (7.2%) patients had stitches on the uterus, 5 (2.4%) patients had an obstetric pessary installed. The onset of miscarriage in the first trimester was noted in 28 (13.5%) pregnant women of the comparison group.

Attention was drawn to the high incidence of preeclampsia (18.4%) and gestational hypertension (11.9%) in pregnant women of the main group. Fetal growth retardation syndrome (FDD) was registered in 24 (11.9%) pregnant women after IVF and BEFORE.

The present pregnancy ended with timely delivery in 149 (74.1%) women of the main group and 175 (84.5%) women of the comparison group. Premature birth was observed more often in the main group (26.4% vs. 15.5%).

In the main group, 95% of pregnant women were delivered by Caesarean section. Spontaneous labor occurred only in 10 (5%) women with a single pregnancy, in 3 of whom childbirth was complicated by a defect in placental tissue. In 2 (1%) of women in labor, the postpartum period was complicated by a hematoma. In the subsequent and early postpartum periods, 14 (6.7%) women developed hypotonic bleeding, and therefore compression sutures were applied

to the uterus in 4 (2%) cases, ligation of the internal iliac arteries was performed in 3 (1.5%), and extirpation of the uterus was required in 1 (0.5%).

In the comparison group, 84.5% of pregnant women were delivered by Caesarean section. Hypotonic bleeding was diagnosed in 3 (1.4%) women, and only 1 (0.4%) required compression sutures on the uterus.

The results of our study showed that the course of pregnancy, childbirth and the postpartum period in women after IVF is associated with a high risk of complications such as gestational hypertension (11.9%), preeclampsia (18.4%), premature detachment of the normally located placenta (5%), hypotonic bleeding (6.7%), premature childbirth (26.4%). The course of this pregnancy in more than 50% of women of the main group was accompanied by the phenomena of the threat of termination.

In our study, we did not record a high incidence of water scarcity. The frequency of stimulation of labor activity could not be estimated, since 95% of pregnant women were delivered by Caesarean section. Mainly operative delivery by caesarean section is explained by the high frequency of the combination of relative indications (the woman's age, burdened somatic and /or gynecological history, the onset of pregnancy after IVF, the complicated course of this pregnancy, the unavailability of the soft birth canal for childbirth, etc.).

The results of the study by Y. Levron et al. were similar, in which the frequency of preeclampsia and gestational hypertension in patients after IVF was analyzed in comparison with patients after IVF. According to the authors, the incidence of gestational hypertension and preeclampsia was significantly higher in pregnant women after IVF compared with that in pregnant women after IVF (25% vs. 10%). We got comparable results (30.3% vs. 11.6%).

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