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Methods Of Diagnostics of Precancer Diseases of The Cervic Associated with Papillomavirus

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Abstract

Goal: To reveal the prevalence of precancerous diseases of the cervix associated with papillomaviruses in women who applied to a gynecologist, and to evaluate the diagnostic capabilities of laboratory and cytological methods.

Methods: Conducted clinical and laboratory examination of 110 patients with diseases of the cervix. All patients underwent the necessary diagnostic standard: examination of the cervix in the mirrors, cytological examination of smears from ecto- and endocervix, polymerase chain reaction (PCR) for HPV, pH-metry, extended colposcopy of the cervix. Material for the study of vaginal microbiocenosis was collected from the posterolateral wall of the vagina, for the detection of HPV - from the cervical canal. The scrapings were placed in an Eppendorf tube containing 1 ml of physiological saline, the material was stored and transported in accordance with the current regulatory documents. DNA was isolated using a set of reagents PROBA-GS ("Standard diagnostics", Bukhara). The study was carried out by PCR with real-time detection of results (RT-PCR) using HPV reagents ("Diagnostic Standard", Bukhara) in a detecting amplifier DT-96, according to the manufacturer's instructions, in the laboratory ("Diagnostic Standard", Bukhara).

Results: In accordance with the results of cytological examination and testing for HPV, all examined patients were divided into 3 groups: the 1st group consisted of 37 HPV-negative patients with LSIL, the 2nd group included 41 HPV-positive patients with LSIL, the 3rd group consisted of 32 patients with a cytologically confirmed diagnosis of HSIL, all patients in this group were HPV-positive. The control group included 26 women with a visually unchanged cervix and the absence of HPV according to real-time PCR, who applied to the antenatal clinic for a preventive examination. The patients of the main and control groups included in the study were comparable in age and parity.

Key words: precancerous diseases of the cervix, diagnostics, colposcopy, Pap test, HPV

Diseases of the cervix, especially precancerous are one of the most common pathological conditions of the reproductive system in women of reproductive age. Despite the widespread use of screening programs, cervical cancer (CC) still occupies a leading position among the causes of death from oncological diseases of the female genital organs[1,5,9].

The World Health Organization has recognized the oncological danger of highly oncogenic human papillomaviruses (HPV) and its leading role in the etiology of cervical cancer (CC). As is known, the viral genome transforms cervical epithelial cells and leads to the development of cervical dysplasia of varying severity (cervical intraepithelial neoplasia - CIN II–III) and cervical cancer. With invasive cervical cancer, HPV is detected in 95% of cases[2,7,11].

Human papillomaviruses (HPV) are sexually transmitted and often found in young people. They are usually neutralized by the immune system. However, prolonged presence of high-risk HPV (HR) can lead to the development of abnormal cells in the cervix; this condition is considered precancerous if the surface layer of the cervix is affected by at least two-thirds.

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After a few years, precancer can turn into cervical cancer. Not all people with precancerous conditions develop cervical cancer, but it is difficult to predict who will develop it. There are a number of different HPV-BPs that can cause precancer and cervical cancer. The most significant high-risk HPVs are HPV16 and 18 as they are responsible for approximately 70% of cervical cancers worldwide. Preventive vaccination by intramuscular injection of virus-like particles triggers the formation of antibodies that protect against future HPV infections. The human papillomavirus (HPV) is one of the common viruses that can cause about 6 different types of cancer later in life. Cancer can develop years, sometimes decades, after a person is infected with HPV[3,12,17-41]**.**

The risk of HPV infection exists at any age, but the most frequent infection is typical for young women and especially adolescents (20%). The frequency of infection in women aged 45–55 years is 5%. In 80–90% of cases, human papillomavirus infection (PVI) spontaneously regresses, however, in 10–20% of cases, HPV persists for a long time and the risk of developing HPV-associated diseases increases [4,10,21].

HPV-associated diseases include precancerous and malignant tumors of the cervix, vulva, vagina and anus, oral cavity and larynx, recurrent respiratory papillomatosis, and anogenital warts [6,13,20].

