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# **INNOVATIONS IN MEDICINE: ACHIEVEMENTS OF DOMESTIC AND FOREIGN REPRESENTATIVES**

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**Cuiavian University in Wloclawek**

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**INNOVATIONS IN MEDICINE:  
ACHIEVEMENTS OF DOMESTIC  
AND FOREIGN REPRESENTATIVES**

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**Romans Djakons**, Dr.sc.ing., Professor, Academician, President of ISMA  
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**CHOOSING THE OPTIMAL TREATMENT STRATEGY  
FOR CERVICAL INSUFFICIENCY CONSIDERING  
THE INFLAMMATORY STATUS OF THE BIRTH CANAL**

**ВИБІР ОПТИМАЛЬНОЇ ТАКТИКИ ЛІКУВАННЯ  
ІСТМІКО-ЦЕРВІКАЛЬНОЇ НЕДОСТАТНОСТІ  
З УРАХУВАННЯМ ЗАПАЛЬНОГО СТАТУСУ  
ПОЛОГОВИХ ШЛЯХІВ**

**Cherneha V. O.**

*Postgraduate Student at the Department  
of Obstetrics and Gynecology № 1  
Bogomolets National  
Medical University;  
obstetrician-gynecologist  
Municipal non-commercial enterprise  
«Kyiv Perinatal Center»  
Kyiv, Ukraine*

**Чернега В. О.**

*аспірант кафедри акушерства,  
гінекології № 1  
Національний медичний університет  
імені О. О. Богомольця;  
лікар акушер-гінеколог  
КНП «Перинатальний центр  
м. Києва»  
м. Київ, Україна*

**Bila V. V.**

*Candidate of Medical Sciences,  
Associate Professor,  
Head of the Department of Obstetrics,  
Gynecology and Neonatology of the  
Institute of Postgraduate Education  
Bogomolets National  
Medical University;  
Medical Director  
Municipal non-commercial enterprise  
«Kyiv Perinatal Center»  
Kyiv, Ukraine*

**Біла В. В.**

*кандидат медичних наук, доцент,  
завідувач кафедри акушерства,  
гінекології та неонатології  
Інституту післядипломної освіти  
Національний медичний університет  
імені О. О. Богомольця;  
медичний директор  
КНП «Перинатальний центр  
м. Києва»  
м. Київ, Україна*

**Introduction:** Preterm birth is a significant global health issue. Annually, approximately 15 million premature babies are born worldwide, with 1 million deaths [1]. Spontaneous preterm birth (SPB) accounts for 40–45% of all preterm births [2]. Cervical insufficiency (CI) is a significant risk factor for SPB. Studies have demonstrated the impact of vaginal microbiome composition on cervical length during pregnancy and its role in determining the risk of preterm birth [3].

**Aim:** To assess the vaginal microbiome of pregnant women with cervical insufficiency (CI) who underwent different treatments (progesterone therapy, cervical suture, or obstetric pessary) and compare it with the

microbiome of healthy pregnant women. The aim was to determine which intervention had the least negative impact on the microbiome.

**Research materials and methods:** A longitudinal observational study was conducted at the Kyiv Perinatal Center from 2020 to 2023 to evaluate 94 patients, including 64 with cervical incompetence. The study included a control group of 30 healthy pregnant women with cervical length greater than 25 mm. The intervention groups consisted of women with cervical length of 25 mm or less, who were treated according to internal hospital protocols and the attending physician's preferences. The intervention groups included a progesterone therapy group (n=22), a cervical suture group (n=23), and an obstetric pessary group (n=19). Exclusion criteria for the study included painful regular contractions, active vaginal bleeding, premature rupture of the membranes, placenta previa, and a history of cervical surgery. The “JASP” statistical data processing program was used to analyse the obtained results.

**Results:** There is a correlation between different treatment methods and unsatisfactory results of bacteriological analysis, as indicated by the presence of opportunistic and pathogenic microflora ( $p < 0.05$ ), unsatisfactory results of bacterioscopic analysis, as indicated by the inflammatory type of smear and 3-4 degree of purity ( $p < 0.05$ ), and unsatisfactory results of anamnestic analysis, as indicated by the presence of complaints in patients ( $p < 0.05$ ). The study revealed that the impact of progesterone therapy and cervical suture on the microbiome is less than that of pessary use. Opportunistic and pathogenic microflora were present in 27.27% of patients in the progesterone group, 47.82% of patients in the cervical suture group, and 57.89% of patients in the pessary group. An inflammatory type of smear of 3-4 grade was found in 31.81% of patients in the progesterone group, 47.82% of patients in the cervical suture group, and 57.89% of patients in the pessary group. Discomfort and discharge were reported by 22.72% of patients in the progesterone group, 39.13% of patients in the cervical suture group, and 57.89% of patients in the pessary group. The use of a pessary was found to be associated with a higher frequency of identification of opportunistic microflora compared to the control group (16.67% vs. 52.63%,  $p < 0.05$ ). The study found significant differences between the two groups, including a higher rate of bacterial vaginosis in the intervention group (60% vs. 26.32%,  $p < 0.05$ ), lower rates of satisfactory results in bacterioscopic examination (20.00% vs. 57.89%,  $p < 0.05$ ), and increased complaints of discomfort and significant vaginal discharge (16.67% vs. 57.89%,  $p < 0.05$ ). After analyzing the pooled intervention group (consolidated progesterone, cervical suture, and pessary groups), the authors found a statistically significant association for

unsatisfactory bacterioscopic and bacteriologic results between the control and pooled intervention groups ( $p < 0.05$ ).

**Conclusions:** Our study demonstrates that during cervical insufficiency, regardless of the type of therapy, the birth canal of the parturient exhibits inflammatory changes such as the presence of opportunistic and pathogenic microflora, inflammatory smear type, and complaints of discharge and discomfort. The study also found that pessary had a greater negative impact on the microbiome compared to progesterone therapy and cervical cerclage.

### **Bibliography:**

1. Liu L, Oza S, Hogan D, Chu Y, Perin J, Zhu J, Lawn JE, Cousens S, Mathers C, Black RE. Global, regional, and national causes of under-5 mortality in 2000-15: an updated systematic analysis with implications for the Sustainable Development Goals. *Lancet*. 2016 Dec 17;388(10063):3027–3035. doi: 10.1016/S0140-6736(16)31593-8.
2. Roman A, Suhag A, Berghella V. Overview of Cervical Insufficiency: Diagnosis, Etiologies, and Risk Factors. *Clin Obstet Gynecol*. 2016 Jun;59(2):237–40. doi: 10.1097/GRF.0000000000000184.
3. Freitas AC, Bocking A, Hill JE, Money DM; VOGUE Research Group. Increased richness and diversity of the vaginal microbiota and spontaneous preterm birth. *Microbiome*. 2018 Jun 28;6(1):117. doi: 10.1186/s40168-018-0502-8.