International Journal of Medical Sciences And Clinical Research

VOLUME Vol.06 Issue04 2026
PAGE NO. 48-51
DOI 10.37547/ijmscr/Volume06Issue04-08

Effectiveness of An Optimized Diagnostic and Management Algorithm for Pregnant Women with Cervical Pathology

Juraeva N.A.
Tashkent State Medical University, Uzbekistan

Ruziyeva N.X.
Tashkent State Medical University, Uzbekistan

Received: 26 February 2026; **Accepted:** 23 March 2026; **Published:** 14 April 2026

Abstract: Objective: to evaluate the clinical effectiveness of a developed step-by-step algorithm for diagnosis and management of pregnant women with cervical pathology. Materials and methods: 120 pregnant women with cervical pathology were included. The main group (n=60) was managed according to the new algorithm; the comparison group (n=60) received standard care. Results: Disease stabilization without dysplasia progression was recorded in 93.3% of the main group vs 81.7% in the comparison group at 6 months. The diagnostic significance of HPV was confirmed: χ^2=4.60 (p=0.032), RR=1.79, Se=64.1%, Sp=56.8%. Conclusion: The optimized step-by-step algorithm significantly improves clinical outcomes compared to standard management (93.3% vs 81.7%).

Keywords: Cervical pathology, pregnancy, diagnostic algorithm, HPV infection, dysplasia, colposcopy, treatment effectiveness.

Introduction: Cervical pathology in pregnant women represents a significant clinical challenge that requires a balanced approach to diagnosis and management. The widespread application of algorithms primarily developed for non-pregnant women is not always justified during gestation and may lead either to excessive invasive interventions or to an underestimation of the risk of progression of cervical pathology [1]. A key factor determining the nature and prognosis of cervical pathology is the patient's human papillomavirus (HPV) status. Recent studies convincingly demonstrate that a differentiated approach to the management of HPV-positive and HPV-negative pregnant women results in significantly improved clinical outcomes [2]. Therefore, the development and implementation of a clear stepwise diagnostic and management algorithm adapted to pregnancy conditions is beyond doubt [3].

Objective

To evaluate the clinical effectiveness of a developed stepwise diagnostic and management algorithm for pregnant women with cervical pathology in comparison with the standard approach

METHODS

The study included 120 pregnant women with verified cervical pathology. The main group consisted of 60 patients managed according to the developed stepwise algorithm. The comparison group included 60 pregnant women under standard dispensary follow-up.

The proposed algorithm comprised seven sequential stages:

- Stage I — initial assessment (before 12 weeks), including mandatory Pap test, HPV testing, and evaluation of the vaginal microbiota;
- Stage II — extended colposcopy in cases of HPV-positive status and/or abnormal cytological findings;
- Stage III — differentiated management based on cytology and colposcopy results;

- Stage IV — correction of vaginal microbiota disturbances;
- Stage V — transvaginal cervicometry at 16–24 weeks;
- Stage VI — delivery management considering obstetric indications;
- Stage VII — postpartum follow-up at 6–12 weeks.

Effectiveness was assessed at 3 months, 6 months, and after delivery. The primary endpoint was stabilization of the pathological process and absence of dysplasia progression. To evaluate the prognostic significance of HPV infection for the development of dysplasia, the following statistical measures were calculated: Pearson's chi-square (χ^2) test, association coefficient (C_ass), relative risk (RR), sensitivity (Se), and specificity (Sp). Differences were considered statistically significant at $p<0.05$.

RESULTS

The analysis of the diagnostic value of HPV testing as a predictor of dysplasia in pregnant women showed the following (Table 2):

Among 120 pregnant women:

- Dysplasia (LSIL/HSIL) was detected in 25 out of 60 HPV-positive patients (41.7%);
- Dysplasia was detected in 14 out of 60 HPV-negative patients (23.3%).

Table 2. Prognostic significance of HPV status in detecting dysplasia among pregnant women (n=120)

Group	Dysplasia (+)	Dysplasia (–)	Total
HPV-positive pregnant women	25	35	60
HPV-negative pregnant women	14	46	60
Total	39	81	120

Note. Pearson's $\chi^2 = 4.60$; $p = 0.032$; association coefficient (C_ass) = 0.40; relative risk (RR) = 1.79; sensitivity (Se) = 64.1%; specificity (Sp) = 56.8%.

The relative risk of developing dysplasia in the presence of HPV infection was 1.79 ($p = 0.032$). The sensitivity of HPV testing as a screening tool was 64.1%, while its specificity was 56.8%. The association coefficient was 0.40, indicating a moderate but clinically significant prognostic value of the test. The evaluation of the clinical effectiveness of the algorithm based on dynamic follow-up demonstrated that after 6 months, stabilization of the pathological process and absence of dysplasia progression were observed in 93.3% of patients in the main group. In the standard management group, the corresponding показатель was 81.7%. The difference of 11.6 percentage points was statistically significant ($p < 0.05$).

