

<https://doi.org/10.29188/2222-8543-2021-14-1-124-128>

1,2, . . . 3, . . . 3, . . . 3, . . . 4, . . . 4, . . . 5

1 « »; . 8/9 . , , 308007,

2 « »; . 85, . . . ,

30801,

3 « », 7; . 46 . , ,

4 « », 8; . 48 . , ,

5 « », 1; . 95 . , ,

: , shkodkin-s@mail.ru

:

60-80-

22 34 14-28 14, 30 60 29

().

29 14 , 44,8% (13) .

35

Enterococcaceae - 57,1%. 2,5 10,3%

10,3% 2 28 , 58,6%

10,7% (>0,05).

®

®

2021;14(1):124-128, <https://doi.org/10.29188/2222-8543-2021-14-1-124-128>

<https://doi.org/10.29188/2222-8543-2021-14-1-124-128>

Primary results of a prospective comparative non-interventional study for the treatment of asymptomatic bacteriuria in pregnant women

CLINICAL STUDY

S.V. Shkodkin^{1,2}, N.A. Fliginskikh³, N.V. Zhdanovskaya³, L.F. Li³, E.Yu. Yustitskaya⁴, M.M. Esina⁴, S.V. Fedorenko⁵

¹ Belgorod Regional Clinical Hospital of St. Joasaph, 8/9 st. Nekrasov, Belgorod, 308007, Russia

² Belgorod State National Research University, 85, st. Pobedy, Belgorod, 30801, Russia

³ City polyclinic of the city of Belgorod, Antenatal clinic No. 7, 46 st. Gubkina, Belgorod, Russia

⁴ City polyclinic of the city of Belgorod, Antenatal clinic No. 8, 48B st. Yesenin, Belgorod, Russia

⁵ City polyclinic of the city of Belgorod, Antenatal clinic No. 1, 95A Belgorodsky Ave., Belgorod, Russia

Contacts: Sergey V. Shkodkin, shkodkin-s@mail.ru

Summary:

Introduction. Over the past three decades, the views on the diagnosis and treatment of asymptomatic bacteriuria in pregnant women have not undergone any changes. However, the majority of randomized clinical trials concerning the treatment of patients with this nosology are of low methodological quality and date back to the 60-80s. Since then, diagnostic and treatment protocols have changed dramatically, so the quality of the evidence base is low. In a recent Scandinavian study of higher methodological quality, there was no clear benefit of antibiotic therapy in pregnant women with asymptomatic bacteriuria.

Material and methods. This publication is devoted to the interim results of a study that analyzed the efficacy and safety of herbal medicinal product Canephron[®] N in the treatment of asymptomatic bacteriuria in 29 pregnant women aged 22 to 34 years at a gestation period of 14-28 weeks. When included in the study, as well as on days 14, 30 and 60, the following laboratory control was performed: general urine analysis, urine bacteriological examination, clinical analysis of vaginal smears, analysis of vaginal microbiota by quantitative PCR

Results. In the group of our patients, the distributions by age and gestational age differed from normal, the mean values are presented by the median and were 29 years and 14 weeks, respectively. Already had children - 13 (44.8%) women. In total, 35 microorganisms were isolated in a diagnostically significant titer. Most of the representatives of the Enterococcaceae family were traditionally 57.1%. At the time of inclusion, the median pyuria was 2.5 pl and exceeded the reference values only in 10.3% of patients. Clinical examination of vaginal smears revealed no inflammatory changes. However, an assessment of the vaginal microbiota showed the presence of dysbiosis due to an increase in the amount of obligate-anaerobic microflora in 58.6% and vaginal candidiasis in 10.3% of pregnant women. After 2 months, the 28 pregnant women remaining in the study had no episodes of symptomatic urinary infection. During the herbal drug therapy, there was a decrease in diagnostically significant bacteriuria and signs of the inflammatory process in all patients. The frequency of vaginal dysbiosis was recorded in 10.7% of pregnant women ($p > 0.05$).

