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**ЖУРНАЛ ГУМАНИТАРНЫХ И  
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## COVID-19 O'TKAZGAN BEMORLARDA PARKINSON KASALLIGI MOTOR BUZILISHLARINING INTERLEYKIN-6 VA FERRITIN MIQDORI BILAN SOLISHTIRMA TAHLILI

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**Rezyume.** Maçolada Covid-19 o'tkazgan Parkinson kasalligi bilan og'rigan bemorlarda motor buzilishlarining interleykin-6 va ferritin miqdori bilan solishtirma tahlili natijalari keltirilgan. UPDRS shkalasining motor jihatlari, kundlik harakatlar va motor asoratlar ko'rsatkichlari bo'yicha IL-6 miqdorining va ferritinemiya darajasining oshib borishi teskari korrelyatsion bog'liqlikka ega. IL-6 miqdorining va ferritinemiya darajasining oshib borishi esa o'zaro to'g'ri korrelyatsion bog'liqlikka egadir.

**Kalit so'zlar:** Covid-19, Parkinson kasalligi, interleykin-6, ferritin.

## СРАВНИТЕЛЬНЫЙ АНАЛИЗ МОТОРНЫХ НАРУШЕНИЙ БОЛЕЗНИ ПАРКИНСОНА С УРОВНЯМИ ИНТЕРЛЕЙКИНА-6 И ФЕРРИТИНА У ПАЦИЕНТОВ ПЕРЕНИСШИХ COVID-19

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**Резюме.** В статье представлены результаты сравнительного анализа уровня интерлейкина-6 и ферритина с двигательными нарушениями болезнью Паркинсона, у больных перенесших Covid-19. Повышение уровня ИЛ-6 и ферритинемии имеет обратную корреляцию с двигательными аспектами повседневной деятельностью и показателями моторного ассортимента UPDRS. Увеличение количества IL-6 и уровня ферритинемии имеет правильную корреляцию.

**Ключевые слова:** Covid-19, болезнь Паркинсона, интерлейкин-6, ферритин.

Covid-19 infeksiyasi o'tkir respirator infeksiya hisoblanib, betakoronivirus oilasiga mansub bo'lgan SARS-CoV-2 virusi tomonidan chaqiriladi va zooatropoz hisoblanadi. SARS-CoV-2 qobiqli bir zanjirli (+) RNK saqllovchi virusdir va bиринчи марта 2019-yil dekabr oyida aniqlandi. 2020-yil yanvarda epidemiya ko'rinishida tarqaldi, 2020-yil 11-martda esa Butun dunyo sog'liqni saqlash tashkiloti tomonidan pandemiya deb e'lon qilindi. Kasallik kontakt va havo-tomchi yo'li bilan tez tarqalib, 14 kun inkubatsion davriga ega. SARS-CoV-1 virusga o'xshab, organizmdan tashqarida ob'ekt yuzasiga qarab turib, 3 soatdan 4 kungacha o'z hayot faoliyatini saqlaydi [3,6,7,11,13,16].

Parkinson kasalligi (PK) nasliy degenerativ kasallik hisoblanib, dopaminergik, xolinergik, glutamatergik va serotoninergik neyrotransmitterlar faoliyatining buzilishi bilan namoyon bo'ladi. Shuning uchun ham ushbu kasallik motor va motor bo'lмаган buzilishlar bilan kuzatiladi. Motor buzilishlarning asosiy klinik ko'rinishlarini titroq, rigidlik va giponeziya tashkil qilsa, nomotor buzilishlarga kognitiv buzilishlar, uyqu buzilishlari, hid bilishning buzilishi,

depressiya, vegetativ buzilishlar, ruhiy buzilishlar, xavotirlik va qabziyat kiradi [1,2,4,5,9,15,18].

Roberto C. va hammulliflarning ma'lumotlari ko'ra (2020-yil) Covid-19 infeksiyasi fonidagi diareya PK uchun maxsus bo'lgan UPDRS II va IV qismlari shkalasini yomonlashtiradi va bu holat kasallik fonidagi diareya rivojlanishi bilan bog'liq. Shuningdek siyidik ajralishining buzilishi va holsizlik PKda motor fluktuatsiya rivojlanishiga turtki bo'lishi mumkin. Olimlar Covid-19 infeksiyasi davrida PKning motor va nomotor buzilishlarini og'irlashgan ilgari surdilar.