Cases of HPV-associated cancers have increased. Thus, cancer of the vulva and vagina accounts for 5% of all gynecological cancers (40 thousand cases per year), anal cancer - 100 thousand cases annually (40 thousand in men and 60 thousand in women). It has now been proven that anal neoplasias (anal intraepithelial neoplasia - AIN), as well as cervical neoplasias (CIN), are strongly associated with HPV infection. Thus, in 23.3% of patients with morphologically verified CIN, AINs of varying severity were identified [8,15,19]. There is an increase in HPV-related extragenital pathology, in particular, recurrent respiratory papillomatosis (HPV 6, type 11), squamous cell lung cancer (type 6, 11, 16, 18), laryngeal cancer (type 16, 18) , focal hyperplasia of the epithelium (type 13, 32), conjunctival papillomas (type 6, 11), oral warts (type 2, 4), oral condylomas (type 6, 11), red papillomatosis of the oral cavity (6, 11th type). It should be noted that 15–20% of all cancers of the oral cavity and pharynx are caused by HPV. For all the listed lesions caused by HPV infection, a single screening was developed only for the cervix [14,16,18].

Screening is a system of primary examination of groups of clinically asymptomatic individuals in order to identify cases of the disease. Unlike the cervix, screening has not been developed to detect the pathology of the vulva, vagina, anus, and extragenital pathology. The principles of examination of patients with pathology of the cervix are aimed at diagnosing changes in the epithelium of the cervix, which are caused by HPV.

Goal: To reveal the prevalence of precancerous diseases of the cervix associated with papillomaviruses in women who applied to a gynecologist, and to evaluate the diagnostic capabilities of laboratory and cytological methods.

Methods: Conducted clinical and laboratory examination of 110 patients with diseases of the cervix. All patients underwent the necessary diagnostic standard: examination of the cervix in the mirrors, cytological examination of smears from ecto- and endocervix, polymerase chain reaction (PCR) for HPV, pH-metry, extended colposcopy of the cervix. Material for the study of vaginal microbiocenosis was collected from the posterolateral wall of the vagina, for the detection of HPV - from the cervical canal. The scrapings were placed in an Eppendorf tube containing 1 ml of physiological saline, the material was stored and transported

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in accordance with the current regulatory documents. DNA was isolated using a set of reagents PROBA-GS ("Standard diagnostics", Bukhara). The study was carried out by PCR with real-time detection of results (RT-PCR) using HPV reagents ("Diagnostic Standard", Bukhara) in a detecting amplifier DT-96, according to the manufacturer's instructions, in the laboratory ("Diagnostic Standard", Bukhara).

The possibilities of the HPV test in Uzbekistan currently include the determination of 2 types of HPV - 16, 18 (polymerase chain reaction method - PCR); qualitative and quantitative determination of HPV type 21 by real-time PCR [16, 18, 26, 31, 33, 35, 39, 44 (55), 45, 51, 52, 53, 56, 58, 59, 66 , 68, 82, 6, 11]; identification of high-risk HPV; quantitative determination of HPV types included in the Digene test (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68, 6, 11th).

Cytological examination of smears (PAP-test) has until now been the basis of screening programs aimed at the early detection of HPV-associated precancer and cancer. A decrease in mortality by 20–60% was achieved due to the introduction of state screening programs (1960–2000s) based on the PAP test in Europe and North America [9].

According to the WHO, about 600,000 cases of cervical cancer are registered annually in the world and, despite ongoing therapeutic measures, the mortality rate is 45-50%. With the advent of the polymerase chain reaction (PCR) and cytological studies (PAP test) in the arsenal of diagnostic methods, the detection of the virus in urogenital samples has become extremely simplified. PCR makes it possible not only to detect virus DNA with high sensitivity, but also to determine its type, which is extremely important in predicting the disease, while liquid cytology more accurately determines the degree of cell damage.

The obvious advantages of the HPV test include its high sensitivity, the ability to assess the further risk of progression of the process, its use in a group of women vaccinated against HPV, etc. The real-time PCR method allows to determine the amount of DNA of clinically significant types of HPV bv in the sample, in contrast to conventional PCR.

The visual method is an alternative to cytology in cases where it is not feasible. Assessment of the condition of the epithelium of the vagina and cervix can be performed visually using samples with 3-5% acetic acid and Lugol's solution. Its sensitivity and specificity are 69–72%. Can be used by well trained medical staff in the absence of a colposcope.