Conclusion. Thus, our preliminary results shows that the use of Canephron N in pregnant women with asymptomatic bacteriuria (ABU) may be an effective alternative approach comparing the use of antibiotics. The treatment with Canephron N promotes the normalization of the urinary tract microflora and save the intactness of the saprophytic flora, in contrast to antibacterial drugs, and this is especially important in the paradigm of the antibiotics stewardship and the fight against growing antibiotic resistance. Comparative results of the use of antibacterial agents and Canephron N will be analyzed in the next publication, on the basis of which final conclusions will be drawn about the advisability of using herbal medicines to control bacteriuria in pregnant women

Conclusion. We have obtained encouraging results from the use of Canephron-N[®] in patients with asymptomatic bacteriuria in pregnant. To obtain an evidence base of a recommendatory level, it is advisable to increase the number of observations.

Key words: asymptomatic bacteriuria; pregnancy; urinary tract infection; herbal therapy.

For citation:

Shkodkin S.V., Fliginskikh N.A., Zhdanovskaya N.V., Li L.F., Yustitskaya E.Yu., Esina M.M., Fedorenko S.V. Primary results of a prospective comparative non-interventional study for the treatment of asymptomatic bacteriuria in pregnant women. *Experimental and Clinical Urology* 2021;14(1):124-128, <https://doi.org/10.29188/2222-8543-2021-14-1-124-128>

[1, 2].

[3-6].

«

— 2020 .»,

(European Association of Urology Guidelines 2020)

(Infectious Diseases Society of America Guidelines 2019),

[7, 8].

12

[9-20].

[9, 11, 13, 16, 18],

[17, 18, 20]

[9, 11-14, 17, 20].

60-80

[1].

2015

[21].

®

[1, 2].

() « -16».

14

, 1
7

(400) 1
3,0

(
- 30
) (n=29)

3

2012 572

29 14
44,8% (13)

(
)»

29

35

Enterococcaceae - 57,1%,

Ent. faecalis - 31,4%,

E. coli -

25,7%.

- Str. agalactiae

17,1% (8,6%)

Kl. pneumoniae Staph. haemolyticus,

(Pseud. aeruginosae, Ent. cloacae, Str. vestibularis) (. 1).

10⁵ /

() ;

