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Features of the course of pregnancy and labour and the condition of newborns in women after *in vitro* fertilisation

Abstract

Background. Infertility remains a significant issue in reproductive medicine, and pregnancy following IVF requires specialised medical supervision due to differences in its course compared with physiological pregnancy.

Aim. To determine the characteristics of pregnancy, labour, and neonatal outcomes in women whose pregnancies resulted from *in vitro* fertilisation.

Materials and methods. A retrospective clinical and statistical analysis was conducted of 318 pregnancy and delivery records, as well as medical records of newborns of women whose pregnancies resulted from IVF (Group I), and 137 pregnancy and delivery records of women who conceived spontaneously (Group II). All patients received treatment and delivery care in the obstetric department of the multidisciplinary medical centre "Leleka" (Kyiv) during the period from 2020 to 2024.

Results. Women in Group I were characterised by a higher incidence of moderate pre-eclampsia – 94 cases (29.6%), compared with 21 cases (15.3%) in Group II ($p < 0.05$), placental dysfunction – 198 cases (62.3%) versus 43 cases (31.4%) in Group II ($p < 0.05$), which was accompanied by foetal growth restriction – 99 cases (31.1%) compared with 19 cases (13.9%), abnormal amniotic fluid volume – 141 cases (44.3%) versus 14 cases (10.2%) in Group II ($p < 0.05$), and vaginitis – 177 cases (55.7%) compared with 29 cases (21.1%) in Group II ($p < 0.05$). The incidence of severe pre-eclampsia, 19 cases (5.9%) in Group I and 2 cases (2.1%) in Group II, showed no statistically significant difference ($p > 0.05$). Regarding the timing of delivery, women in Group I had a lower rate of term births – 186 cases (58.5%) compared with 107 cases (78.1%) in Group II ($p < 0.05$), against a background of an increased number of preterm births – 87 cases (27.4%) versus 14 cases (10.2%) ($p < 0.05$), and post-term births – 45 cases (14.1%) compared with 16 cases (11.7%) in Group II ($p > 0.05$). Within the structure of preterm births among women in Group I, 10 cases (3.1%) occurred at 22-27 weeks + 6 days. There was no significant difference in the number of preterm births at 28-33 weeks + 6 days (Group I – 26 cases (8.2%), Group II – 4 cases (2.9%), $p > 0.05$) or at 34-36 weeks + 6 days (Group I – 51 cases (16.0%), Group II – 10 cases (7.3%), $p > 0.05$). Analysis of labour demonstrated a higher incidence of abnormalities of labour activity among women in Group I – 94 cases (29.6%) compared with 19 cases (13.8%) in Group II ($p < 0.05$), mainly due to uterine inertia – 66 cases (20.7%) versus 7 cases (5.1%) ($p < 0.05$), with successful medical correction achieved in 59 cases (62.7%) in Group I and 16 cases (84.2%) in Group II ($p < 0.05$).

Conclusions. During 2022-2024, the number of pregnancies and births following IVF increased by 56%, and their complicated course may be associated with obstetric history, impaired placentation, and the specific characteristics of pregnancy after IVF.

Keywords: obstetric complications, gestation, course of pregnancy, assisted reproductive technologies, condition of newborns.

