

# Probiotics – a complementary therapeutic necessity in non-specific vaginitis

GABRIELA LILIOS, M.D.; CRISTINA FARCAS, M.D.; VIOLETA SAPIRA, M.D.;  
DRAGOS DOICESCU, M.D.; IULIAN BRATU, M.D.

Faculty of Pharmacy, Ovidius University of Constanta, Constanta, Romania

## ABSTRACT

**Purpose.** Our study followed the effects of oral use of Probiotics, natural supplements, on the recurrence of frequency of nonspecific vaginitis.

**Methods.** Our group of study consisted of 50 women diagnosed with non-specific cervicovaginitis recurrence, average age  $35 \pm 5$  years, sexually active without other associated pathologies, without contraceptive treatment in progress. Recurrent patients were selected at least 2/per month, receiving a probiotic complex (6 viable strains in gastro capsule, 1 billion cfu/dose) for 30 days after specific allopathic treatment. Bacteriological evaluation was conducted on the cervicovaginal secretion before administration and 1, 2 and 3 months after completion.

**Results.** The results showed a statistical significant decrease of the recurrence in cervicovaginal nonspecific inflammatory phenomena, improving the quality of life which proves the role of the probiotics species in local immune response.

**Conclusions.** Probiotics may be additional elements subsequent antibiotic treatment for interfering in the protective function of epithelial, cytokine secretion with anti-microbs effects. In this way, it can be accepted the involvement of probiotic bacteria in local immune defense.

**Key words:** probiotics, vaginitis, inflammation, cytokine, bacteria

## INTRODUCTION

Probiotics are microorganisms proven to exert health-promoting influences in human body. The World Health Organization deemed probiotics to be the next most important immune defense system implicated in providing numerous health benefits beyond basic nutritional value. Bacterial vaginosis (BV) is a disease with unknown aetiology, characterized by loss or reduction of lactobacilli and increased overgrowth of other bacteria such as *Gardnerella*

*vaginalis* and *Mycoplasma hominis*. Because the etiology and pathogenesis of BV are not completely understood, treatment for BV is not always effective, resulting in high recurrence rates. Recurrent BV is generally defined as 3 or more episodes of BV per year. Bacterial vaginosis is confined to an asymptomatic state in at least half of the cases. Symptomatic BV, on the other hand, is most typically accompanied by foul-smelling, profuse vaginal discharge in the absence of any appreciable signs of inflammation (1,2).

Adresă de corespondență:

Conf. Dr. Gabriela Lilios, Aleea Universitatii Nr. 1, Ovidius University of Constantza

## MATERIAL AND METHODS

Our study followed the effects of oral use of Probiotics, natural supplements, on the recurrence of frequency of nonspecific vaginitis (BV).

Our group of study consisted of 50 women diagnosed with non-specific cervicovaginitis recurrence, average age 35±5 years, sexually active without other associated pathologies, without contraceptive treatment in progress. This test group 1 received a probiotic complex (6 viable strains in gastro capsule, 1 billion cfu/dose) for 30 days after specific allopathic treatment. (10 days every month, during 3 menstrual cycles lengthens). Bacteriological evaluation was conducted on the cervicovaginal secretion before administration and 1, 2 and 3 months after completion. We used a probiotic complex with species of Lactobacillus Acidophilus, Bifidobacterium Longum, Bifidobacterium Lactis, Lactobacillus Rhamnosus, Lactobacillus Bulgaricus, Lactobacillus Plantarum, 1 billion colony forming unit (cfu)/cps, 2cps per day. The results were compared (during this period of 3 month) with another test group 2, of 50 women with BV, without probiotic therapy after specific allopathic treatment.

The primary objective of this study was to investigate if supplementary lactobacilli treatment could improve the initial cure rate after vaginal clindamycin therapy, and secondly, if lactobacilli as repeated adjunct treatment during 3 menstrual cycles could lengthen the time to relapse after initial cure.

The study was conducted at an out-patient private clinic in Constanta, Romania from September 2010 until December 2010, after signing the informed consent document. All women with symptomatic BV who visited the clinic and fulfilled the inclusion criteria were consecutively invited to participate in a prospective study of lactobacilli supplementing the clindamycin therapy. Inclusion criteria were: regularly menstruating women, with normal gynaecological status, not pregnant or breast feeding, and without signs of other genital tract infections. Laboratory diagnosis typically involves the quantitation of

bacterial cell morphotypes on a Gram-stained vaginal smear.

Therapy of BV typically involves treatment with oral or intravaginal metronidazole or clindamycin (Table 1).

## RESULTS AND DISCUSSIONS

An analysis of the vaginal microflora over the course of the menstrual cycle has shown that only 22% women maintain a lactobacilli-dominated flora, and although epithelial cell receptivity to lactobacilli adhesion increases at peak estrogen levels midcycle, it is still not clear what factors cause such a dramatic alteration in the flora. An inability to regenerate sufficient lactobacilli after treatment may be a cause of BV recurrence, and several researchers have looked into probiotic therapy as an adjunct to traditional antimicrobial treatment. The results showed a statistical significant decrease of the recurrence in cervicovaginal nonspecific inflammatory phenomena, after probiotic therapy (Figure 1), improving the quality of life which proves the role of the probiotics species in local immune response.