4

29

14-28

22 34

(2,5

4 10-15

14, 30

60

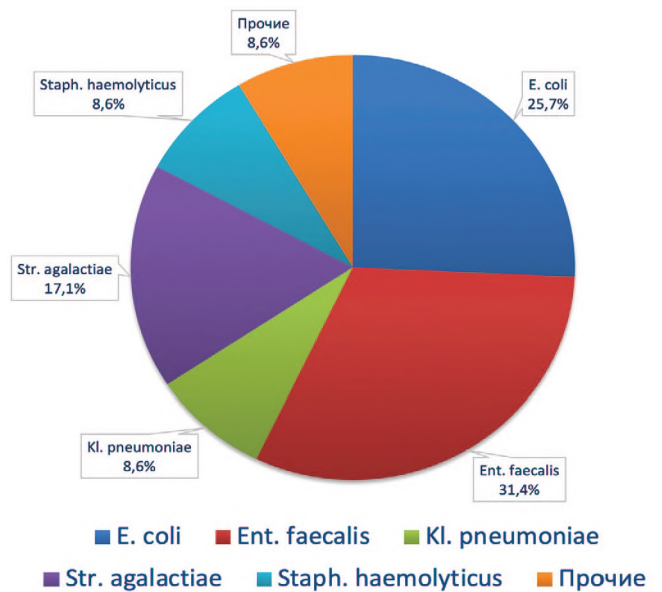


Fig. 1. Etiology of asymptomatic bacteriuria in pregnant women

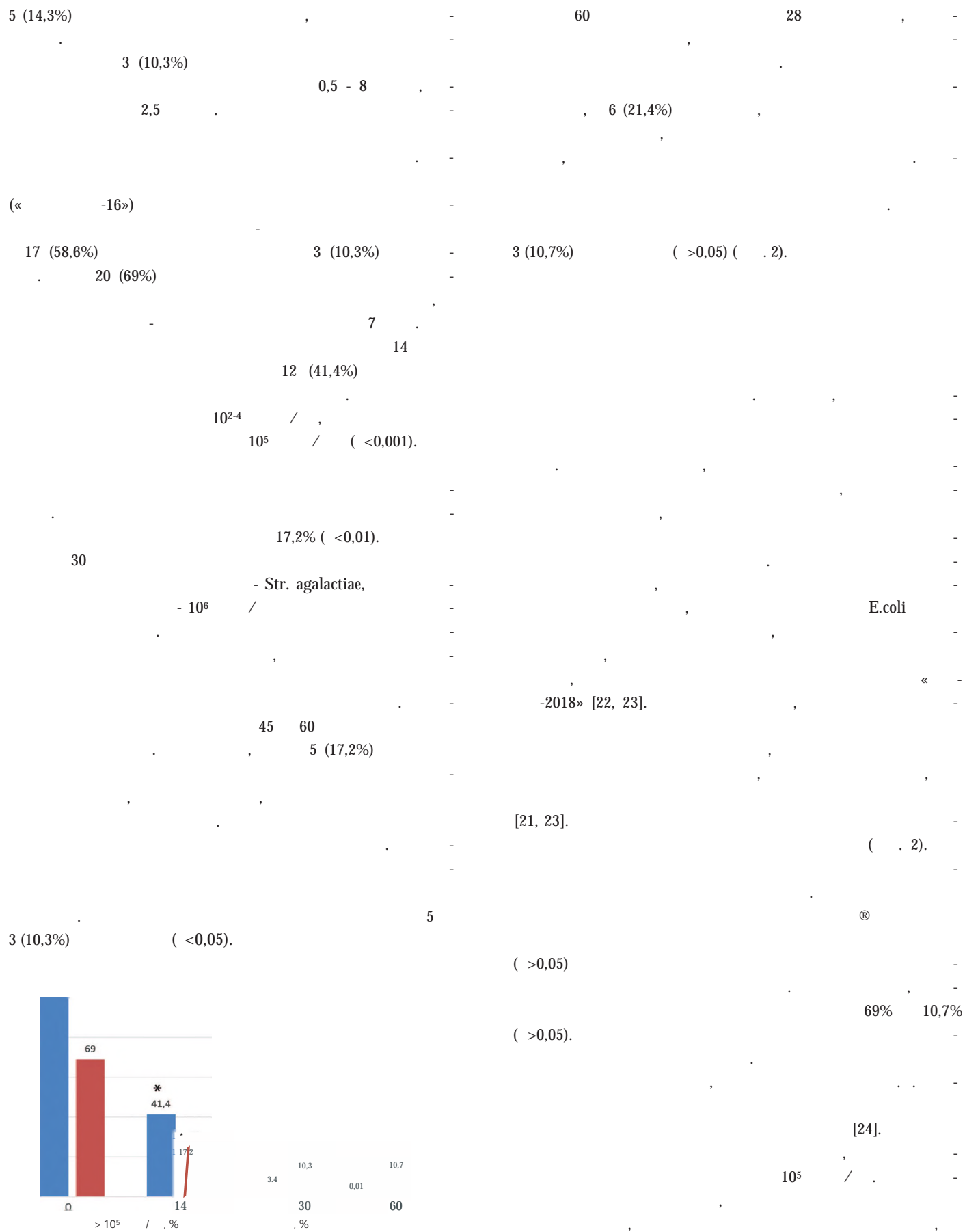


Figure 2. Dynamics of asymptomatic bacteriuria and vaginal dysbiosis in pregnant women during therapy with Canephron® N
 * differences are significant compared to the previous checkpoint, p<0.05