Covid-19 infeksiyasidan keyingi Parkinson kasalligining klinik kechishini o'rganishga harakat qildilar. Maxsus shkalalar yordamida PKning simptomlarini baholab solishtirib ko'rildi, laborator ma'lumotlarni (interleykin-2, interleykin-13, Ig-G) klinik simptomlar bilan taqqosladilar. Olingan natijalari va xulosalariga ko'ra Covid-19 infeksiyasi neyrodegenerativ jarayonni kuchaytirib yuborishi mumkin. Ta'kidlanishicha, Covid-19 infeksiyasini o'tkazgan hamma Parkinson kasalligi bilan og'rigan bemorlarda ham kasallik belgilari bir xilda og'irlash-

maydi, bu organizmning immunologik reaksiyasiga uzviy bog'liqdir [8,10,12,14,17].

Yuqoridaig ma'lumotlarni inobatga olgan holda, biz Covid-19 o'tkazgan bemorlarda parkinson kasalligi motor buzilishlarining interleykin-6 va ferritin miqdori bilan solishtirma tahlil qilishni maqsad qilib oldik.

**Tadqiqot materiali va usullari.** Parkinson kasalligida interleykin-6 va ferritin miqdorining o'zgarish darajalarini solishtirish uchun umumiylar 90 nafar PK bilan og'rigan bemorlarning qon zardobi tekshiruvdan o'tkazildi. PK bilan og'rigan bemorlarning 48 nafari (53,3%) erkak va 42 nafari (46,7%) ayollarni tashkil qildi. PK bilan og'rigan erkak bemorlarning yoshi 22-70 yoshgacha bo'lib, o'rtacha  $46,6 \pm 9,8$  yosh va ayollarning yoshi 28-78 yoshgacha bo'lib, o'rtacha  $53,7 \pm 11,9$  yoshni tashkil etdi. Kasallik davomiyligi erkaklarda  $5,1 \pm 3,6$  yilni tashkil etgan bo'lsa, ayollarda esa  $6,5 \pm 4,8$  yilni tashkil etdi. Bemorlar 2 ta guruhga ajratildi: 1-guruh Covid-19 o'tkazgan PK bilan og'rigan bemorlar 45 nafar (50%) va Covid-19 o'tkazmagan PK bilan og'rigan bemorlar 45 nafar (50%). Bizning tadqiqotimizda qon zardobidagi glial IL-6 va ferritin miqdori immunoferment analiz (IFA) usuli bilan tekshirildi. Buning uchun belgilab olingan bemorlarning bilak vena qon tomiridan 10,0 ml miqdorda qon olindi va 10 min davomida minutiga 2000 marta tezlikda sentrifuga qilindi. Qon zardobi maxsus probirkalarga solinib muzlatgichda muzlatilgan holatda saqlandi. Barcha bemorlarda PR harakatga bog'liq bo'lgan buzilishlar UPDRS shakalsi II, III va IV punktlari bo'yicha solishtirildi. Olingan natijalar statistik tahlil qilindi.