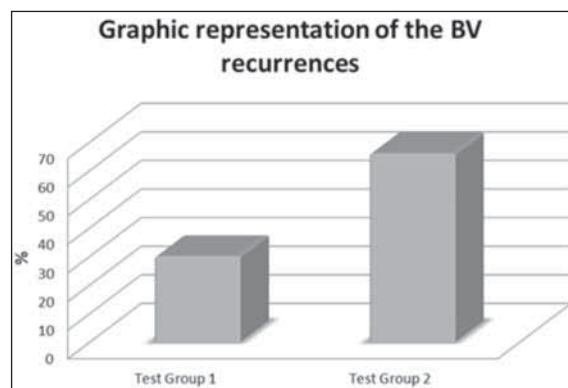


FIGURE 1. Graphic representation of the BV recurrences

The results obtained after probiotic complex administration in patients with BV is due to the following actions of probiotics species: stabilized the intestinal barrier function, decreases in bacterial overgrowth, stimulation of local immune responses, increased IgA secretion, increased

TABLE 1. Treatment guidelines for bacterial vaginosis according to the CDC

<p><i>Recommended regimens (CDC, 2006)</i></p> <ul style="list-style-type: none"> <li>• Metronidazole 500 mg orally twice daily for 7 days, or</li> <li>• Metronidazole gel (0.75%), one full applicator (5 g) intravaginally, once daily for 5 days, or</li> <li>• Clindamycin cream (2%), one full applicator (5 g) intravaginally at bedtime for 7 days</li> </ul>
<p><i>Alternative regimens (CDC, 2006)</i></p> <ul style="list-style-type: none"> <li>• Clindamycin 300 mg orally twice daily for 7 days, or</li> <li>• Clindamycin ovules 100 mg intravaginally once at bedtime for 3 days</li> </ul>

interleukin-10 production, release of antioxidant substances, reduced occurrence of *Clostridium difficile*, decreased *Candida albicans*, reduced food allergies (3,4).

This study shows that supplement therapy with different lactobacilli strains could improve the efficacy of the BV treatment. Modulation of immunity is another plausible mechanism – for example, in BV IL-1 and IL-8 levels are elevated compared with levels in healthy (lactobacilli-dominated) vaginas. Lactobacilli have been shown to produce biosurfactants and collagen-binding proteins that inhibit pathogen adhesion and to some extent displace pathogens (5,6). Cell-to-cell communication is another probable mechanism of action. This communication may also involve the signaling of mucus production, which acts as a barrier to pathogens, or signaling of anti-inflammatory cytokine production. Bacterial vaginosis (BV) is a condition characterized by a loss of the indigenous vaginal lactobacilli and massive anaerobic overgrowth of the vaginal mucosa with a mix of anaerobes (7,8).

## CONCLUSIONS

Alternative treatment options – including maintenance treatment following an antibiotic

course – are increasingly explored and involve treatment with antiseptics and disinfectants, vaginal acidifying or buffering agents, and probiotics.

The study shows that supplementary treatment combining different strains of probiotic lactobacilli improve the efficacy of BV therapy. It remains unclear at present whether BV recurrence reflects resistance, recurrence and/or reinfection. The potential for intestinal probiotics to influence bladder and vaginal health through some form of immune modulation has not been fully explored. The use of proven probiotic strains and manipulation of the host's own intestinal and vaginal/urethral microbiota will provide valuable options to help restore and maintain urogenital health.

Probiotics may be additional elements subsequent antibiotic treatment for interfering in the protective function of epithelial, cytokine secretion with anti-microbs effects. In this way, it can be accepted the involvement of probiotic bacteria in local immune defense.

---

## REFERENCES

1. **Sartor R.B.** – Probiotic therapy of intestinal inflammation and infections. *Curr Opin Gastroenterol* 2005; 21:44-50
2. **Reid G., Burton J., Hammond J.A., Bruce A.W.** – Nucleic acid-based diagnosis of bacterial vaginosis and improved management using probiotic lactobacilli. *J. Med. Food* 7(2), 2004, 223-228
3. **Posner S.F., Kerimova J., Aliyeva F., Duerr A.** – Strategies for diagnosis of bacterial vaginosis in a resource-poor setting. *Int. J. STD AIDS* 16(1), 2005, 52-55
4. **Verhelst R., Verstraelen H., Claeys G. et al.** – Comparison between Gram stain and culture for the characterization of vaginal microflora: definition of a distinct grade that resembles grade I microflora and revised categorization of grade I microflora. *BMC Microbiol.* 5, 2005, 61
5. **Fredricks D.N., Fiedler T.L., Thomas K.K., Mitchell C.M., Mrazek J.M.** – Changes in vaginal bacterial concentrations with intravaginal metronidazole therapy for bacterial vaginosis as assessed by quantitative PCR. *J. Clin. Microbiol.* 2009
6. **ACOG Practice Bulletin** – Clinical management guidelines for obstetrician-gynecologists, Number 72, May 2006: *Vaginitis Obstet Gynecol* 2006, 107(5):1195-1206
7. **Larsson P.G., Forsum U.** – Bacterial vaginosis – a disturbed bacterial flora and treatment enigma. *Apmis* 2005, 113(5):305-316
8. **Bradshaw C.S., Morton A.N., Hocking J., Garland S.M., Morris M.B., Moss L.M., Horvath L.B., Kuzevska I., Fairley C.K.** – High recurrence rates of bacterial vaginosis over the course of 12 months after oral metronidazole therapy and factors associated with recurrence. *J Infect Dis* 2006, 193(11):1478-1486