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INTRODUCTION

Infertility remains one of the most widely debated issues in contemporary obstetrics, gynaecology and reproductive medicine. An analysis of current sources shows that one in six married couples in Ukraine are unable to conceive within a year of regular sexual intercourse, whilst in some regions of Ukraine the prevalence of infertility reaches 20% [1-2] It should be noted that one of the main causes of infertility in Ukraine is considered to be dysfunction of the reproductive system in both women and men, particularly when delayed onset of reproductive function is combined with advanced parental age [3-4]. Globally, and in Ukraine in particular, there is a trend towards delaying the birth of the first child. This is linked to a shift in priorities from parenthood towards career advancement, which results in both parents being older at the stage of planning the birth of their first child. Equally important factors include the deterioration in the general health of both women and men, and stressful situations – including those arising from the war in Ukraine – which force married couples to postpone their reproductive plans at a young age, and subsequently lead to reproductive failures and pregnancy losses [2-4]. The most common causes of infertility among Ukrainian married couples, as noted by O.I. Krotik [3] and A.G. Salmanov *et al.* [4], are endometriosis, acute and chronic inflammatory diseases of the pelvic organs – particularly those caused by specific pathogens and viruses and the associated scarring processes – a history of abortion, and a diminished ovarian reserve. In the current context, one of the main ways of overcoming the problem of infertility is the use of assisted reproductive technologies (ART), the use of which has been steadily increasing over recent decades, as emphasised by A.G. Salmanov *et al.* [4] and S.A. Carson & A.N. Kallen [5]. According to V.L. Baker *et al.* [6], by early 2017 alone, the number of ART cycles performed worldwide stood at around three million, and by the end of 2018, this figure had already reached three and a half million, indicating the significant prevalence and incidence of infertility. A.G. Salmanov *et al*. [2, 4] noted that in Ukraine, as of 2021, out of 21,000 pregnancies, nearly 1,500 (around 6.7%) resulted from the use of ART. According to the authors, around 1.6% of newborns in Ukraine as of 2018 were born as a result of ART. However, the success rate of reproductive cycles in Ukraine is almost 20% lower than in many Central European countries.

ART procedures have undergone changes and have evolved significantly; specifically, they have come a long way from retrieving oocytes during laparoscopic surgery to the use of transvaginal access, and from retrieving oocytes in natural cycles to the introduction of ovulation stimulation protocols, which has significantly improved their effectiveness [7-8]. In modern reproductive medicine, the range of options available to prospective parents facing infertility has expanded considerably. As emphasised by C.M. Cox *et al.* [9] and V.N. Varlas *et al*. [10], this has been made possible by the successful use of donor reproductive cells, surrogacy, *in vitro* fertilisation (IVF), laparoscopically and/or sonographically guided techniques for transferring male and female gametes, as well as zygotes, directly into the fallopian tubes, testicular sperm extraction and intracytoplasmic sperm injection. At the same time, it should be emphasised that a pregnancy resulting from the use of ART proceeds under specific conditions that differ significantly from physiological ones, requiring doctors to pay particular attention to and care for the condition of the pregnant woman, as well as the antenatal and intranatal condition of the foetus. Researchers believe that pregnant women who have undergone IVF to achieve pregnancy should be classified as high-risk, primarily due to the very fact of ART itself, as well as in connection with a complicated somatic and gynaecological history, more advanced age and a prolonged period of infertility [9, 11]. The available scientific findings regarding the characteristics of pregnancy and labour, as well as the condition of foetuses and newborns, are rather contradictory. Despite the existence of a fairly substantial number of scientific publications comparing the course of gestation and labour in women with spontaneously conceived pregnancies and those resulting from IVF, there are only a few studies, notably [6, 12], which compare the characteristics of the course of pregnancy and labour, as well as the condition of the foetus and newborns, depending on the IVF technique used. The aim – to analyse the course of pregnancy and labour, and to assess the condition of newborns in patients whose pregnancies resulted from *in vitro* fertilisation.

MATERIALS AND METHODS

A retrospective cohort study was conducted involving 318 pregnancy and delivery records, as well as medical records of newborns whose mothers' pregnancies resulted from IVF (Group I), and 137 pregnancy and delivery records of women whose pregnancies occurred naturally (Group II), who were treated and delivered in the obstetrics department of the "Leleka" Multidisciplinary Medical Centre (Kyiv) between 2020 and 2024. Data collection was carried out through a comprehensive retrospective analysis of medical records: pregnancy and delivery records (Form 111/o) and medical records of newborns (Form 097/o). Data validation was performed by means of a double independent check of the recorded parameters. Group I was formed by a complete sample of all cases of childbirth following IVF between 2020 and 2024. Group II was formed using a systematic random sampling method from among women whose pregnancies occurred spontaneously and who gave birth between 2020 and 2024 at the "Leleka" Multidisciplinary Medical Centre (Kyiv). The ratio of the groups was 2.3:1, which is acceptable for retrospective cohort studies. Inclusion criteria for Group I: pregnancy