**Tadqiqot natijalari.** Biz Covid-19 o'tkazgan va o'tkazmagan bemorlarda motor simptomlarning uchrash chashtasini bemorlar qon zardobi tarkibilagi interleykin-6 va ferritinemiya darajasi bilan solishtirma tahlil qildik. Olingan natijalar shuni ko'rsatmoqdaki, 1-guruhdagi koronavirus o'tkazgan bemorlarda UPDRS shkalasi  $38,9 \pm 4,8$  ball va 2-guruhdagi koronavirus o'tkazmagan bemorlarda esa  $24,4 \pm 2,19$  balldan iborat bo'lgan bo'lsa, shunga mos ravishda 1-guruhdagi Covid-19 o'tkazgan bemorlar qon zardobi tarkibida IL-6 miqdori  $21,37 \pm 5,5$  pg/ml ekanligi ma'lum bo'ldi va nazorat guruhga nisbatan ishonchli farq qildi,  $p \leq 0,001$ . 2-guruhdagi Covid-19 o'tkazmagan bemorlar qon zardobi tarkibida IL-6 miqdori esa  $12,91 \pm 4,7$  pg/ml ekanligi ma'lum bo'ldi va nazorat guruhga nisbatan ishonchli farq qildi,  $p \leq 0,001$ . Shuningdeku, 1-guruh, ya'ni Covid-19 o'tkazgan PK bilan og'rigan bemorlar qon zardobi tarkibidagi ferritinemiya  $317,42 \pm 14,48$  ng/ml va 2-guruh, ya'ni Covid-19 o'tkazmagan PK bilan og'rigan bemorlar qon zardobi tarkibida ferritin miqdori  $122,4 \pm 11,8$  ng/ml darajada namoyon bo'ldi, ya'ni UPDRS shkalasi bemorlar zardobi takriban interleykin-6 miqdori va ferritinemiya darajasi bilan to'g'ri korrelyatsion bog'liqlikka ega bo'ldi. Statistik Cheddok shkalasi bo'yicha solishtirilganda, UPDRS shkalasi interleykin-6 miqdori bilan yuqori manfiy korrelyatsion bog'liqlikka ega ekan ( $r = -0,7 - 0,9$  va natija  $-0,8$ , ferritinemiya darajasi bilan esa sezilarli darajada manfiy korrelyatsion bog'liqlikka ega ekan, ( $r = 0,5 - 0,7$  va natija  $-0,6$ ). Interleykin-6 miqdori va ferritinemiya darajasi esa yuqori darajadagi musbat korrelyatsion bog'liqlikka ega ekan, ( $r = 0,9 - 0,99$ , natija  $+0,95$ ), 1-jadval.

#### 1-jadval.

##### UPDRS shkalasi II punkti, interleykin-6 va ferritinemiya darajasining korrelyatsion tahlili.

Guruqlar	UPDRS	IL-6	Ferritinemiya	UPDRS va IL-6	UPDRS va ferritinemiya	IL-6 va ferritinemiya
Covid+	$38,9 \pm 4,8$	$21,37 \pm 5,5$	$317,42 \pm 14,48$	$r = -0,8$	$r = -0,6$	$r = +0,95$
Covid-	$24,4 \pm 2,1$	$12,91 \pm 4,7$	$122,4 \pm 11,8$	$r = -1,8$	$r = -1,3$	$r = +1,6$
Farq	$p \leq 0,001$	$p \leq 0,001$	$p \leq 0,001$			

Tadqiqotning keyingi bosqichida UPDRS shkalasi natijalarini kundalik harakat buzilishlari bo'yicha bemorlar qon zardobi tarkibidagi interleykin miqdori va ferritinemiya darajasi bilan solish-

tirma tahlil qildik. UPDRS III qism - kundalik hayotning harakat jihatlari 16 ta punkt bo'yicha solishtirilganda, ishonchli farq kuzatildi korrelyatsion bog'liqlikka aniqlandi, 2-jadval.

#### 2-jadval.

##### UPDRS shkalasi III punkti, interleykin-6 va ferritinemiya darajasining korrelyatsion tahlili.

Guruqlar	UPDRS	IL-6	Ferritinemiya	UPDRS va IL-6	UPDRS va ferritinemiya	IL-6 va ferritinemiya
Covid+	$51,4 \pm 11,6$	$21,37 \pm 5,5$	$317,42 \pm 14,48$	$r = -0,7$	$r = -0,66$	$r = +0,9$
Covid-	$33,7 \pm 10,3$	$12,91 \pm 4,7$	$122,4 \pm 11,8$	$r = -1,5$	$r = -1,4$	$r = +1,5$
Farq	$p \leq 0,001$	$p \leq 0,001$	$p \leq 0,001$			

Keyingi bosqichda UPDRS shkalasining 4-punkti bo'yicha 6 ta ko'rsatkichlar immunologik tekshirish natijalari bilan solishtirildi. 1-guruhdagi

bemorlarda bemorlarda  $18,6 \pm 6,6$ , 2-guruhdagi bemorlarda ushbu ko'rsatkich  $7,7 \pm 5,3$  ballga ega bo'lgan bo'lsa, shunga mos ravishda interleykin-6

miqdori va ferritinemiya darajsi keskin farqlandi. Motor asoratlar solishtirildi va og'ir daradadagi diskineziyalarning davomiyligi bilan bog'liq bo'lgan buzilishlar, o'rta darajadagi diskineziyalar funksional ta'siri bilan bog'liq buzilishlar, o'rta va og'ir darajadagi flyuktuatsiya, «o'chirish» bilan bog'liq muammolar, o'rta va og'ir darajadagi flyuktuatsiya funksi-

onal ta'siri bilan bog'liq muammoli buzilishlar, og'ir darajadagi murakkab motor flyuktuatsiyalar muammolar, o'rta va og'ir darajadagi og'riqli distoniya bilan bog'liq bo'lgan muammollar ko'rinishdagi buzilishlar interleykin-6 miqdorining oshishi va ferritinemiya darajasining yuqoriligi bilan bilan namoyon bo'lди, 3-jadval.

