International Journal of Medical Sciences And Clinical Research

VOLUME Vol.06 Issue03 2026
PAGE NO. 27-29
DOI 10.37547/ijmscr/Volume06Issue03-06

Assessment of The Effectiveness of Complex Therapy for Asymptomatic Bacteriuria in Reducing Gestational Complications

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Received: 09 February 2026; **Accepted:** 06 March 2026; **Published:** 27 March 2026

Abstract: Asymptomatic bacteriuria in pregnant women retains high clinical significance, as even in the absence of pronounced symptoms it may be associated with ascending urinary tract infection, the development of pyelonephritis, as well as adverse obstetric and neonatal outcomes. According to recent reviews and meta-analyses, the prevalence of this condition in different populations of pregnant women remains variable and often reaches significant epidemiological levels, which confirms the relevance of the problem for antenatal care systems.

Current clinical guidelines continue to consider early detection of asymptomatic bacteriuria as an important component of pregnancy management; however, in recent years increasing attention has been paid to the need for rational use of antibacterial therapy in the context of growing antimicrobial resistance. In this regard, further study of timely diagnostic approaches, prevention of complications, and optimization of treatment strategies for asymptomatic bacteriuria in pregnant women appears to be a justified and practically significant direction in obstetric science and clinical practice.

Keywords: UTI, asymptomatic bacteriuria, pregnant women, gestational pyelonephritis.

Introduction: Pregnant women, due to the risk of severe complications in the mother (sepsis, DIC syndrome, shock, respiratory distress syndrome, death) and in the fetus (low birth weight), require mandatory screening for the detection of urinary tract infections (UTIs).

Urinary tract infections are the most common infectious diseases requiring significant financial costs [2]. During pregnancy, the incidence of asymptomatic bacteriuria increases up to 19%.

Asymptomatic bacteriuria is an important risk factor for the development of complications; in particular, in cases of untimely medical care and irrational antibacterial therapy, 20–40% of these patients develop acute pyelonephritis [1; 4; 5].

In this regard, the search for therapy that ensures the prevention of gestational pyelonephritis, as well as the prevention of recurrence after bacterial elimination, is relevant. Analysis of a systematic review from the Cochrane database demonstrated high effectiveness of cranberry juice use (Level of evidence A). Cranberry contains a complex of proanthocyanidins, which promote the elimination of pathogenic bacteria from the urinary tract, as they deform the bacterial cell wall and prevent microbial adhesion to the mucous membrane of the urinary tract [3].

Objective of the study: to evaluate the effectiveness of proanthocyanidin Uronext, containing cranberry (80 mg), in комплексной therapy in pregnant women with

ASB.

METHODS

We examined 60 pregnant women with ASB, who were randomly divided into 2 groups. Group I (pregnant women who, in combination with fosfomycin, received proanthocyanidin Uronext) and Group II (comparison group), pregnant women who received fosfomycin monotherapy recommended during pregnancy by the national standard of Uzbekistan.

RESULTS AND DISCUSSION

The effectiveness of treatment was assessed by bacteriological examination according to the following criteria: eradication of the pathogen, persistence of infection, and reinfection. The first visit was recommended after 7–8 days (after treatment), and the second after 1 month.

Eradication of the pathogen was defined as sterile urine cultures or the presence of bacteria in urine at a concentration of less than 10^2 CFU/ml.

Persistence of infection was defined as detection of the same pathogen in urine at a concentration of 10^2 CFU/ml or more. Bacteriological relapse was defined as detection of the same pathogen in urine at a concentration of 10^2 CFU/ml or more during subsequent follow-up visits.

Comparative analysis showed that therapy including Uronext was more effective than the traditional approach. Thus, bacteriological relapse was observed in 2.4% of pregnant women in Group I, whereas in the comparison group it was 8%.

Reinfection (detection of a new type of bacteria in urine at a concentration of 10^2 CFU/ml or more during any visit) was found in 6.0% of observations in Group II and in 2.0% in Group I. Persistence of infection was not observed in the main group, whereas in the comparison group this indicator was 4.0%.

Complete eradication of the pathogen (absence of bacteria in urine until the end of gestation) was achieved in Group I, where antibacterial therapy was accompanied by the use of proanthocyanidins, in 98% of cases (versus 88.0% in groups where proanthocyanidins were not used; p = 0.004).