It should be emphasized that there are no specific colposcopic signs of HPV lesions of the cervical epithelium, indirect signs are acetowhite epithelium, puncture, mosaic, the severity of which depends on the severity of the process.

Analysis of the results of extended colposcopy was carried out in 110 women with precancerous cervical pathology and 26 - the control group of conditionally healthy women. All patients underwent a cytological examination (PAP test), smear microscopy, and HPV testing for highly oncogenic types. All patients underwent a cytological examination (PAP test), smear microscopy, and HPV testing for highly oncogenic types. The effectiveness of the colposcopy method was evaluated according to the criteria of sensitivity and specificity.

Results and discussion.

In accordance with the results of cytological examination and testing for HPV, all examined patients were divided into 3 groups: the 1st group consisted of 37 HPV-negative patients with LSIL, the 2nd group included 41 HPV-positive patients with LSIL, the 3rd group consisted of 32 patients with a cytologically confirmed diagnosis of HSIL, all patients in this group were HPV-positive. The control group included 26 women with a visually unchanged

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cervix and the absence of HPV according to real-time PCR, who applied to the antenatal clinic for a preventive examination. The patients of the main and control groups included in the study were comparable in age and parity.

The results of the studies showed that a normal cytological picture in smears from exo- and endocervix was found in the control group in all women (100.0%). The smears were represented by the cells of the upper layers of the stratified squamous epithelium (SSE) - superficial and intermediate. The nuclear-cytoplasmic ratio was evaluated, i.e. Normally, the nucleus was small, round with a normal chromatin structure, the cytoplasm was large. The background of the smear also consisted of colonies of bacteria in the form of sticks – Lactobacillus.

Table number 2
Results of cytological examination by groups

№	Cytological results Research	Number of patients n=110 (%)
1	NILM	0
2	ASCUS	0 (0%)
3	LSIL	78 (70,9%)
4	HSIL	32(29,1%)
5	Cervical cancer	0(0%)

The first group consisted of HPV-negative patients with NILM cytology results (0%). In patients of group 2 (0%), the cytological conclusion corresponded to ASCUS, group 3 (70.9%) - LSIL and group 4 (29.1%) - HSIL. LSIL - mild dyskoriosis, increased nuclear-cytoplasmic ratio and hyperchromia. Severe lesions of the cervix (HSIL) in cytology were accompanied by a pronounced violation of the nuclear-cytoplasmic ratio, hyperchromic nuclei of irregular shape and moderate dyskaryosis.

We carried out a comparative analysis of the results of cytology, due to the impact of the most common types of HPV. In the LSIL and HSIL group, HPV type 16 was significantly more common.

Extended colposcopy was performed for all patients (n=110), we assessed the localization and extent of the lesion, the severity of one or another colposcopic sign (the presence of acetowhite epithelium and its severity, the presence of mosaics and/or punctures, the degree of staining with Lugol's solution and the presence of iodine- negative areas).

When conducting this study in groups with LSIL and HSIL of the cervix, in 52 (91.2%) patients, an abnormal colposcopic picture of varying severity was detected.

A detailed analysis of the colposcopic picture among 4 groups of patients is presented in Table 3.

Table number 3

№	Painting Colposcopy	1st group (LSIL, HPV-; n=37)	2nd group (LSIL, HPV+; n = 41)	3rd group (HSIL; n = 32)	4th group (norm; n = 26)

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1	Aceto-white epithelium thin	18(48,6%)	25(61,0%)	23(71,9%)	1(3,8%)
2	Aceto-white dense epithelium	16(43,2%)	18(43,9%)	15(46,9%)	0(0%)
3	Atypical vessels	4(10,8%)	6(14,6%)	6(18,8%)	0(0%)
4	Mosaic tender	10(27%)	13(31,7%)	11(34,3%)	0(0%)
5	Mosaic rough	4(10,8%)	6(14,6%)	6(18,8%)	0(0%)
6	Punctuation gentle	5(13,5%)	7(17,1%)	6(18,8%)	0(0%)
7	Punctuation is rough	2(5,4%)	2(4,9%)	4(12,5%)	0(0%)
8	Open glands	8(21,6%)	10(24,4%)	10(31,3%)	1(3,8%)
9	Pronounced vascular pattern	8(21,6%)	10(24,4%)	11(34,3%)	0(0%)
10	Ectopia	8(21,6%)	11(26,8%)	11(34,3%)	0(0%)
11	Ectropion	2(5,4%)	4(9,8%)	4(12,5%)	0(0%)
12	Genital warts of the vulva	4(10,8%)	6(14,6%)	6(18,8%)	0(0%)
13	Genital warts of the vagina	2(5,4%)	4(9,8%)	4(12,5%)	0(0%)
14	Genital warts of the cervix	0(0%)	0(0%)	0(0%)	0(0%)
15	Iodine-negative zone	19(51,4%)	24(58,5%)	22(68,8%)	0(0%)
16	Clear boundaries of abnormal epithelium	22(59,5%)	26(63,4%)	25(78,1%)	0(0%)