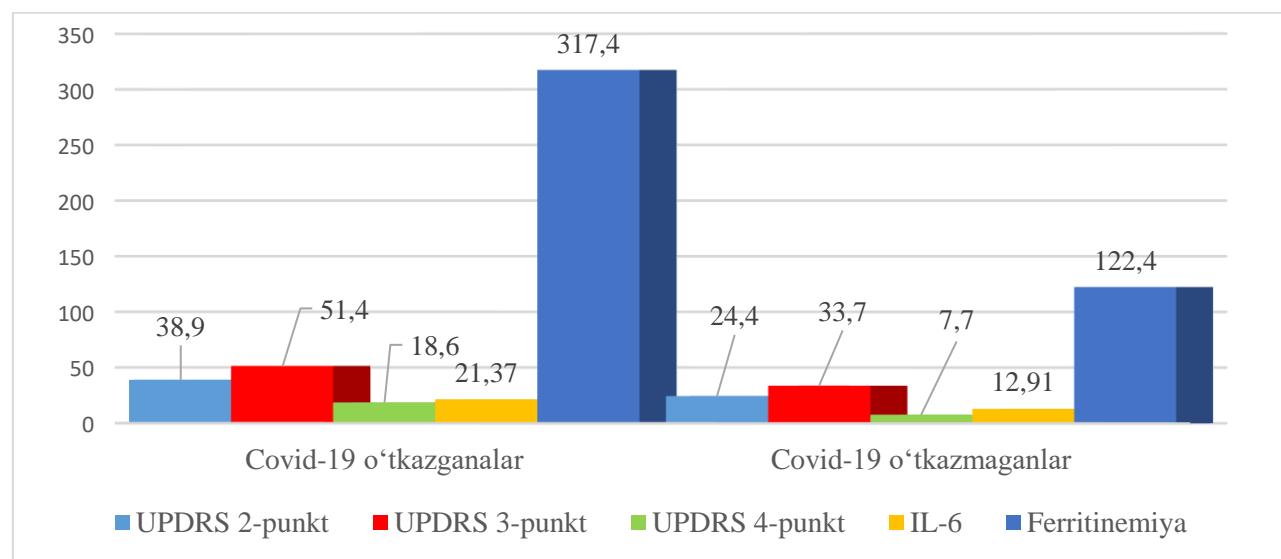
### 3-jadval.

#### UPDRS shkalasi IV punkti, interleykin-6 va ferritinemiya darajasining korrelyasion tahlili.

Guruhlar	UPDRS	IL-6	Ferritinemiya	UPDRS va IL-6	UPDRS va ferritinemiya	IL-6 va ferritinemiya
Covid+	18,6±6,6	21,37±5,5	317,42±14,48	r-0,7	r-0,66	r+0,9
Covid-	7,7±2,19	12,91±4,7	122,4±11,8	r-1,5	r-1,4	r+1,5
Farg	p≤0,001	p≤0,001	p≤0,001			

Olingen natijalar bo'yicha shunday xulosaga kelish mumkinki, bemorlarda Parkinson kasalligi motor buzilishlarining darajalari bemorlar qon zar-dobi tarkibilagi interleykin-6 va ferritin darajasi bilan uzviy bog'liqdir. UPDRS II. III, IV punktlari

ko'rsatkichlari interleykin-6 va ferritin darajasi bilan teskari korrelyasion bog'liqlikka ega, interleykin-6 va ferritin darajasi esa to'g'ri korrelyasion bog'liq bilan namoyon bo'ladi, 1-rasm.