nnPAiyPA/REFEREICES

- Bonkat G, Bartoletti R, Bruyere F, Cai T, Geerlings SE, Koves B, et al. Guidelines of European Association of Urology. Urological infections. Update March 2020; P. 10-11. URL: <https://uroweb.org/wp-content/uploads/EAU-Guidelines-on-Urological-infections-2020.pdf>.
- Gupta K, Hooton TM, Naber KG, Wullt B, Colgan R, Miller LG, et al. Infectious Diseases Society of America; European Society for Microbiology and Infectious Diseases. International clinical practice guidelines for the treatment of acute uncomplicated cystitis and pyelonephritis in women: A 2010 update by the Guidelines of Infectious Diseases Society of America and the European Society for Microbiology and Infectious Diseases. *Clin Infect Dis* 2011 Mar 1;52(5):e103-20. <https://doi.org/10.1093/cid/ciq257>.
- Harding GK, Zhanel GG, Nicolle LE, Cheang M. Antimicrobial treatment in diabetic women with asymptomatic bacteriuria. *N Engl J Med* 2002;347(20):1576-83. <https://doi.org/10.1056/NEJMoa021042>.
- Silver SA, Baillie L, Simor AE. Positive urine cultures: A major cause of inappropriate antimicrobial use in hospitals? *Can J Infect Dis Med Microbiol* 2009;20(4):107-11. <https://doi.org/10.1155/2009/702545>.
- Sunden F, Hakansson L, Ljunggren E, Wullt B. Escherichia coli 83972 bacteriuria protects against recurrent lower urinary tract infections in patients with incomplete bladder emptying. *J Urol* 2010;184(1):179-85. <https://doi.org/10.1016/j.juro.2010.03.024>.
- Cooper FP, Alexander CE, Sinha S, Omar MI. Policies for replacing long-term indwelling urinary catheters in adults. *Cochrane Database Syst Rev* 2016;7(7):CD011115. <https://doi.org/10.1002/14651858.CD011115.pub2>.
- 2017;544. [Urology. Russian clinical guidelines; ed. Y.G. Alyaeva, P.V. Glybochko, D.Yu. Pushkar. M.: Medforum, 2017;544 s. (In Russian)].
- 2017;70. [Perepanova T.S., Kozlov R.S., Rudnov V.A., Sinyakova L.A. Antimicrobial therapy and prevention of infections of the kidneys, urinary tract and male genital organs Federal'nyye klinicheskiye rekomendatsii=Federal clinical guidelines 2017;70 s. (In Russian)].
- Elder HA, Santamarina BA, Smith S, Kass EH. The natural history of asymptomatic bacteriuria during pregnancy: the effect of tetracycline on the clinical course and the outcome of pregnancy. *Am J Obstet Gynecol* 1971;111(3):441-62. [https://doi.org/10.1016/0002-9378\(71\)90793-9](https://doi.org/10.1016/0002-9378(71)90793-9).
- Elder HA, Santamarina BA, Smith SA, Kass EH. Use of sulfasymazine in the treatment of bacteriuria of pregnancy. *Antimicrob Agents Chemother (Bethesda)*, 1966(6):142-8.
- Gold EM, Traub FB, Daichman I, Terris M. Asymptomatic bacteriuria during pregnancy. *Obstet Gynecol* 1966;27(2):206-9.
- Kass EH. Pyelonephritis and bacteriuria. A major problem in preventive medicine. *Ann Intern Med* 1962(56):46-53. <https://doi.org/10.7326/0003-4819-56-1-46>.
- Kincaid-Smith P, Bullen M. Bacteriuria in pregnancy. *Lancet* 1965;1(7382):395-9. [https://doi.org/10.1016/s0140-6736\(65\)90001-2](https://doi.org/10.1016/s0140-6736(65)90001-2).
- Little PJ. The incidence of urinary infection in 5000 pregnant women. *Lancet* 1966;2(7470):925-8. [https://doi.org/10.1016/s0140-6736\(66\)90534-4](https://doi.org/10.1016/s0140-6736(66)90534-4).
- Mulla N. Bacteriuria in pregnancy. *Obstet Gynecol* 1960(16):89-92.
- Pathak UN, Tang K, Williams LL, Stuart KL. Bacteriuria of pregnancy: results of treatment. *J Infect Dis* 1969 Jul;120(1):91-103. <https://doi.org/10.1093/infdis/120.1.91>.
- Robertson JG, Livingstone JR, Isdale MH. The management and complications of asymptomatic bacteriuria in pregnancy. Report of a study on 8,275 patients. *J Obstet Gynaecol Br Commonw* 1968 Jan;75(1):59-65. <https://doi.org/10.1111/j.1471-0528.1968.tb00121.x>.
- Thomsen AC, Morup L, Hansen KB. Antibiotic elimination of group-B streptococci in urine in prevention of preterm labour. *Lancet* 1987;1(8533):591-3. [https://doi.org/10.1016/s0140-6736\(87\)90234-0](https://doi.org/10.1016/s0140-6736(87)90234-0).
- Williams GL, Campbell H, Davies KJ. Urinary concentrating ability in women with asymptomatic bacteriuria in pregnancy. *Br Med J* 1969;3(5664):212-5. <https://doi.org/10.1136/bmj.3.5664.212>.
- Wren BG. Subclinical renal infection and prematurity. *Med J Aust* 1969(2):596.
- Kazemier BM, Koningstein FN, Schneeberger C, Ott A, Bossuyt PM, de Miranda E, et al. Maternal and neonatal consequences of treated and untreated asymptomatic bacteriuria in pregnancy: a prospective cohort study with an embedded randomised controlled trial. *Lancet Infect Dis* 2015;15(11):1324-33. [https://doi.org/10.1016/S1473-3099\(15\)00070-5](https://doi.org/10.1016/S1473-3099(15)00070-5).
- Flores-Mireles AL, Walker JN, Caparon M, Hultgren SI. Urinary tract infections: epidemiology, mechanisms of infection and treatment options. *Nat Rev Microbiol* 2015;13(5):269-84. <https://doi.org/10.1038/nrmicro3432>.
- 2018(3):54-57. [Lokshin K.L. Comparative efficacy of standard antibiotic therapy and therapy with Canephron N for asymptomatic bacteriuria in pregnant women. *Urologiya=Urology* 2018(3):54-57. <https://doi.org/10.18565/urology.2018.3.54-57>. (In Russian)].
- 2019;21(2):134-146. [Palagin I.S., Sukhorukova M.V., Dekhnich A.V., Edelstein M.V., Perepanova T.S., Kozlov R.S., et al. Antimicrobial resistance of pathogens causing community-acquired urinary tract infections in Russia: results of multicenter study «DARMIS-2018. *Klinicheskaya mikrobiologiya i antimikrobnaya khimioterapiya=Clinical microbiology and antimicrobial chemotherapy* 2019;21(2):134-146. (In Russian)].
- 2018(3):54-57. [Lokshin K.L. Comparative efficacy of standard antibiotic therapy and therapy with Canephron N for asymptomatic bacteriuria in pregnant women. *Urologiya=Urology* 2018(3):54-57. <https://doi.org/10.18565/urology.2018.3.54-57>. (In Russian)].