and delivery records of women whose pregnancies resulted from IVF, singleton pregnancies. For Group II: singleton pregnancies. Inclusion criteria for Group II: singleton pregnancies. Exclusion criteria for both groups: multiple pregnancy; pregnancy following other assisted reproductive technologies (ART) (intrauterine insemination and intracytoplasmic sperm injection as standalone procedures without IVF). The identification and classification of obstetric complications were carried out in accordance with the current standards and guidelines of the Ministry of Health of Ukraine: the evidence-based clinical guideline "Hypertensive Disorders in Pregnant Women" No. 151 dated 24 January 2022 [13], the standard of medical care "Foetal growth restriction" No. 1718 dated 2 October 2023 [14], and the unified clinical protocol for primary, secondary (specialised) and tertiary (highly specialised) medical care "Caesarean section" No. 8 of 5 January 2022 [15], the evidence-based clinical guideline "Normal pregnancy" No. 1437 of 9 August 2022 [16], the standard of medical care "Preterm Prelabour Rupture of Membranes" No. 1533 dated 25 August 2023 [17] and the evidence-based clinical guideline "Physiological Childbirth" No. 170 dated 26 January 2022 [18].

This study utilised categorical variables – the presence or absence of obstetric complications, mode of delivery, and Apgar score by grade – as well as quantitative variables – the patients' age and gestational age at delivery. Potential confounders were identified as the women's age, the presence of extragenital pathology, and a complicated medical history. It should be noted that, within the framework of this retrospective study, no statistical adjustment for these factors was carried out. It is also worth noting that the characteristics of IVF protocols (cycle types, embryo types) were not systematically available in the medical records. The investigation of obstetric and perinatal complications in women following IVF, depending on the type of protocol, is the subject of further prospective studies. The analysis of the assessment of the newborns' condition was based on data obtained from the newborns' medical records, which were assessed using the Apgar score at one and five minutes after birth in accordance with standard methodology. The scale comprises five clinical parameters: heart rate, breathing, muscle tone, reflex responsiveness and skin colour. Each parameter was scored on a scale of 0 to 2, with a maximum total score of 10. Statistical analysis of the study results was performed using the χ^2 test (with Yates' correction where necessary). Fisher's exact test was used only in cases where the expected frequency in at least one cell of the contingency table was less than 5 (placenta praevia, preterm birth at 22-27 weeks); calculations were performed using Statistica 14.0.1 for Windows and Microsoft Excel 2019 (version 16.0). Differences were considered statistically significant at $p < 0.05$. The study was conducted in accordance with the principles of the Declaration of Helsinki [19] and Ukrainian legislation, and was approved by the Commission on Ethics and Bioethics at V.N. Karazin Kharkiv National University (Protocol No. 3/1 dated 7 January 2026). The views expressed in this article are those of the authors and do not represent the official position of the institution.