**1-rasm. UPDRS II. III, IV punktlari ko'rsatkichlari interleykin-6 va ferritin darajasi bilan solishtirma tahlili.**

**Xulosalar.** Covid-19 o'tkazgan PK bilan og'ri-gan bemorlarda interleykin-6 «sitokinli bo'ron»sababchisi bo'lib, ferritinemiya darajasini oshirib yu-boradi, natijada bosh miyaning qora modda tarkibidi neyrodeneratsiya jarayoni kuchayadi va kasallikning motor belgilari jadallahadi. Kasallikning klinik shakllarining transformatsiyaga uchrashi va quyi bosqichlardan yuqoriga o'tib ketishi immunologik ko'rsatkichlar bilan bog'liqlikka egadir. UPDRS shkalasining motor jihatlari bo'yicha, kundalik harakat bo'yicha va motor asortalar ko'rsatkichlari bo'yicha IL-6 miqdorining va ferritinemiya darajasining oshib borishi teskari korrelyatsion bog'liqlikka ega bo'lsa, IL-6 miqdorining va ferritinemiya darajasining oshib borishi to'g'ri korrelyatsion bog'liqlikka egadir.

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## COMPARATIVE ANALYSIS OF MOTOR DISORDERS IN PARKINSON'S DISEASE WITH INTERLEUKIN-6 AND FERRITIN LEVELS IN PATIENTS WHO HAVE RECOVERED COVID-19

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**Resume.** The article presents the results of a comparative analysis of the level of interleukin-6 and ferritin with motor disorders of Parkinson's disease in patients with Covid-19. Increased levels of IL-6 and ferritinemia have an inverse correlation with motor aspects of daily activities and UPDRS motor range scores. The increase in the amount of IL-6 and the level of ferritinemia has a correct correlation.

**Key words.** Covid-19, Parkinson's disease, interleukin-6, ferritin.

## MODERN APPROACH TO THE TREATMENT OF THE CAUSES OF PREGNANCY COMPLICATIONS IN WOMEN WITH OVARIAN APOPLEXY

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**Resume.** Ovarian apoplexy is one of the most common urgent gynecological diseases, diagnosed in 17% -31.7% of patients, the third in the composition of urgent diseases in gynecology, the second among the causes of abdominal bleeding. In the form of AP anemia, which occurs in 40% of patients, abdominal bleeding of varying severity is observed, and urgent surgical treatment is carried out.

This article presents the results of the application of modern methods in the prevention and treatment of complications of ovarian apoplexy.

**Key words:** apoplexy, ovaries, gynecological diseases, complications.

## ТУХУМДОН АПОПЛЕКСИЯСИГА ЧАЛИНГАН АЁЛЛАРДА ҲОМИЛАДОРЛИК АСОРАТЛАРИ КЕЛИБ ЧИҚИШИННИНГ ДАВОЛАШГА ЗАМОНАВИЙ ЁНДАШУВ

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**Резюме.** Тухумдон апоплексияси кенг тарқалган шошилинч гинекологик касалликлардан бири бўлиб, беморларнинг 17% – 31,7% да ташҳис қилинади, гинекологияда шошилинч касалликлар таркибида учинчи, қорин бўшлиғи қон кетишининг сабаблари орасида иккинчи ўринда туради. Беморларнинг 40 фоизида учрайдиган АП нинг анемия шакли билан турли оғирликдаги қорин бўшлиғи қон кетиши кузатилади ва шошилинч жарроҳлик даволаши амалга оширилади.

Ушибу мақолада тухумдон апоплексиясининг асоратларини олдини олиш ва даволашда замонавий усусларни қўлаш натижалари келтирилган.

**Калим сўзлар:** апоплексия, тухумдон, гинекологик касалликлар, асоратлар.

**The relevance of the problem.** Despite the fact that the urgent pathology under study cannot be classified as rare, there are a limited number of reports in the modern literature concerning its etiopathogenetic aspects. It is known that the above ovarian pathology is a genetically determined nosological unit, in particular, according to the GPIIIa gene.

According to K. Aalto-Setala, the presence of the PL-AII allele leads to a high risk of coronary thrombosis, and studies by S. R. Steinhubl, D. J. Moliterno demonstrate a link between the carrier of the PL-AII allele and increased adhesion and aggregation of platelets in arterial vessels. Special attention is paid to the PL-AII allele, the presence of which leads to implantation disorders in the form of insufficient invasion of the trophoblast by surface layers. In the studied ovarian pathology, an increase in the frequency of carrying the PL-AII allele contributes to the violation of the integrity of the ovarian tissue due to weak intercellular contacts in it and increased thrombosis in small ovarian vessels, which is realized in hemorrhage.

