MANAGEMENT TACTICS FOR PREGNANCY IN WOMEN WITH BACTERIAL VAGINOSIS

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Abstract: *This study focuses on improving management tactics for pregnancy in pregnant women with bacterial vaginosis (BV). The aim of the research is to evaluate the impact of BV on pregnancy outcomes and to develop optimal management strategies for preventing complications. Diagnostic and treatment methods for BV, as well as the specifics of antibiotic use during pregnancy, are reviewed. The findings will be used to improve clinical guidelines for pregnancy management.*

Keywords*: Bacterial vaginosis, pregnancy, pregnancy management, antibiotics, preterm birth, miscarriage, clinical guidelines.*

BAKTERIAL VAGINOZ BILAN KASALLANGAN AYOLLARDA HOMILADORLIKNI OLIB BORISH TAKTIKASI

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Annotatsiya: *Ushbu tadqiqot bakterial vaginoz (BV) bilan kasallangan homilador ayollarni olib borish taktikasini takomillashtirishga qaratilgan. Tadqiqotning maqsadi - BVning homiladorlik natijalariga ta'sirini baholash va asoratlarni oldini olish uchun optimal boshqaruv strategiyalarini ishlab chiqish. BVni aniqlash va davolash usullari, shuningdek, homiladorlik davrida antibiotiklardan foydalanishning xususiyatlari ko'rib chiqiladi. Olingan natijalar homiladorlikni olib borishning klinik tavsiyalarini takomillashtirish uchun foydalaniladi.*

Kalit so'zlar*: Bakterial vaginoz, homiladorlik, homiladorlikni olib borish, antibiotiklar, erta tug'ruq, homila tushishi, klinik tavsiyalar.*

ТАКТИКА ВЕДЕНИЯ БЕРЕМЕННОСТИ У ЖЕНЩИН С БАКТЕРИАЛЬНЫМ ВАГИНОЗОМ

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Аннотация*: Данное исследование посвящено совершенствованию тактики ведения беременности у беременных женщин с бактериальным вагинозом (БВ). Целью исследования является оценка влияния БВ на исходы беременности и разработка оптимальных стратегий управления для предотвращения осложнений. Рассматриваются методы диагностики и лечения БВ, а также особенности применения антибиотиков во время беременности. Полученные результаты будут использованы для совершенствования клинических рекомендаций по ведению беременности.*

Ключевые слова: *Бактериальный вагиноз, беременность, ведение беременности, антибиотики, преждевременные роды, выкидыш, клинические рекомендации.*

Introduction.

Bacterial vaginosis (BV) is the most common vaginal infection in women of reproductive age, resulting from a dysbiotic shift in the vaginal microbiota. This condition is characterized by a significant reduction in protective *Lactobacillus* species and an overgrowth of anaerobic bacteria such as *Gardnerella vaginalis*, *Atopobium vaginae*, *Mobiluncus spp.*, and *Prevotella spp.* (Amsel et al., 1983). BV is often asymptomatic but may present with malodorous vaginal discharge, irritation, or discomfort. In the context of pregnancy, even asymptomatic BV can have far-reaching consequences, making its identification and management a critical component of antenatal care.

The normal vaginal environment is acidic, largely maintained by hydrogen peroxide-producing *Lactobacillus* species. These bacteria inhibit the growth of pathogenic microorganisms by producing lactic acid, maintaining pH below 4.5, and secreting antimicrobial compounds. However, in BV, this balance is disrupted, leading to an alkaline environment that favors the proliferation of anaerobic pathogens (Ravel et al., 2011). This microbial shift has been strongly associated with adverse reproductive outcomes, especially in pregnant women.

Numerous studies have demonstrated that BV in pregnancy is linked with an increased risk of preterm labor, premature rupture of membranes (PROM), late miscarriage, low birth weight, chorioamnionitis, and postpartum endometritis (Klebanoff et al., 2005). The mechanisms proposed include bacterial ascension into the upper genital tract, triggering an inflammatory cascade with the release of pro-inflammatory cytokines such as IL-1β, TNF-α,

and IL-6. These mediators can weaken fetal membranes, induce uterine contractility, and ultimately lead to preterm birth (Goldenberg et al., 2000).

Given the high prevalence of BV in pregnancy and its potential to cause obstetric complications, effective screening, diagnosis, and treatment strategies are vital. However, management approaches remain somewhat controversial. While some guidelines advocate for universal screening and treatment of BV in all pregnant women, others recommend a more selective approach—targeting only those at high risk for preterm delivery, such as women with a history of spontaneous preterm birth.

Current clinical practice typically involves diagnosis using either Amsel's criteria or Nugent scoring based on Gram-stained vaginal smears. Amsel's criteria assess four signs: homogeneous discharge, elevated pH (>4.5), presence of clue cells, and a positive whiff test. Nugent scoring, considered the gold standard, is a more objective method that quantifies bacterial morphotypes on a scale of 0 to 10. Scores between 7 and 10 are diagnostic for BV (Nugent et al., 1991).