RESULTS AND DISCUSSION

Between 2020 and 2024, 7,492 births took place at the "Leleka" Multidisciplinary Medical Centre, of which 728 (9.7%) occurred in women whose pregnancies had been achieved through assisted reproductive technologies (ART). Among the women who became pregnant following ART, 318 patients (43.7%) conceived as a result of IVF. The mean age of women in Group I was 34.1 ± 3.4 years, which is 22.3% higher than the mean age of women in Group II (26.3 ± 3.7 years, $p < 0.05$). In terms of age distribution, Group I was dominated by women aged 30-35 years – 148 (46.6%); Group II – 30 (21.9%, $p < 0.05$), whilst among women in Group II, those aged 25-30 accounted for 63 (45.9%), compared with 43 (13.5%) in Group I ($p < 0.05$). According to current literature, advanced parental age should be regarded as one of the main factors contributing to unsuccessful IVF attempts, as well as one of the leading factors in the development of obstetric and perinatal complications [20]. In the infectious and somatic medical histories of women in Group I, herpesvirus infection was the most common – 110 (34.6%), Group II – 22 (16.1%, $p < 0.05$), chickenpox – 164 (51.6%), Group II – 52 (37.9%, $p < 0.05$), acute respiratory viral infections – 100 (31.4%), Group II – 15 (10.9%, $p < 0.05$), cardiovascular diseases – 89 (40.6%), Group II – 14 (22.2%, $p < 0.05$) and endocrine system disorders – 61 (27.8%), Group II – 9 (12.7%, $p < 0.05$), which is consistent with the findings of contemporary researchers who emphasise the need to classify women whose pregnancy resulted from the use of ART as being at high risk of developing obstetric complications based on the presence of cardiovascular disease [21-22]. In the vast majority of women in Group I, gynaecological history revealed inflammatory diseases of the pelvic organs – 199 (67.0%); Group II – 34 (38.2%, $p < 0.05$), as well as conditions associated with endometriosis – 207 (69.7%), Group II – 14 (15.7%), $p < 0.05$). Endometrial pathology in the form of polyps and hyperplasia was identified in almost half of the women – 148 (49.8%), Group II – 22 (24.7%, $p < 0.05$), which led to a statistically significantly higher number of surgical interventions on the pelvic organs – 181 (60.9%), Group II – 19 (21.3%, $p < 0.05$). At the same time, no statistically significant difference was observed in the number of cases of underlying cervical conditions (Group I – 174 (58.6%), Group II – 41 (46.1%), $p > 0.05$) or reported cases of sexually transmitted infections (Group I – 39 (13.1%), Group II – 6 (6.7%), $p > 0.05$) against a background of a higher number of cases of precancerous cervical conditions among

pregnant women in Group I – 68 (22.9%), Group II – 8 (8.9%), p < 0.05. Chronic inflammatory conditions of the pelvic organs, caused by endometriosis and infectious processes, are the leading factors contributing to the development of pelvic adhesions and have an extremely negative impact on the quality of the ovaries, oocytes and embryo implantation. These factors have a negative impact on embryo implantation, increasing the likelihood of early pregnancy loss [3, 23]. In the vast majority of women in Group I, infertility was of the secondary type – 194 (61.1%) – and among the leading causes of infertility were tubal-peritoneal factors – 251 (78.9%) and infectious factors – 214 (67.3%) – which are directly linked to the pattern of gynaecological morbidity and the prevalence of inflammatory and endometriosis-associated factors of infertility. The number of women with a duration of infertility of 3-6 years was 109, accounting for 34.3%, and those with a duration of more than 6 years numbered 130 (40.6%); there was no statistically significant difference, p > 0.05, however, in the vast majority of these cases, two IVF cycles were required to achieve pregnancy – 163 (51.3%), as shown in Figure 1.

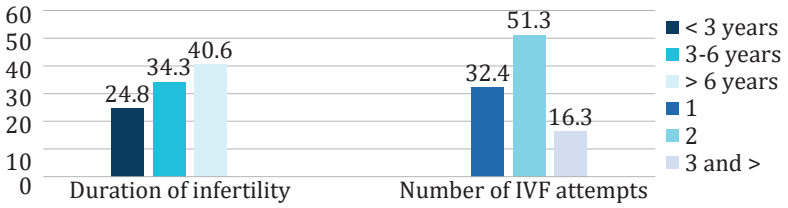

Figure 1. Duration of infertility and number of IVF attempts among the women examined in Group I (%)
Source: compiled by the authors