In the scientific literature, this nosology is represented by various terms: "ovarian hemorrhage", "rupture of the corpus luteum cyst", "ovarian rupture", "ovarian bleeding" [3]. In gynecological practice, AYA is characterized by sudden hemorrhage

into the ovary and a violation of the integrity of the tissue, and with hemorrhagic form – the development of intra-abdominal bleeding [4-5]. Ovarian apoplexy, according to Russian literature, accounts for 17-19% in the structure of acute gynecological pathology and a third of all emergency hospitalizations in gynecological hospitals [2,6]. Among the causes of peritoneal bleeding, this life-threatening nosology, requiring emergency surgical treatment, ranks second after ectopic pregnancy. AYA relapses are detected in 21.6–69.0% of cases [4].

The majority of scientists agree that sexual intercourse, excessive physical exertion and stress are the main provoking factors of this urgent condition. However, they cannot be the direct cause of ovarian hemorrhage. Acting against the background of hormonal imbalance in the presence of ovarian anatomical changes in the form of a cystic corpus luteum, a multifollicular structure, a persistent follicle and in the presence of sclerosed altered vessels, provoking factors lead to increased pressure in the vessels due to blood filling of the pelvic organs and cause a violation of their integrity.

Hormonal imbalance in the genesis of ovarian apoplexy, according to A. S. Gasparov, A. E. Ter-Ovakimyan, is caused by a stress factor leading to hypercorticism and hyperprolactinemia. Hyperprodu-

tion of these hormones is the cause of the appearance of a multifollicular type of ovarian structure

Among the causes that can lead to a violation of women's reproductive health, gynecological diseases that require surgical treatment play a special role. Ovarian apoplexy as an etiological factor of intra-abdominal bleeding is in second place after ectopic pregnancy, and its prevalence has increased several times in recent decades, despite the existing progress and the use of high-tech methods of diagnosis and treatment. Ovarian apoplexy in 40% of cases requires immediate surgical treatment, leading to resection of part of the organ. In the postoperative period, there is an aggravation of impaired reproductive health, progressive deterioration of hormonal homeostasis, deep circulatory disorder, which are caused not only by ovarian trauma and a decrease in ovarian reserve, but also by the occurrence of adhesions in the pelvic organs.

The main way to restore fertility in patients with PCOS at the moment should be considered assisted reproductive technologies (ART), as a result of which pregnancy is achieved in a specific cycle of ovulation stimulation. The concept of ART includes methods of in vitro fertilization (IVF), as well as conception naturally as a result of various methods of ovulation induction [4, 6].

The successes achieved in the diagnosis and treatment of infertility caused by PCOS have led to an increase in the number of pregnancies and births in this contingent of patients [7].

However, infertility treatment can be considered effective and justified not only at the onset of pregnancy, but with its safe course, with the receipt of healthy, full-fledged offspring, because the priority task of obstetrics is safe motherhood and a "healthy start to life" of future generations.

The study of the features of induced pregnancies is of great practical importance due to the high frequency of complications of the gestational period, perinatal morbidity and mortality.

**The purpose of the study.** To analyze the scientific literature on the causes and mechanisms of ovarian apoplexy in women living in unfavorable climatic conditions of the subarctic region to prevent the development of relapse of pathology.

**Materials and methods of research.** To solve the tasks, the study was conducted in 3 stages. At the first stage, a retrospective analysis of 6635 birth histories for 3 years (2021-2023) was carried out in the Andijan AOPC.

Stage II included a laboratory study of the parameters of the hemostasis system of women aged 18 to 35 years ( $n=82$ ) in the acute period of ovarian apoplexy before surgery: prothrombin time, thrombin time, international normalized ratio, fibrinogen, activated partial thromboplastin time, soluble fibrin monomer complexes, Willebrand factor, antithrombin III, aggregatogram.

At the III stage, a clinical and laboratory examination of women aged 18 to 35 years ( $p= P2$ ) who underwent surgical treatment for hemorrhagic ovarian apoplexy was performed. At this stage of the work, the patients were divided into 2 groups (within the framework of a prospective open randomized comparative study in parallel groups).