Note. Here and in Table. No. 3: HPV- - HPV-negative, HPV+ - HPV-positive; $p<0.05$

In a detailed analysis of the colposcopic picture (table 3), changes in the epithelium of the cervix were significantly more common among patients of groups 1, 2 and 3 ($p<0.05$). Thus, thin ABE in group 1 was detected in 18(48,6%) patients, in group 2 in 25(61,0%) and in group 3 23(71,9%) patients, respectively. In the comparison group, thin ABE was detected in 1(3,8%) patients, respectively. Also, dense ABE and ABE with mosaic and/or puncture were significantly more often detected in patients of groups 1, 2 and 3 compared with group 4 ($p<0.05$).

It should be noted that atypical vessels, iodine - negative areas with clear boundaries were also more often detected among patients of groups 1, 2 and 3 ($p<0.05$).

We also analyzed the colposcopic picture depending on the severity of cervical lesions (LSIL/HSIL) in patients of groups 2 and 3. So, mild changes in the epithelium of the cervix in patients of groups 2 and 3, such as thin ABE, were significantly more common among patients with a cytologically verified conclusion of LSIL, at the same time, pronounced changes in the epithelium - dense ABE - and its rapid manifestation were significantly more often detected in patients with cytological conclusion HSIL ($p<0.05$).

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Features such as coarse mosaic/punctuation were also significantly more common in patients with (HSIL) ($p<0.05$). When comparing other indicators, no significant differences were found ($p>0.05$).

We also analyzed the most common HPV genotypes in various colposcopic patterns in patients with cervical SIL and in the comparison group. Analysis of the results of the colposcopic picture with the results of HPV genotyping showed that HPV genotype 16 was detected most often with mild and pronounced changes in the cervical epithelium.

With a thin ABE, HPV 16 genotype was detected in group 2 in 12 (29,3%) cases in group 3 in 9 (28,1%) cases, respectively. With pronounced changes (ABE with mosaic / puncture), HPV 16 genotype was detected in group 2 in 18 (43,9%) cases, in group 3 in 13 (40,6%) cases, respectively.

With thin ABE, HPV 11 (29,7%), HPV 33 and 52 (10,8%) genotypes were most common in patients of group 2, the rest were less than 4,8%, in patients of group 3, HPV 16 (29,3%) , 33 (12,2%) others less than 4,9%.

With dense ABE - in patients of group 2 HPV 16 (34,1%), 18 (9,8%), 31 (14,6%), 33 (19,5%), other genotypes less than 4,9%, in patients 3 HPV groups 16 (40,6%), 33 and 52 (12,5%), the rest less than 6,3%.

In ABE with mosaic/puncture in patients of group 2 HPV 16 (43,9%), 31.33 and 52 (14,6%), 18 (9,8%), the rest less than 4,9%, in patients of group 3 HPV 16 (40,6%), 52 (12,5%), 33 (6,3%), the rest less than 6,3%. With pronounced and mild changes in the epithelium of the cervix, highly oncogenic HPV genotypes were more common (16, 31, 33, 52) ($p<0.05$). Thus, HPV genotype 16 was significantly more common than other genotypes in dense ABE and ABE with mosaic/puncture ($p<0.05$).

A comparative analysis of the results of colposcopy in patients of groups 1 and 2 with patients of the comparison group showed that gross changes in the epithelium of the cervix (ABE, mosaic, puncture) were significantly more common in patients of groups 1 and 2 ($p<0.05$). It should be noted that a comparative analysis of the results of colposcopy in patients of groups 1 and 2 did not reveal statistical differences ($p>0.05$).