According to data from G. Mburu *et al*. [24], the duration of infertility is a prognostic indicator of unsuccessful IVF attempts and outcomes, regardless of the pregnant woman's age and the chosen protocol, and also reflects the severity of the factor that was the direct cause of infertility. When assessing the course of the current pregnancy, it was found that women in Group I were characterised by a higher number of cases of moderate pre-eclampsia – 94 (29.6%), Group II – 21 (15.3%), p < 0.05, and placental dysfunction – 198 (62.3%), Group II – 43 (31.4%), p < 0.05, accompanied by foetal growth restriction – 99 (31.1%), Group II – 19 (13.9%), abnormal amniotic fluid volume – 141 (44.3%), Group II – 14 (10.2%), p < 0.05, as well as vaginitis – 177 (55.7%), Group II – 29 (21.1%), p < 0.05 (Table 1).

Table 1. Data on the course of the current pregnancy in the women examined (absolute numbers, %)

Indicator	Value of the indicator in the groups of women examined (n)	
	Group I (n = 318)	Group II (n = 137)
Gestational hypertension	67 (21.1)	17 (12.4)
Pre-eclampsia: ○ moderate ○ severe	 94 (29.6)* 19 (5.9)	 21 (15.3) 3 (2.1)
Placental abnormalities: ○ placenta praevia ○ low-lying placenta ○ placenta accreta	 39 (12.3) 69 (21.7) 10 (3.1)	 14 (10.2) 33 (24.1) 0 (0.0)
Bleeding during pregnancy	89 (27.9)*	21 (15.3)
Placental dysfunction	198 (62.3)*	43 (31.4)
Foetal growth restriction (FGR)	99 (31.1)*	19 (13.9)
Abnormal amniotic fluid volume: ○ oligohydramnios ○ polyhydramnios	 141 (44.3)* 24 (7.5)	 14 (10.2) 13 (9.4)
Threatened miscarriage	241 (75.7)*	69 (50.4)
False labour before 37 weeks	216 (67.9)	51 (37.2)
PROM: ○ PPTR ○ PTRM	 67 (21.1) 27 (8.5)	 7 (5.1) 31 (22.6)
Cervical insufficiency	49 (15.4)	16 (11.7)
Metabolic complications	59 (18.6)	11 (8.0)
Anaemia in pregnancy	131 (41.2)	49 (35.8)
Vaginitis	177 (55.7)*	29 (21.1)

Note: * – statistically significant differences; PROM – premature rupture of membranes in a full-term pregnancy; PPTR – premature pre-term rupture of membranes; PTRM – pre-term rupture of membranes
Source: compiled and calculated by the authors

The number of cases of severe pre-eclampsia (Group I – 19 (5.9%), Group II – 2 (2.1%), p > 0.05) showed no statistically significant differences; however, women in Group I were characterised by the early onset of this complication, which served as the basis for premature, including surgical delivery, and was consistent with the findings of contemporary researchers, who noted an association between pregnancies resulting from IVF and early and severe forms of pre-eclampsia, compared with spontaneous pregnancies [25]. It is interesting to note the absence of a statistically significant difference in the number of cases of preterm prelabour rupture of membranes among the pregnant women in the study groups (Group I – 94 (29.6%), Group II – 38 (27.7%), p > 0.05). However, it should be noted that women in Group I were more frequently characterised by PPTR, whereas women in Group II were characterised by PTRM. Placenta-associated pregnancy complications in women following IVF may result from impaired invasion of the extravillous trophoblast, inadequate remodelling of the spiral arteries, changes in endometrial receptivity, and lead to early disturbances in placentation processes with atypical placental localisation and trophoblastic vascular dysfunction [25-27]. With regard to the timing of delivery, Group I was characterised by a reduction in the number of full-term births – 186 (58.5%), Group II – 107 (78.1%), p < 0.05, against a background of an increase in the number of preterm births – 87 (27.4%), Group II – 14 (10.2%), p < 0.05) and post-term births – 45 (14.1%), Group II – 16 (11.7%), p > 0.05. In the breakdown of preterm births among women in Group I, 10 (3.1%) occurred at 22-27 weeks + 6 days, whilst there was no difference in the number of preterm births at 28-33 weeks + 6 days (Group I – 26 (8.2%), Group II – 4 (2.9%), p > 0.05) and at 34-36 weeks + 6 days (Group I – 51 (16.0%), Group II – 10 (7.3%), p > 0.05). The onset of labour was characterised by a reduction in the number of cases of spontaneous onset of labour in women in Group I – 188 (59.1%), Group II – 99 (72.3%), p > 0.05, largely due to cases of labour induction – 67 (21.1%), Group II – 9 (6.6%), p < 0.05, and elective caesarean sections – 63 (19.8%), Group II – 29 (21.2%), p > 0.05. When analysing the course of labour among women in Group I, a higher number of cases of abnormal labour was noted – 94 (29.6%), Group II – 19 (13.8%), p < 0.05, predominantly due to weak labour – 66 (20.7%), Group II – 7 (5.1%), p < 0.05, with successful medical correction in 59 (62.7%) cases; Group II – 16 (84.2%), p < 0.05 (Table 2).