**The results of the study.** The results of our study indicated a high incidence of premature amniotic fluid discharge in pregnant women with a history of ovarian apoplexy - 29% vs. 13.3% ( $p<0.05$ , OR=2.67) — which is consistent with the literature data. According to modern information sources, the frequency of other complications of childbirth did not exceed the average population indicators. However, in the course of our retrospective analysis, fundamentally different results were obtained. 9.5 times more often, women in labor in the main group had a rapid course of labor - 16.1% versus 1.7% ( $p<0.05$ , OR=11.35). In addition, in every third woman, childbirth was complicated by an umbilical cord entanglement ( $p<0.05$ , OR=2.9).

According to a number of authors, bleeding in the early postpartum period was observed in isolated cases and did not exceed the average population frequency. According to our data, the blood loss in the postpartum period was significantly greater in the maternity group than in the control group -  $380 \pm 40$  ml versus  $280 \pm 20$  ml, respectively ( $p<0.05$ ). In addition, hypotonic bleeding in the early postpartum period was 8.5 times more common in women with a history of ovarian apoplexy - 14.5% versus 1.7% ( $p<0.05$ , OR=10.02).

The assessment of newborns on the Apgar scale had no statistically significant differences in the compared groups: in the main group it was  $7.61 \pm 0.5$  points at the first minute and  $7.87 \pm 0.3$  points at the fifth minute, in the control group -  $7.72 \pm 0.4$  and  $7.92 \pm 0.5$  points, respectively ( $p>0.05$ ). The neonatal period was characterized by the development of complications such as cerebral ischemia, morphofunctional immaturity, hyperexcitation syndrome, inhibition syndrome, torticollis, cephalomatoma in both groups in equal percentages ( $p>0.05$ ).

All patients underwent emergency surgical interventions for the anemic form of AYA with the presence of hemoperitoneum from 50 to 600 ml (on average  $174.8 \pm 12.9$  ml). Laparoscopic signs of chronic salpingitis were found in 28.8% of patients. Adhesive process in the pelvic cavity was diagnosed in 25%. In accordance with the classification of the American Society of Fertility (AFS), 18.3% of patients revealed the I degree of severity of the adhesive process and 6.7% — the III degree.

At the same time, 20% of patients with adhesions had previously undergone surgical interventions on the organs of the abdominal cavity and pelvis, including 6.7% of patients operated in connection with AYA. Comparative analysis of anamnesis data showed no significant differences between pa-

tients of the main and retrospective groups, as well as between patients of subgroups 1A and 1B. Subgroups 1A and 1B did not differ in risk factors for the development of the adhesive process, which made it possible to consider these subgroups adequate for comparison, depending on the use of the enzyme preparation Longidase in complex rehabilitation therapy.

Thus, the analysis of clinical and anamnestic data showed that the vast majority of the examined patients with AYA did not realize reproductive function, and they are interested in preserving it (only 23.8% of patients had childbirth). By the time of surgical intervention, every fourth patient (25%) had already formed an adhesive process in the pelvic cavity (I and III degrees) and almost every third (28.8%) had signs of chronic salpingitis. All patients had factors predisposing to the formation of adhesions, such as the urgency of surgery and the presence of blood in the abdominal cavity.

The above data and literature data on the beginning of the formation of adhesions in the next 36 hours after surgery convince of the validity of the early start of rehabilitation measures aimed at the treatment and prevention of the adhesive process in patients operated for AYA. When choosing the drug Longidase, its prolonged antifibrotic effect, pronounced anti-inflammatory and decongestant effect were taken into account.

The early start of the course from 2 days after surgery pursued the goals: to enhance the effect of anti-inflammatory therapy and to ensure the prevention of adhesions and tuboperitoneal infertility. Morphological examination revealed a corpus luteum cyst with hemorrhage in 91.5% of the patients of the main group, a corpus luteum with hemorrhage in 4.3%, and a rupture of the ovarian follicular cyst in 4.2%.

