

2. Чабанова Н.Б., Василькова Т.Н., Полякова В.А., Шевлюкова Т.П. Оценка характера жировоголожения в динамике гестационного процесса по данным ультразвукового исследования / Российский электронный журнал лучевой диагностики. 2018. Т. 8. № 1. С. 129-136.

3. Садыкова Г. К., Лазарькова Н. Л. Влияние пищевого поведения на течение беременности // Два сердца как одно Пермский государственный медицинский университет имени академика Е. А. Вагнера. 2015. С. 139-143.

4. Чабанова Н.Б., Матаев С.И., Василькова Т.Н., Шевлюкова Т.П., Трошина И.А. Роль алиментарных факторов и ожирения у беременных женщин в развитии акушерской и перинатальной патологии / Вопросы питания. 2017. Т. 86. № 4. С. 6-21.

5. Чабанова Н.Б., Василькова Т.Н., Шевлюкова Т.П., Хасанова В.В. Проблемы диагностики избыточной массы тела и ожирения во время беременности / Журнал научных статей Здоровье и образование в XXI веке. 2016. Т. 18. № 2. С. 176-180.

УДК 618.1

**Завалов В.В., Степанова И.Е., Колотнина Е.В.
ВЛИЯНИЕ ПРЕПАРАТА ЦЕЛЛЕКС НА ТЕЧЕНИЕ
ВОСПАЛИТЕЛЬНОГО СИНДРОМА И КАЧЕСТВО ЖИЗНИ В
ПОСЛЕОПЕРАЦИОННОМ ПЕРИОДЕ У ПАЦИЕНТОВ
РЕПРОДУКТИВНОГО ВОЗРАСТА С ДИАГНОЗОМ ЭНДОМЕТРИОЗ**

Кафедра иностранных языков
Уральский государственный медицинский университет
Екатеринбург, Российская Федерация

**Zavalov V.V., Stepanova I.Ye., Kolotnina E.V.
CELLEX DRUG EFFECT ON THE COURSE OF INFLAMMATORY
SYNDROME AND THE QUALITY OF LIFE IN THE POSTOPERATIVE
PERIOD IN REPRODUCTIVE AGE PATIENTS WITH ENDOMETRIOSIS**

Department of Foreign Languages
Ural state medical university
Yekaterinburg, Russian Federation
E-Mail: vladimirzavalov@gmail.com

Аннотация. Статья посвящена изучению влияния препарата Целлекс на течение послеоперационного периода у пациентов с эндометриозом, заболеванием, которое всесторонне изучается акушерами, гинекологами и эндокринологами, патогенез которого не изучен до конца. Результатом локальных воспалительных нарушений при эндометриозе становится системный хронический воспалительный ответ. В работе проводится анализ ЛИИ, индекса Гаркави и количества лейкоцитов (показатели воспалительного ответа), а также

делается вывод о том, что действие пептидного препарата улучшает состояние пациентов с эндометриозом.

Annotation. The article is aimed at studying the effect of the drug Cellex on the postoperative period in patients with endometriosis. Endometriosis is a disease that is comprehensively studied by obstetricians, gynecologists and endocrinologists. The pathogenesis of the disease is not completely understood and needs further research. The local inflammatory disorders in endometriosis result in a systemic chronic inflammatory response. In this work, the authors focus on the analysis of LII, Garkavi index and the number of leukocytes (indicators of the inflammatory response). The conclusion is made about the effect of the peptide drug which improves the condition of patients with endometriosis.

Key words: endometriosis, LII, Garkavi index, SIRS (inflammatory response syndrome)

Ключевые слова: эндометриоз, ЛИИ, индекс Гаркави, воспалительный ответ.

Introduction: Endometriosis is a hormone-dependent, benign disease characterized by the presence of ectopic foci of the endometrium outside the uterus. Symptoms of endometriosis include chronic pelvic pain, dysmenorrhea, dyshesia, dyspareunia, infertility [2].

The statistical data proves that 176 million women worldwide suffer from endometriosis. Studies have shown that physical and mental health was significantly impaired in patients with endometriosis, while surgical treatment contributed to a significant improvement in the quality of life according to the parameters of the SF-36 scale as compared to the preoperative period ($p < 0.05$) [6].

Research objective. The research is aimed at evaluating the effectiveness of the drug Cellex on the course of the inflammatory syndrome in the perioperative period in patients of reproductive age with endometriosis of 2-4 degrees.

Material and Methods. The study included 58 gynecological patients randomized as a control group (placebo) and the “Cellex group” which received 1.0 ml of Cellex subcutaneously five days starting from the preoperative day. Leukocyte intoxication index (LII) and Garkavi adaptation indexes were evaluated.

Medical intervention period, the duration of mechanical ventilation and hemodynamic parameters did not significantly differ between the groups. In the control group, LII and the Garkavi index were above normal. In the Cellex group, these indicators were within normal limits and did not differ from the initial preoperative indicators.