Table 2. Analysis of the course of labour in the women studied (absolute numbers, %)

Indicator	Value of the indicator in the study groups (n)	
	Group I (n = 318)	Group II (n = 137)
Abnormalities of labour:		
○ primary	66 (20.7)	7 (5.1)
○ secondary	28 (8.8)	12 (8.7)
Foetal distress:		
○ in the first stage of labour	19 (5.9)	6 (4.3)
○ in the second stage of labour	10 (3.1)	4 (1.2)
Premature placental abruption:		
○ in the first stage of labour	22 (6.9)	4 (2.9)
○ in the second stage of labour	6 (1.9)	0 (0.0)
Clinically narrow pelvis	18 (5.7)	7 (5.1)
Retained placenta	19 (5.9)	7 (5.1)
Placental defect	33 (10.4)	9 (6.5)
Trauma to the birth canal	37 (11.6)	16 (11.7)
Episiotomy/perineotomy	66 (20.7)	21 (15.3)
Postpartum haemorrhage	64 (20.1)	10 (7.2)

Note: * – statistically significant differences
Source: compiled and calculated by the authors

The number of cases of operative delivery by caesarean section was found to be almost twice as high among pregnant women in Group I – 129 (40.5%, p < 0.05) – compared with Group II – 39 (28.4%). These findings are consistent with those of the study by N.A. Lodge-Tulloch *et al.* [28], in which, based on a systematic review and meta-analysis of 34 cohort studies, it was reported that pregnancy following IVF or ICSI is associated with an almost twofold increase in the likelihood of a caesarean section compared with a spontaneously conceived pregnancy. These findings apply to both elective and emergency caesarean sections. Pathological conditions identified during labour may result from impaired uterine contractility against a background of clinical and subclinical placental dysfunction, which is predominantly characteristic of pregnancies resulting from IVF. These findings are consistent with the results of a cohort population study by F. Kong *et al.* [29], which demonstrated abnormalities in placental development and function in women whose pregnancies resulted from IVF, accompanied by a higher incidence of placental abruption, pre-eclampsia, foetal distress and

foetal growth restriction. Pregnancies resulting from an assisted reproductive cycle involving the implantation of a frozen embryo are characterised by the absence of a corpus luteum, which leads to changes in the oestrogen-progesterone ratio and is accompanied by impaired cervical ripening. At the same time, placental dysfunction leads to delayed activation of prostaglandin and oxytocin receptors in the myometrium, which is one of the main causes of weak labour. The findings are partly consistent with the results of F. Waschkies *et al.* [30], obtained from an analysis of pregnancies following cryotransfer of embryos in an artificial cycle without a corpus luteum. The publication states that the absence of a corpus luteum can be considered an independent predictor of adverse maternal and neonatal outcomes, including an increased risk of hypertensive disorders during pregnancy.