The obtained results of immunohistochemical examination of ovarian tissue using CD34 antibodies indicate a significant increase in the vascular cross-sectional area (vessel size) of yellow bodies in patients with A (742.33 pixels) compared with those in yellow bodies in patients without A (control group) (320.13 pixels) ( $p=0.008$ ;  $r=0.54$ ). The total area of the vessels in the field of vision in patients with AYA was larger compared to those in the control group due to the larger diameter of the vessels and amounted to 53591.9 pixels versus 23844.2 pixels ( $p=0.013$ ;  $r=0.51$ ). The expression of SAFR and its receptors in the cytoplasm of granulose-luteal cells and vascular endothelium was assessed as moderate or strong.

The average expression score of SEFR on the evaluation scale in patients with AYA in the vascular endothelium was 1.87, in granulose-luteal cells — 1.43. In normal yellow bodies, the average expression score was 0.67 and 0.58, respectively. When compared with patients of the control group, we revealed an increase in the expression of the SAFR —

SAFRR1 and SAFRR2 receptors in yellow bodies in patients with AYA. The average expression score of SEFRP1 in patients with AYA was 1.08 in vascular endothelium and 1.62 in granulose-luteal cells. In patients in the control group, this indicator was 0.42 and 0.75, respectively. The average expression score of SEFRP2 in yellow bodies in patients with AYA was 2.19 in vascular endothelium and 2.08 in granulose-luteal cells. In the control group, these indicators were 1.42 and 1.25, respectively. Thus, the results obtained showed that during the AYA vascularization of the corpus luteum has a number of features indicating changes in ovarian angiogenesis: the vessels have larger sizes compared to those in the control group, the level of SEFR and its receptors is increased in the ovarian tissue (1 and 2). The average values of the SEFR level in the blood serum taken from patients with A before surgery were  $269.2\pm154.3$  pg/ml, in group 1A —  $282.6\pm178.4$  pg/ml and in group 1B —  $248.1\pm116.6$  pg/ml.

The conducted study indicates the activation of angiogenesis in ovarian tissue in patients with AYA, expressed in a significant increase in the size and area of vessels, as well as in an increase in the expression of SAFR and its receptors both in the endothelium and in granulose-luteal cells. The revealed features of ovarian angiogenesis complement our ideas about the development of hemorrhage in ovarian tissue in AYA.

The study of systemic angiogenesis after the end of the rehabilitation therapy complex showed that the level of SEFR significantly decreased in the blood serum of patients receiving Longidase for the prevention of adhesions. Since the activation of angiogenesis plays an important role in the formation of adhesions, an increase in the concentration of SAFR in patients who were not prescribed the drug Longidase can be considered as an unfavorable prognostic risk factor for the development of adhesions.

The clinical efficacy of prescribing the drug Longidase as part of complex rehabilitation therapy is confirmed by data on a more favorable course of the postoperative period and rapid normalization of the ultrasound picture, the results of hysterosalpingography, laparoscopy and the frequency of pregnancy compared with those in patients who did not receive the enzyme preparation.

The results obtained convince of the validity of the inclusion in the complex of rehabilitation measures after endosurgical treatment of the drug Longidase, characterized by a prolonged antifibrotic effect, pronounced anti-inflammatory and decongestant action.

**Conclusion.** Thus, pregnant women who had a history of surgical treatment of ovarian apoplexy, it is advisable to include in the risk group for the development of miscarriage in early terms, complicated gestational course, childbirth and the postpartum period (preeclampsia, gestational anemia, premature discharge of amniotic fluid, entwined umbilical

cord, the development of excessively strong labor with a rapid course of labor, pathological blood loss in childbirth, hypotonic bleeding in the early post-partum period).

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## СОВРЕМЕННЫЙ ПОДХОД К ЛЕЧЕНИЮ ПРИЧИН ОСЛОЖНЕНИЙ БЕРЕМЕННОСТИ У ЖЕНЩИН С АПОПЛЕКСИЕЙ ЯИЧНИКОВ

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**Резюме.** Апоплексия яичников - одно из наиболее распространенных неотложных гинекологических заболеваний, диагностируемое у 17% -31,7% пациенток, третье в составе неотложных заболеваний в гинекологии, второе среди причин абдоминальных кровотечений. При форме анемии АП, которая встречается у 40% больных, наблюдается абдоминальное кровотечение различной степени тяжести, и проводится срочное хирургическое лечение.

В данной статье представлены результаты применения современных методов в профилактике и лечении осложнений апоплексии яичников.

**Ключевые слова:** апоплексия, яичники, гинекологические заболевания, осложнения.