Thus, changes in the epithelium during colposcopy were significantly more common among patients of the 2nd, 3rd and 4th groups - ABE and ABE with mosaic and/or puncture were detected 5 times more often in patients with CIN of varying severity. Also in these groups, open glands and atypical vessels were more common.

Conclusion.

Thus, early detection (screening) of HPV-related diseases and a rational approach to patient management using evidence-based diagnostic methods can prevent oncological diseases.

As a result of the study, it was found that the severity of colposcopic changes in the cervical epithelium (ABE, ABE with mosaic/puncture) significantly correlates with cytological changes in LSIL and HSIL. Signs such as coarse mosaic/punctuation were significantly more common in patients with severe squamous intraepithelial lesions (HSIL) of the cervix. It was also found that with pronounced colposcopic changes, highly oncogenic HPV genotypes were detected significantly more often. In the presence of colposcopic signs such as ABE and ABE with mosaic/puncture, HPV genotype 16 dominated.

Based on the results of our study, the importance of performing extended colposcopy, along with fluid cytology and HPV testing, is important for the early diagnosis of cervical SIL

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References:

1. Ahmedova, A. T., Agababyan, L. R., & Abdullaeva, L. M. (2020). Peculiarities of the perimenopause period in women with endometriosis. *International scientific review*, (LXX), 100-105.
2. Агабабян, Л. Р., Ахмедова, А. Т., Абдуллаева, Л. М., Насирова, З. А., & Махмудова, С. Э. (2019). Негормональная коррекция климактерических расстройств у женщин с эндометриозом. *Вопросы науки и образования*, (26 (75)), 77-84.
3. Abdullaeva, L. M., Babadzhanova, G. S., Nazarova, D. B., Muratova, N. D., & Ashurova, U. A. (2012). Role of hormonal disturbances in sterility development for patients with benign formations of ovaries. *Likars' ka Sprava*, (3-4), 104-109.
4. Akhmedova, A. T., Agababyan, L. R., & Abdullaeva, L. M. (2020). The effectiveness of atypical minor antipsychotics in the treatment of menopausal syndrome in women with perimenopause endometriosis. *Journal of Critical Reviews*, *7*(13), 1033-1036.
5. Каттаходжаева, М., Сафаров, А., Сулейманова, Н., & Абдуллаева, Л. (2020). К вопросу о тактике ведения беременности и родов при тазовых предлежаниях плода. *in Library*, *20*(1), 18-21.
6. Абдуллаева, Л. М., & Доника, А. Д. (2016). Ятрогения на модели оперативной гинекологии. *Международный журнал экспериментального образования*, (5-2), 177-178.
7. Абдуллаева, Л. М. (2009). Клинико-гистологическая характеристика доброкачественных образований яичников. *Лечащий врач*, (8), 54-56.
8. Абдуллаева, Л. М., Агабабян, Л. Р., & Боборахимова, У. (2020). Reproduktiv yoshdagi ayollarda ortiqcha vazn va uni tuzatish usullari (adabiyotlar tahlili). *Журнал Репродуктивного Здоровья и Уро-Нефрологических Исследований*, *1*(2).
9. Абдуллаева, Л., Каттаходжаева, М., Сафаров, А., & Гайибов, С. (2020). Прогнозирование и профилактика акушерских и перинатальных осложнений при многоплодной беременности. *Журнал вестник врача*, *1*(1), 110-113.
10. Агабабян, Л. Р., Абдуллаева, Л. М., & Султанова, Д. С. (2020). Основные причины привычной потери беременности. *International scientific review*, (LXX), 97-100.
11. Aslonova, M. J. The Nature of Disorders in the Mother-Placenta-Fetus System and Their Role in the Development of Fetal Growth Restriction Syndrome. *GAS*, *293*, 00-5.
12. Аслонова, М., Ихтиярова, Г., & Дустова, Н. (2020). РАЗВИТИЕ ПЛОДА И ОСЛОЖНЕНИЯ ВО ВРЕМЯ БЕРЕМЕННОСТИ У ЖЕНЩИН С ХРОНИЧЕСКИМИ ЗАБОЛЕВАНИЯМИ ПОЧЕК. *Журнал вестник врача*, *1*(3), 113-116.
13. Aslonova, M. J. The Nature of Disorders in the Mother-Placenta-Fetus System and Their Role in the Development of Fetal Growth Restriction Syndrome. *GAS*, *293*, 00-5.
14. Аслонова, М. Ж. (2023). Ҳомилани Ўсиши Чегараланиш Синдроми Муаммосининг Замонавий Жиҳатлари Ва Уни Тузатиш Усуллари. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI*, *2*(11), 1-9.