In women in Group I, 311 (97.5%) newborns were born alive, and the perinatal mortality rate was 22.0‰. Cases of stillbirth were attributed to antenatal foetal asphyxia caused by purulent-destructive changes in the placenta, intrapartum death of extremely preterm foetuses, and acute foetal distress caused by premature abruption of a normally situated placenta. Analysis of the Apgar scores for newborns at one and five minutes revealed a statistically significantly lower number of infants scored at 9 points among women in Group I – 79 (22.6%), in Group II – 57 (41.6%), $p < 0.05$, against a background of an increase in the number of newborns scored at 7 – 67 (21.6%), in Group II – 11 (8.0%), $p < 0.05$, and those scoring 6 points or less – 59 (19.0%), in Group II – 8 (5.9%), $p < 0.05$. At the fifth minute after birth, a non-significant trend towards a decrease in the number of newborns scored 6 or below on the Apgar scale was observed among women in Group I (first minute – 59 (19.0%), fifth minute – 27 (8.7%), $p > 0.05$). However, their number was not significantly higher than the corresponding figure for women in Group II – 3 (2.2%), $p > 0.05$. The number of newborns scored at 10 points (Group I – 37 (11.9%), Group II – 49 (35.8%), $p < 0.05$) and at 9 points (Group I – 89 (28.7%), in Group II – 65 (47.4%), $p < 0.05$) was significantly higher among women in Group II, against a non-significant trend towards a decrease in the number of newborns scored at 8 and 7 points.

CONCLUSIONS

1. The results of a retrospective study of pregnancy and delivery records and newborn medical records show an increase in the number of pregnancies and deliveries among women following IVF treatment, from 85 in 2022 to 133 in 2024.

2. Complications during pregnancy (a higher number of cases of moderate pre-eclampsia – 94 (29.6%), Group II – 21 (15.3%), $p < 0.05$), placental dysfunction – 198 (62.3%), Group II – 43 (31.4%), $p < 0.05$), accompanied by foetal growth restriction – 99 (31.1%), Group II – 19 (13.9%), abnormal amniotic fluid volume – 141 (44.3%), Group II – 14 (10.2%), $p < 0.05$), as well as vaginitis – 177 (55.7%), Group II – 29 (21.1%), $p < 0.05$).

3. Complications during labour (a higher number of cases of abnormal labour – 94 (29.6%), Group II – 19 (13.8%), $p < 0.05$) due to weak labour – 66 (20.7%), Group II – 7 (5.1%), $p < 0.05$) with successful medical management in 59 (62.7%) cases (Group II – 16 (84.2%), $p < 0.05$) and caesarean sections among pregnant women in Group I – 129 (40.5%), in Group II – 39 (28.4%), $p < 0.05$).

4. A more severe condition among newborns (a significantly lower number of infants scored at 9 points among women in Group I – 79 (22.6%), in Group II – 57 (41.6%), $p < 0.05$) against a background of an increase in the number of newborns scored at 7 – 67 (21.6%), in Group II – 11 (8.0%), $p < 0.05$) and those scoring 6 points or less – 59 (19.0%), in Group II – 8 (5.9%), $p < 0.05$) in women whose pregnancies resulted from *in vitro* fertilisation are, to a certain extent, attributable to a history of significant infectious, somatic and gynaecological histories and are the result of impaired trophoblast invasion, inadequate remodelling of the spiral arteries, and changes in endometrial receptivity, all of which have an extremely negative impact on the processes of placentation; and, according to the study results, may be attributable to the fact that the pregnancy resulted from IVF.

Limitations of the study. The interpretation of the study results should take into account the study's limitations, namely: its retrospective, single-centre nature; the unequal group sizes in the comparison groups; and the lack of stratification by IVF protocol type, which may limit the generalisability of the results.