The pathogenesis of endometriosis is not completely clear. A modern approach to the treatment of endometriosis is surgery: laparoscopy, argon plasma coagulation of endometriosis foci, removal of foci and the hormone therapy.

The inflammatory response is examined in the following way, Firstly surgical intervention is accompanied by tissue necrosis in the foci of inflammation, pathological protein catabolism, cell death and the development of endogenous intoxication [3]. Secondly, inflammation is a universal, genetically programmed

response to any phlogogenic effect. SIRS in operative gynecology is a marker of a complex of damaging effects [2].

In the 90s a French researcher R.C. Bone introduced the term CARS (compensatory antiinflammatory reaction syndrome) with the following clinical options.

1. SIRS (inflammation reaction syndrome) - organ dysfunction, apoptosis.
2. CARS (suppression of the immune system), hypersensitivity to infection.
3. Balancing SIRS and CARS - return to health [4].

Manifestations of SIRS in patients with surgical gynecological pathology are considered as an adaptive response of the female body to surgical stress. The pathways of the cytokine genes that underlie endometriosis are triggered (MEK / ERK way) [5]. This causes an increase in the synthesis of anti-inflammatory cytokines (polypeptides containing 100-150 amino acid residues) and the triggering of the immune system is triggered. The lack of cytokines is compensated by the drug Cellex, which contains chemokines, interleukins, CSF-1.

Cellex contains regulators of stress reactions and acute phase proteins that regulate the aerobic respiration of the cell and coordinate the anti-inflammatory response.

Cellex contains regulators of apoptosis. In patients with endometriosis, apoptosis processes are violated (programmed genetic death of defective cells). The intensity of cell death decreases, leading to the progression of endometriosis. The launch of apoptosis is carried out in two ways: receptor and mitochondrial. In the first case, the process is activated through TNF proteins (tumor necroses) which Cellex contains.

Cellex is a polypeptide drug, the mechanism of action in the standard pharmacological variant is not possible due to the multicomponent composition. We focused only on those components that play a role in the inflammatory response in the postoperative period with a diagnosis of endometriosis.

The research was done on the basis of the Centre of Operative Gynecology Gynclinic. The study included 58 patients with diagnosed endometriosis (degrees 2-4). All patients underwent planned gynecological intervention.

In the preoperative period all patients were examined according to the standard, including a general blood test, general urinalysis, biochemical examination, coagulation, chest x-ray, ECG, ultrasound of the veins of the lower extremities, ultrasound of the abdomen, pelvic ultrasound. Laparoscopy, argon-plasma coagulation, removal of foci of endometriosis was done in all patients in Endotracheal anesthesia

Physical status of patients was as follows. ASA II - III, age 23-38 years. Patients of the Cellex group received 1.0 ml of the drug subcutaneously before the operation and during the entire postoperative period.

Premedication: midazolam 0.07 - 0.1 ml / kg. Induction of anesthesia: propofol 1.5 - 2 mg / kg. Myoplegia: rocuronium bromide at a dose of 0.6 mg / kg for intubation, a maintenance dose of 0.1-0.15 mg / kg. Ventilation with low flow anesthesia by Fabius Tiro (Drager) in CMV (Continuous mandatory ventilation) mode, VT-450 ml, MV-8 /

min, PEEP + 4-5cm water column, Fi O₂- 0.5. Maintenance of anesthesia: sevofluranum 1.0-2.5 vol%, fentanyl 3-4 mg / kg / hour.

The hemodynamic parameters were controlled: blood pressure, Ps, SpO₂, EtCO₂. In the course of investigation two groups of 29 people were formed: the Cellex group and the control group. Both groups have similar general characteristics of patients (table 1).

Table 1

General characteristics		
indicator	Cellex n=29	Control group n=29
age	30,9 (23-38)	31,3(23-41)
social status		
working	28	21
non-working	1	8
primary infertility	20	19
secondary infertility	9	10
operation duration	137min (60-265)	144min (60-230)
Ventilation	145min(65-275)	154min(75-225)
Endometriosis 2 degree	3	3
Endometriosis 3 degree	5	13
Endometriosis 4 degree	21	13

In the perioperative period, a general blood analyses was made, LII and Garkavi index were controlled (adaptation after surgery).

Leukocyte Intoxication Index (LII) is an indicator showing the severity of inflammation, endogenous or exogenous intoxication. It is a calculated indicator that makes it possible to have an idea of the process severity and the operation effectiveness. As a rule, the higher the LII, the more difficult the inflammatory process in the body is. Normal values range from 0.3 to 1.5.