Western European Journal of Modern Experiments and Scientific Methods
Volume 1, Issue 4, December, 2023
https://westerneuropeanstudies.com/index.php/1
ISSN (E): 2942-1896 Open Access| Peer Reviewed

15. Аслонова, М. Ж., Исматова, М. И., & Пулатова, Р. А. (2018). Современные аспекты индукции родов для подготовки шейки матки к родам на различных сроках беременности. *Medical review*, *5*, 59.
16. Karimova, G. K., Navruzova, N. O., & Nurilloyeva Sh, N. (2020). An individual approach to the management of gestational diabetes. *European Journal of Molecular & Clinical Medicine*, *7*(2), 6284-6291.
17. Ikhtiyarova, G. A., Karimova, G. K., & Navruzova, N. O. (2019). KhairullaevCh. K. Ultrasound diagnostics of diabetic fetopathy in pregnant women with metabolic syndrome on the background of diabetes mellitus. *Medicine and sports2019,(3-4)*, 56-58.
18. Каримова, Г. К., Ихтиярова, Г. А., & Наврузова, Н. О. (2020). Скрининг диагностика гестационного диабета. *Новый день в медицине*, (1), 220-222.
19. Ихтиярова, Г. А., Каримова, Г. К., Наврузова, Н. О., & Хайруллаев, Ч. К. (2019). Ультразвуковая диагностика диабетической фетопатии у беременных с метоболическим синдромом на фоне сахарного диабета. *Тиббиѐт ва спорт,(3-4)*, 56-58.
20. Каттаходжаева, М. Х., & Назирова, М. У. (2022). ОСОБЕННОСТИ ПАРАМЕТРОВ ГЕМОСТАЗА ПРИ НЕРАЗВИВАЮЩЕЙСЯ БЕРЕМЕННОСТИ. *ЖУРНАЛ РЕПРОДУКТИВНОГО ЗДОРОВЬЯ И УРО-НЕФРОЛОГИЧЕСКИХ ИССЛЕДОВАНИЙ*, *3*(4).
21. Назирова, М. У. (2005). Эффективность применения простагландинов в прерывании неразвивающейся беременности. *Диссер. к. м. наук-2005 145с*.
22. Nazirova, M. U., Kattakhodzhaeva, M. K., & Asilova, S. U. (2023). The state of bone mineral density of women in the perimenopausal period. *British Medical Journal*, *3*(1).
23. Asilova, S. U., Mirzaev, A., Nazarova, F. N., Nazirova, M. U., & Sh, U. G. (2023). REHABILITATION OF PATIENTS AFTER SURGERY WITH POST-COVID ASEPTIC NECROSIS OF THE FEMORAL HEAD. *The American Journal of Medical Sciences and Pharmaceutical Research*, *5*(05), 72-85.
24. Назирова, М. У., Каттаходжаева, М. Х., & Асилова, С. У. (2023). КЛИНИКО-ДИАГНОСТИЧЕСКИЕ ПОКАЗАТЕЛИ ОСТЕОПОРОЗА У ЖЕНЩИН В ПЕРИМЕНОПАУЗАЛЬНОМ ПЕРИОДЕ. *ЖУРНАЛ РЕПРОДУКТИВНОГО ЗДОРОВЬЯ И УРО-НЕФРОЛОГИЧЕСКИХ ИССЛЕДОВАНИЙ*, *4*(1).
25. Асилова, С. У., ТурІунова, Г. Н., Назирова, М. У., Юсупова, К. А., Назаров, Ж. Х., & Милушева, Р. Ю. ВЛИЯНИЕ МОДИФИЦИРОВАННОГО ХИТОЗАНА НА ФОРМИРОВАНИЕ КОСТНОЙ ТКАНИ. *ТАЉРИР ЈАЙЪАТИ*, 24.
26. Каттаходжаева, М. Х., & Назирова, М. У. (2022). Параметры Гемостаза При Неразвивающейся Беременности. *Central Asian Journal of Medical and Natural Science*, *3*(6), 482-492.
27. NAVRUZOVA, N., & NAVRUZOVA, U. NEW DAY IN MEDICINE. *NEW DAY IN MEDICINE Учредители: Бухарский государственный медицинский институт, ООО" Новый день в медицине"*, (2), 136-140.