Prospects for further research. Given the lack of information on the types of protocols used, as well as the types of embryos used during *in vitro* fertilisation, it is deemed appropriate to continue research into the characteristics of clinical, laboratory, immunological, hormonal, ultrasound and Doppler parameters; this will enable the identification of specific features of the course of pregnancy, childbirth, and the condition of foetuses and newborns in women, depending on the *in vitro* fertilisation technique used and the type of embryos, with the aim of optimising diagnostic measures, predicting complications, and improving antenatal and intranatal care for women whose pregnancies resulted from *in vitro* fertilisation.

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Особливості перебігу вагітності і пологів та стан новонароджених у жінок після екстракорпорального запліднення

Актуальність. Проблема неплідності залишається актуальною в репродуктивній медицині, а вагітність після ЕКЗ потребує особливого медичного супроводу через відмінність її перебігу від фізіологічної.
Ціль. Визначити особливості перебігу вагітності, пологів та стан новонароджених у жінок, вагітність яких настала в результатів застосування екстракорпорального запліднення.
Матеріали та методи. Проведено ретроспективний клініко-статистичний аналіз 318 історій вагітності і пологів, а також медичних карт новонароджених у жінок, вагітність яких настала в результатів застосування ЕКЗ (Група I) і 137 історій вагітності і пологів жінок, вагітність яких виникла самостійно (Група II), які знаходились на лікуванні та розродженні в акушерському відділенні багатопрофільного медичного центру «Лелека» (м. Київ) в період з 2020 по 2024 роки.
Результати. Для жінок Групи I виявилась характерною більша кількість випадків помірної прееклампсії – 94 (29,6 %), Група II – 21 (15,3 %, $p < 0,05$), плацентарної дисфункції – 198 (62,3 %), Група II – 43 (31,4 %, $p < 0,05$), що супроводжувалась затримкою росту плоду – 99 (31,1 %), Група II – 19 (13,9 %) аномальної кількості амніотичної рідини – 141 (44,3 %), Група II – 14 (10,2 %, $p < 0,05$), а також вагінітами – 177 (55,7 %), Група II – 29 (21,1 %, $p < 0,05$). Кількість випадків тяжкої прееклампсії, Група I – 19 (5,9 %), Група II – 2 (2,1 %) при $p > 0,05$ не мала достовірних відмінностей. Для термінів розродження жінок Групи I було характерним зменшення кількості термінових пологів – 186 (58,5 %), Група II – 107 (78,1 %, $p < 0,05$), на фоні збільшення кількості передчасних – 87 (27,4 %), Група II – 14 (10,2 %, $p < 0,05$) та запізнілих – 45 (14,1 %), Група II – 16 (11,7 %, $p > 0,05$) пологів. В структурі передчасних пологів серед жінок групи I відзначено 10 (3,1 %) в 22-27 тижнів + 6 днів при відсутності різниці в кількості передчасних пологів в 28-33 тижнів + 6 днів (Група I – 26 (8,2 %), Група II – 4 (2,9 %) при $p > 0,05$) та в 34-36 тижнів + 6 днів (Група I – 51 (16,0 %), Група II – 10 (7,3 %) при $p > 0,05$). Аналізуючи перебіг пологів серед жінок групи I відзначено більшу кількість випадків аномалій пологової діяльності – 94 (29,6 %), Група II – 19 (13,8 %, $p < 0,05$), переважно, за рахунок слабкості пологової діяльності – 66 (20,7 %), Група II – 7 (5,1 %, $p < 0,05$) з успішною медикаментозною корекцією в 59 (62,7 %) випадках, Група II – 16 (84,2 %, $p < 0,05$).
Висновки. У 2022-2024 роках кількість вагітностей і пологів після ЕКЗ зросла на 56 %, а їх ускладнений перебіг може бути пов'язаний з анамнезом, порушеннями плацентації та особливостями вагітності після ЕКЗ.
Ключові слова: акушерські ускладнення, гестація, гестаційний перебіг, допоміжні репродуктивні технології, стан новонароджених