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Oral Versus Oral and Vaginal Nitroimidazole + Miconazole Treatment for Bacterial Vaginosis in Pregnancy: Impact on Pregnancy Complications

Gebelerde Bakteriyel Vajinozisin Oral ve Oral + Vajinal Tedavisinin Gebelik Komplikasyonları Üzerine Etkisi

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Öz

Amaç: Bakteriyel Vaginosis (BV), anormal vajinal flora ile karakterize, iyi bilinen bir hastalıktır. Preterm doğum için önemli bir risk faktörüdür. Amacımız BV'si olan gebelerde preterm doğum riskini azaltmada hangi tedavi seçeneğinin daha iyi olduğunu bulmaktı.

Materyal ve Metod: Bu prospektif çalışmada 24-28. Gebelik haftalarında antenatal polikliniğimize vajinal akıntı şikâyeti ile başvuran toplam 60 gebe kadını değerlendirdik. 60 hastanın 25'i nitroimidazol + mikonazol nitrat intravajinal, diğer hastalara ise oral imidazol + vajinal mikonazol ile tedavi edildi.

Bulgular: Tedavi seçenekleri arasında servikal uzunluk, preterm doğum riski ve PPROM arasında anlamlı bir farklılık bulunmadığını saptadık.

Sonuç: Gebeliğin erken dönemlerinde saptanan BV'nin tedavisi, gebelik sonuclarını olumlu yönde etkileyebilir. Nitroimidazolidin oral veya vajinal kullanımı BV'nin tedavisinde etkilidir. Vaginal veya oral kullanım ile elde edilen fayda benzerdir.

Anahtar Kelimeler: Bakteriyel vajinozis, mikonazol, nitroimidazol

Abstract

Objective: Bacterial Vaginosis (BV) is a well-known disease which is characterized with abnormal vaginal flora. It is an important risk factor for preterm delivery in pregnancy. Our aim was to find out which treatment option was better in reducing the risks of preterm delivery in pregnant women with BV.

Materials and Methods: This prospective study includes a total of sixty singleton pregnant women with complaining of vaginal discharge who were admitted to the our obstetrics outpatient clinic at 24 to 28 weeks of gestation. Out of 60 patients, 25 of them were treated with nitroimidazole + miconazole nitrate intravaginaly and the rest was treated with oral imidazole + vaginal miconazole.

Results: There was no statistically significant differences in cure rates for bacterial vaginosis in terms of treatment with oral vs oral plus vaginal treatment groups (%82.8, %77.1 respectively, p=0.258). We found that there were no significant differences in cervical length, risk of preterm delivery, and PPROM between treatment options. When BV treated with

vaginally, 4 out of 25 (%16) pregnant woman had preterm delivery; in the oral+vaginally treated group 8 out of 35 (%22,9) pregnant had preterm delivery (p = 0.745)

Conclusion: Treatment of the BV detected early in pregnancy may have a positive impact on the outcome of the pregnancy. Oral or vaginal use of nitroimidazolide is effective in the treatment of BV.

Keywords: Bacterial vaginosis, micozanole, nitroimidazole

Introduction

Bacterial vaginosis (BV) is a common cause of vaginal discharge, with the %29 prevelance in the population (1) and it is characterized with a shift of normal vaginal flora to especially anaerobic gram negative rods from normally dominant hydrogen-peroxide producing lactobacilli (2). The result of BV can be really serious, especially in pregnant woman between 8 and 17 weeks gestation, and can increase the risk of delivery prior to 37 weeks by seven folds (3). Sexual activity is a common risk factor for BV(4). Treatment options for bacterial vaginosis are numerous. There are several studies reporting on BV treatment in pregnant women (5,6). However, we did not find a study comparing the efficacy of oral and vaginal treatments in the literature. The aim of this study was to compare the efficacy of oral nitroimidazole versus oral and vaginal nitroimidazole+ miconazole for treatment of bacterial vaginosis in pregnancy and evaluate the effects on prenatal and neonatal complications.