A comparative analysis of the course of the gestational period and perinatal outcomes was conducted in women observed under комплексной therapy and those managed according to generally accepted standards. Individual records of pregnant women and delivery histories were analyzed. Analysis of the features of pregnancy and labor in patients of the clinical groups revealed significant differences in follow-up dynamics. Complications of gestation included preeclampsia, threatened spontaneous abortion, polyhydramnios and other markers of intrauterine infection, hypoxia and fetal growth restriction, and gestational pyelonephritis (Fig 1).

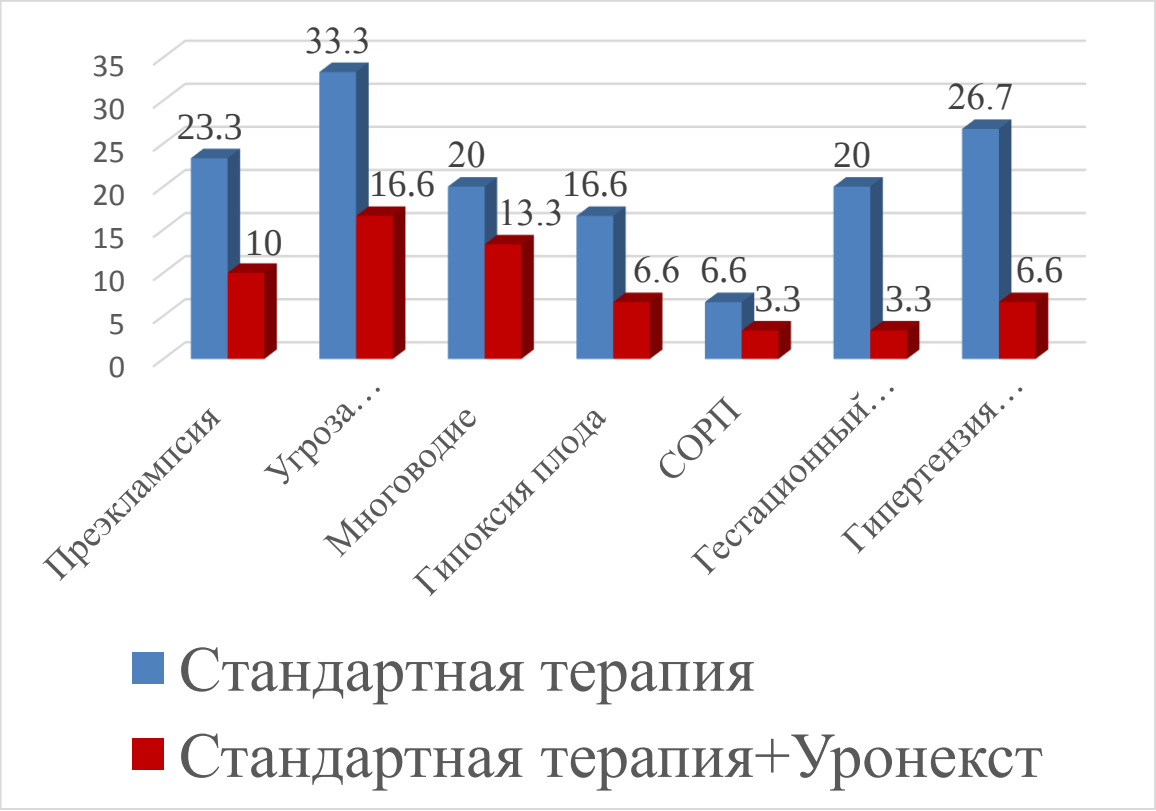

Figure 1. Monitoring of pregnancy complications in pregnant women with ASB depending on the therapy performed

The results of pregnancy outcomes showed that the frequency of obstetric complications in women observed within the framework of the developed therapy was 2.5 times lower than in patients managed according to the generally accepted standard. Consequently, the developed method of combined therapy with an antibacterial drug and a phytopreparation led to improved perinatal outcomes.

Pregnancy in patients of the main group ended in term deliveries (96.7%) and preterm deliveries (3.3%) with favorable outcomes for the mother and fetus. The average body weight of preterm infants was 2400 g. In Group II, the number of term deliveries was 90.1%; in 2 (6.6%) patients, pregnancy ended in preterm delivery, and in 1 (3.3%) case, in spontaneous abortion at 12–13 weeks of gestation. In the comparison group, neonatal mortality of two preterm newborns was observed. In Group I, there were no perinatal losses.

CONCLUSIONS

Thus, the course of pregnancy, delivery, and the postpartum period significantly depends on the correctly chosen management tactics for pregnant women with asymptomatic bacteriuria. The proposed management algorithm for pregnant women with asymptomatic bacteriuria proved to be highly effective.

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