Information about authors:

Shkodkin S.W - Dr. Sc., Department of Hospital Surgery Professor of the Medical Institute Federal State Autonomous Educational Institution of Higher Education «Belgorod National Research University», urologist Belgorod Regional Clinical Hospital of St. Ioasafa; Belgorod, Russia; shkodkin-s@mail.ru; <https://orcid.org/0000-0003-2495-5760>

Fliginskikh N.A. - head of the antenatal clinic No. 7; obstetrician-gynecologist; Belgorod, Russia

Zhdanovskaya N.V - obstetrician-gynecologist at antenatal clinic No. 7; Belgorod, Russia

Li L.F. - obstetrician-gynecologist, antenatal clinic No. 7; Belgorod, Russia

Yustitskaya E.Yu. - head of the antenatal clinic No. 8; obstetrician-gynecologist; Belgorod, Russia

Esina M.M. - obstetrician-gynecologist at antenatal clinic No. 8; Belgorod, Russia

Fedorenko S.V. - obstetrician-gynecologist at antenatal clinic No. 1; Belgorod, Russia

Authors* contributions:

Shkodkin S.V. - research concept and design, statistical processing, writing an article, 40%

Fliginskikh N.A. - statistical processing, article writing, 10%

Zhdanovskaya N.V. - collection and processing of material, 10%

Lee L.F. - collection and processing of material, 10%

Yustitskaya E.Yu. - collection and processing of material, 10%

Esina M.M. - collection and processing of material, 10%

Fedorenko S.V. - collection and processing of material, 10%

Conflict of interest. The authors declare no conflict of interest.

Financing. The research was carried out with the financial support of the company «Bionorica SE».

Received: 31.01.21

Accepted for publication: 01.03.21

: 31.01.21

: 01.03.21