Western European Journal of Modern Experiments and Scientific Methods
Volume 1, Issue 4, December, 2023
https://westerneuropeanstudies.com/index.php/1
ISSN (E): 2942-1896 Open Access| Peer Reviewed

28. Наврузова, Н. О. (2022). Современные Возможности Диагностики И Лечения Предраковых Заболеваний Шейки Матки (Обзор Литературы). *Central Asian Journal of Medical and Natural Science*, *3*(6), 543-550.
29. Наврузова, Н. О. (2022). Оценка Эффективности Современных Диагностических Подходов К Проблеме Доброкачественной Патологии Шейки Матки У Женщин. *Central Asian Journal of Medical and Natural Science*, *3*(6), 528-542.
30. Navruzova, N. O. (2022). Clinical and Laboratory Aspects in the Assessment of Neck Diseases Uterus. *Central Asian Journal of Medical and Natural Science*, *3*(6), 519-527.
31. Наврузова, Н. О. (2023). Бухоро Вилоятида Яшовчи Бачадон Бўйни Патологияси Билан Хастланган Аёлларнинг Ретроспектив Таҳлили. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI*, *2*(4), 24-33.
32. Наврузова, Н. О. (2023). Бачадон Бўйни Патологиясининг Ретроспектив Килиник Ва Лаборатор Кўрсаткичлари. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI*, *2*(4), 34-40.
33. Наврузова, Н. О. (2023). КЛИНИКО-ДИАГНОСТИЧЕСКИЕ МАРКЕРЫ ПРОГНОЗИРОВАНИЕ ПАТОЛОГИИ ШЕЙКИ МАТКИ И ЕЁ ПРОФИЛАКТИКА. *AMALIY VA TIBBIYOT FANLARI ILMIY JURNALI*, *2*(11), 206-220.
34. Navruzova, N. O. (2023). Treatment of Different Vulvaginitis in Women with Cervical and Genital Inflammatory Diseases. *Central Asian Journal of Medical and Natural Science*, *4*(6), 1387-1396.
35. Ихтиярова, Г. А., Наврузова, Н. О., & Муминова, Н. Х. (2022). Бачадон бўйни рак олди касалликлари дифференциал диагностикасини такомиллаштириш усули. *Евразийский журнал медицинских и естественных наук*, *2*(8), 4-17.
36. Ашурова, Н. Г., & Наврузова, Н. О. (2017). Доклиническая диагностика заболеваний шейки матки. *Новости дерматовенерологии и репродуктивного здоровья*, (3), 29.
37. Ashurova, N. G., & Navruzova, N. O. (2017). Preclinical diagnosis of cervical diseases. *News of dermatovenerology and reproductive health,(3)*, *4*.
38. Ашурова, Н. Г., Рахматуллаева, М. М., & Наврузова, Н. О. (2018). Роль кольпоскопии в ранней диагностике заболеваний шейки матки. *Альманах молодой науки*, (4), 21-23.
39. Ashurova, N. G., Rakhmatullaeva, M. M., & Navruzova, N. O. (2018). The role of colposcopy in the early diagnosis of the cervix. *Almanac of young science*, (4), 21-23.
40. Ibrokhimovich, A. I., & Kizi, J. M. M. (2023). Improving the Effectiveness of Research, Treatment and Prevention of Caries in Children with Type 1 Diabetes. *Scholastic: Journal of Natural and Medical Education*, *2*(4), 182-187.
41. Ахмедов, И. И. (2023). 1-Тип Қандли Диабет Билан Касалланган Болаларда Кариес Касаллигини Ирганиш, Даволаш Ва Профилактика Самарадорлигини Ошириш. *АМАЛИЙ ВА ТИББИЙОТ ФАНЛАРИ ИЛМИЙ ЖУРНАЛИ* , *2* (4), 165-171.