Modern researchers use several calculation formulas. In this work the Kalf-Caliph formula is used.

$$LII = \frac{(4 ML + 3U + 2P + S) (Pl + 1)}{(M + L) (E + 1)}$$

Ml – myelocytes, Yu – young, P – stab, S - segmented, Pl - plasma cells, M – monocytes, L – lymphocytes, E - eosinophils

Normal LII is in the range of 0.3-1.8

Adaptation Index (L.Kh. Garkavi) AI = LYM / GRA

Norm > 0.3 (0.3-1.12)

Stress - 0.07 - 0.29

Garkavi index shows the relationship of the humoral and cellular immunity links, the assessment of the stress, the assessment of adaptive training reactions and activation with the help of which the therapeutic effect of various physiological factors is realized [5]. Garkavi Adaptation Index corresponds to a reaction of chronic stress.

Garkavi index reflects the nonspecific adaptive response of the body to stress:

0-0.3 - acute stress reaction

0.3-0.5 - training reaction

0.5-0.7 - calm activation reaction

0.7-1 - reaction of increased activation

In the postoperative period, patients received intensive care measures including infusion therapy, antibiotic therapy, prevention of pulmonary thromboembolism, analgesia. Indicators of clinical and biochemical blood tests, hemodynamics, and temperature response of the body were monitored.

It was found that in the postoperative period in the clinical analysis of blood in patients of the Cellex group the level of leukocytes was normal, the patients had normal temperature, LII was up to 1.5 (normal LII), Garkavi index was in the range from 0, 3 and higher (corresponds to the reaction of the body training). In patients of the control group, leukocytosis was registered, LII was more than 2.8, which indicated an inflammatory process in the body, Garkavi index was less than 0.3, which corresponded to an acute stress of the body.

To determine the results of the study, the indicators of LII, Garkavi index and leukocytes in both groups were measured. During the preoperative period, measurements were made in both groups.

Moreover, the minimum and maximum indices in both groups during the preoperative period do not deviate significantly from the average indices.

Postoperative period measurements were also taken in consideration.

Table 2

Indicators in the perioperative period

Indicator	Cellex	Cellex	Control	Control
	Before surgery	After surgery	Before surgery	After surgery
White blood cells (mean)	6,14	8,64	6,14	10,47
Garkavi Index (average)	0,64	0,37	0,59	0,25

LII (mean))	0,64	1,48	0,63	2,85
-----------------	------	------	------	------

Results and discussion. The study shows that the use of the Cellex enables a favorable course of the early postoperative period in operative gynecology in patients with endometriosis. The drug was used from the preoperative day at 0.1 mg subcutaneously 30 minutes before surgery. The effect of the drug is associated with a peptide mechanism of action, which is needs further studying.

Endometriosis is a disease, the mechanism of occurrence, development and treatment of which is quite complicated. The surgical treatment method improves the course of the process, can result in a stable remission, the use of hormonal drugs is necessary in the postoperative period.

Endometriosis is still one of the causes of infertility.

Celllex has the following effect on patients:

Firstly, it has an anti-inflammatory effect, the evidence is LII, the level of leukocytes in the blood. Secondly, according to Garkavi index, adaptation in the postoperative period is faster due to Cellex. Thirdly, Celllex has a proven neuroreparative effect and improves brain cognitive function in the postoperative period.

The lack of clinical studies in the sphere of the peptides action and effect gives relevance to the further study and use of this drug.

Conclusion. In the postoperative period the drug Cellex contributes to an earlier regression of the inflammatory response.

References

- 1.Molecular aspects of endometriosis / L.V.Adamyan, YA.B.Aznaurova doi:10.17116/repro201521266-77
- 2.Lekcija Immunologicheskie mehanizmy lokal'nogo vospaleniya / V.A Chereshev, M.V.Cheresheva Medicinskaja immunologija 2011, T.13, №6, s.557-568
- 3.Avtoreferat k dissertacii na soiskanie uchenoj stepeni kandidata medicinskih nauk Argonoplazmennaja koaguljacija pri lechenii naruzhnogo genital'nogo jendometrioza / M.F. Dorfman , Moskva 2012g., s 28
- 4.Kriterii R.C.Bone i jatrogennyj stress (retrospektivnyj analiz). Zhurnal Omskij nauchnyj vestnik, izdatel'stvo Omskij gosudarstvennyj tehnikeskij universitet / V.T.Dolgih, S.S.Stepanov
- 5.Antistressornye reakcii i aktivacionnaja terapija / L.H. Garkavi, E.B.Kvakina, T.S. Kuz'menko – M.: Kniga po Trebovaniju, 2015. – 559 s. ISBN 978-5-458-38870-2
- 6.Avtoreferat k dissertacija na soiskanie uchenoj stepeni kandita medicinskih nauk. Vlijanie optimizirovannogo anesteziologicheskogo posobija na sindrom sistemnogo vospalitel'nogo otveta v operativnoj ginekologii. / A.V.Prognoza, Omsk 2008g