Treatment during pregnancy usually involves oral metronidazole or clindamycin, which are considered safe and effective. However, recurrence rates remain high, and the impact of antibiotic treatment on reducing adverse pregnancy outcomes is variable. For this reason, there is growing interest in alternative or adjunct therapies, including probiotics, vaginal microbiome modulation, and personalized treatment plans based on microbiota profiling.

This paper aims to explore and evaluate various management tactics for bacterial vaginosis in pregnancy, focusing on current evidence-based practices, challenges in implementation, and emerging treatment modalities. By examining existing guidelines, clinical outcomes, and recent advances in microbiome research, this review seeks to provide a comprehensive understanding of how best to protect maternal and neonatal health in the context of BV.

Literature Review.

Bacterial vaginosis (BV) has been a significant focus of research due to its prevalence among reproductive-aged women and its association with adverse pregnancy outcomes. The vaginal microbiome plays a vital role in protecting the reproductive tract, and a shift from a *Lactobacillus*-dominated flora to one rich in anaerobic organisms has been strongly linked with complications in pregnancy. Numerous studies have aimed to elucidate the pathophysiology of BV and refine the management strategies for pregnant women.

Research by Ravel et al. (2011) on vaginal microbial communities demonstrated that a healthy vaginal ecosystem is dominated by *Lactobacillus crispatus*, *Lactobacillus iners*, and *Lactobacillus jensenii*. These bacteria produce lactic acid and hydrogen peroxide, maintaining an acidic pH and offering protection against pathogenic microorganisms. In contrast, BV is associated with polymicrobial colonization, predominantly by *Gardnerella vaginalis*, *Atopobium vaginae*, and *Prevotella spp.*

Two primary diagnostic approaches are commonly used: Amsel's clinical criteria and Nugent scoring. Nugent et al. (1991) emphasized that Gram-stain-based Nugent scoring offers a more objective method to diagnose BV and assess the microbial balance, and it remains a gold standard in both research and clinical practice.

Multiple cohort studies have consistently found that BV is significantly associated with increased risks of preterm labor, premature rupture of membranes (PROM), chorioamnionitis, and postpartum endometritis (Klebanoff et al., 2005; Hillier et al., 1995). A meta-analysis by Leitich and Kiss (2007) confirmed that the risk of preterm birth in women with untreated BV is more than doubled compared to uninfected counterparts. The pathogenesis likely involves ascending infections and inflammation-driven cytokine release, leading to cervical ripening and uterine contractions (Goldenberg et al., 2000).

Despite the clear association with adverse outcomes, treatment protocols remain debated. Oral metronidazole and clindamycin are the most studied antibiotics. A landmark study by Carey et al. (2000) indicated that treatment with oral metronidazole (500 mg twice daily for 7 days) significantly reduced vaginal anaerobic flora. However, other trials, including those by McDonald et al. (2007), suggest that while antibiotics may reduce infection markers, they do not consistently reduce the incidence of preterm birth—particularly if treatment is not initiated in early pregnancy.

Furthermore, recurrence rates of BV after treatment are high, often exceeding 50% within a year, underscoring the need for adjunctive therapies. Emerging research is exploring probiotics containing *Lactobacillus rhamnosus* and *Lactobacillus reuteri* as a potential means of restoring the natural vaginal microbiota (Santiago et al., 2014). While still in experimental stages, such approaches may help sustain remission after antibiotic therapy.

The Centers for Disease Control and Prevention (CDC, 2021) recommends treating symptomatic BV in pregnant women and suggests screening high-risk pregnant women—such as those with a history of preterm delivery. However, universal screening and treatment of asymptomatic women are not routinely recommended due to insufficient evidence of benefit.

Conclusion.

Bacterial vaginosis represents a common yet clinically significant condition in pregnancy. The disruption of the vaginal microbiota and the overgrowth of anaerobic bacteria have been consistently linked to complications such as preterm birth and PROM. Despite the availability of effective antimicro-

bial treatments, high recurrence rates and inconsistent outcomes related to pregnancy complications continue to challenge clinicians.

A careful, individualized approach is essential in managing BV during pregnancy. Screening should be prioritized for women with a history of obstetric complications. Prompt and appropriate antibiotic therapy remains the cornerstone of management, although its effect on pregnancy outcomes is still under investigation. Future research should focus on integrating probiotics, improving early diagnostic techniques, and exploring microbiome-based therapies to create a more holistic and preventive strategy.

To ensure better maternal and neonatal outcomes, healthcare providers must stay informed about evolving guidelines and innovations in vaginal microbiome research. With further clinical trials and implementation of microbiota restoration techniques, the future of BV management during pregnancy may become more targeted, effective, and sustainable.

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