Table 3. Comparison of the effectiveness of management algorithms in pregnant women (at 6 months)

Indicator	Main Group (Algorithm, n=60)	Comparison Group (Standard, n=60)	p-value
Stabilization, no progression	56 (93.3%)	49 (81.7%)	<0.05
Progression of dysplasia	4 (6.7%)	11 (18.3%)	<0.05

DISCUSSION

The significantly higher rate of stabilization of the pathological process observed in the main group (93.3% vs. 81.7%) confirms the clinical effectiveness of the proposed algorithm. A key advantage of this approach is the differentiated management strategy based on HPV status, which allows for targeted diagnostic and therapeutic efforts in the group at the highest risk of progression of cervical pathology [4]. The

moderate sensitivity of HPV testing (64.1%) when used as a standalone screening tool highlights the need for a comprehensive approach, combining HPV testing, liquid-based cytology, and colposcopy. This combined strategy provides the optimal balance of sensitivity and specificity in detecting cervical pathology in pregnant women [5].

CONCLUSION

The application of a stepwise, differentiated algorithm for the diagnosis and management of pregnant women with cervical pathology provides significantly better clinical outcomes compared to the standard approach: stabilization of the pathological process was achieved in 93.3% of patients in the main group versus 81.7% in the comparison group ($p < 0.05$). HPV testing is a significant predictor of dysplasia in pregnant women (RR = 1.79; $\chi^2 = 4.60$; $p = 0.032$); however, it should be used in combination with cytological examination and colposcopy to optimize diagnostic accuracy.

REFERENCES

1. Ruzieva NH. Preclinical diagnosis of preterm birth. Medical News. 2019;7(298):74–75.
2. Ruzieva NH, Shodieva HT, Nazarova DE. Pregnancy course, delivery, and perinatal outcomes in patients with urinary tract infections. In: Science of the XXI Century: Theory, Practice and Prospects. 2015:266.
3. Ruzieva NH, Nazarova DE. Changes in genital microflora in women of reproductive age. In: International Scientific and Practical Conference Proceedings. 2016:218–222.
4. Ziyaeva ER, Ruzieva NH, Sobirova MR. Chronic pelvic pain syndrome in chronic salpingo-oophoritis: a modern view on pathogenesis. Re-health Journal. 2022;2(14):1–5.
5. Ruzieva N. Characteristics of some predictors of miscarriage. Doctor's Herald. 2019;1(2):89–92.
6. Djabbarova LA, Kuldoshov A, Ruzieva N. Genital tuberculosis as a cause of female infertility. Prospects for the Development of Medicine. 2021;1(1):65–66.
7. Ruzieva NH, Shodieva HT, Nazarova DE. Pregnancy course, delivery, and perinatal outcomes in patients with urinary tract infections. In: Science of the XXI Century: Theory, Practice and Prospects. 2015:266–268.
8. Nigina KI, Janna PY. Assessment of intestinal and vaginal microbiome during in vitro fertilization programs. Systematic Reviews in Pharmacy. 2020;11(11).
9. Djabbarova LA, Ruzieva NH. Use of international approaches to determine causes and ways to reduce preterm birth rates. In: VolgaMedScience Proceedings. 2021:304–305.
10. Ruzieva NH. The role of oxidative stress in the development of preterm birth. Tashkent: Ministry of Health of the Republic of Uzbekistan; 2019:40.
11. Ruzieva NH, Juraeva NA. Cervical pathology in pregnant women with HPV, vaginal flora disturbances, and without HPV. Innovative Research in the Modern World: Theory and Practice. 2024;3(11):161–162.
12. Ikhtiyarova GA, Dustova NK, Bakhramova SU, Ruzieva NH, Irgashev DS, Matrizaeva GD. Molecular genetic markers of hypertension risk in pregnant women with antiphospholipid syndrome. Clinical Review in General Medicine. 2024;5(9):62–69.
13. Ruzieva N, Sunnatillaeva S, Abulkosimova D. The impact of adhesions formed after pelvic surgery on girls. Science and Technology in the Modern World. 2023;2(16):12–13.
14. Ruzieva N, Sunnatillaeva S, Abulkosimova D. The impact of adhesions after pelvic surgery on girls. Bulletin of Teachers of New Uzbekistan. 2023;1(5 Part 2):123–126.
15. Ruzieva NH, Pakhomova JE. Cytokine study results in pregnant women at risk of preterm birth. In: Modern Perinatal Medical Technologies in Solving Demographic Safety Problems. 2023:196.
16. Ruzieva NH, Kayumova DT, Turbanova UV. Pregnancy course, delivery outcomes, and placental condition in women after SARS-CoV-2 (COVID-19): clinical and morphological parallels. Moscow; 2022.
17. Rozhkova E, Ruzieva N, Ergashev Z. Improvement of methodologies for protection of structures from thermal effects. In: E3S Web of Conferences. 2021;264:02033.
18. Ruzieva NH, Pakhomova JE. Original articles. Doctor's Herald. 2023;7.
19. Ruzieva NH, Djabbarova LA, Djabbarova YK. Causes and ways to reduce preterm birth using international approaches. Re-health Journal. 2021;1(9):14–18.
20. Nazarova DE, Ruzieva NK, Turbanova UV, Rassadina MV. The role of oxidative stress in the development of premature childbirth. Central Asian Journal of Pediatrics. 2021;(1):30–36.
21. Yuldashev AY, Yuldasheva SZ, Ruzieva NH. Formation of digestive, absorptive, and immune systems in the small intestine mucosa during early postnatal ontogenesis. Tashkent; 2017:132.

22. Ruzieva N, Sunnatillaeva S, Ahmadalieva M. The impact of adhesions after pelvic surgery on girls. Central Asian Journal of Education and Innovation. 2023;2(3 Part 2):79–82.