Materials and Methods

This prospective study includes a total of sixty singleton pregnant women with complaining of vaginal discharge who were admitted to our obstetrics outpatient clinic at 24 to 28 weeks of gestation. The study protocol was approved by the local Ethics Committee. An informed consent was obtained from each participant. The study was conducted in accordance with the principles of the World Medical Association Declaration of Helsinki. The women who had small for gestational age (SGA), preeclampsia, or spontaneous preterm birth in their previous pregnancy, those who had an underlying medical condition were excluded from the study. Specimens were collected using sterile cotton swabs incorporated with a transport medium within a sterile container. Diagnosing the BV is based on Nugent method (7). Dequalinium chloride and vaginal irrigation with saline solution used for recurrent casses. Score of 7 to 10 was considered positive for BV, score of 0 to 3 was considered "normal". Preterm delivery was diagnosed as delivery occurring before 37 completed weeks of gestation and pretem premature rupture of membranes (PPROM) was diagnosed as rupture of membranes occurring onset of labor before 37 completed weeks of gestation. Patients were divided into two groups: Group 1 (vaginal treatment group) consisted of 25 patients treated with 750 mg nitroimidazole + 200 mg miconazole nitrate intravaginaly and Group 2 (vaginal and oral treatment group)) consisted of 35 patients treated with oral 500 mg nitroimidazole + vaginal 750 mg nitroimidazole + 200 mg miconazole nitrate. Success of treatmet was evaluated by nugent criteria after 14 days following treatment.

Statistical analysis was performed using the SPSS for Windows version 22 software (SPSS Inc., Chicago, IL, USA). Descriptive data were expressed in mean ± standard deviation or median (minimum-maximum), while categorical variables were presented in number and percentage (%).Fisher's exact and $\chi 2$ tests were used for comparison of proportions. Two-tailed P values less than 0.05 were considered statistically significant.

Results

Characteristic features of the participants are reported in Table 1. There were statistically significant differences in age and weekly coitus frequency between two groups (p=0.016, p=0.004, respectively). Gravida, Body Mass Index (BMI), cervical length in 24-28th gestational week and birth weight were similar between oral and oral+vaginally treated groups (p= 0.37, p= 0.105, p= 0.055, p= 0.678, p= 0.321, respectively).

Table1. Demographic factors, cervical length, coitus frequency, birth weight

	Vaginal treatment (n= 25)	Vaginal + oral treatment (n= 35)	p value
Age (year)	26.0 ± 4.3	25.3 ± 6.5	0.016
Gravida	2 (1- 5)	2 (1-4)	0.37
BMI	24.1 ± 4.8	21.3 ± 4.1	0.105
Cervical length (mm)	36.8 ± 8.6	34.5 ± 6.7	0.055
Coitus frequency(weekly)	1 (0 – 8)	2 (0 – 16)	0.004
Birth Weigth(gram)	3260 (1500 - 4050)	3023 (1730 – 3800)	0.321

BMI, body mass index

There was no statistically significant differences in cure rates for oral group vs oral plus vaginal group (%82.8, %77.1 respectively, p=0.258).

When BV treated with vaginally, 4 out of 25 (%16) pregnant woman had preterm delivery; in the oral+vaginally treated group 8 out of 35 (%22,9) pregnant had preterm delivery (p =

0.745) From the 25 pregnant woman treated with nitroimidazole+miconazole vaginally, none had PPROM; from the 35 woman treated with vaginal and oral nitroimidazole+miconazole 3(%9,3) had PPROM (p = 0.252). Pregnancy outcome is displayed in Table 2.

Table 2. Pregnancy outcome

	Vaginal treatment (n= 4)	Vaginal + oral treatment (n= 11)	p value
Preterm Delivery	4 (%16)	8 (% 22.8)	0.745
PPROM	0	3 (%9.4)	0.252

PPROM, preterm prelabour rupture of membranes

We did not find any significant difference in NICU requirement and purperal infections between two group (p= 0.678) and it is displayed in Table 3 .

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Table 3. NICU requirement, puerperal infections

	Vaginal treatment (n= 2)	Vaginal + oral treatment (n= 4)	p value
NICU requirement	2(%8)	4 (%11,4)	0.678
Puerperal infections	0	0	

NICU, neonatal intensive care unit

Dequalinium chloride and vaginal irrigation with saline solution used for recurrent casses reduced vaginal discharge, vulvar prurits and dyspareunia (p=0.001).

Discussion

Bacterial vaginosis (BV) is one of the common genital complaint ocurring in women of reproductive age. Many factors such as coit frequency, vaginal doching, low socioeconomic status and intra uterine device use increase the risk of bacterial vaginosis (8), %52.7 of our partipicants have more than one coit frequency weekly . Bacterial vaginosis in pregnancy may lead to ascending infections and is considered as a risk factor for adverse outcome such as preterm delivery, preterm rupture of membranes or miscarriage (9,10). In the present study, preterm birth rate among the participants was 20% and it is significantly higher than the BV negative population (11). Most studies have found that puerperal infections such as chorioamnionitis and endometritis are releated with BV (12,13), Unlike the other studies, no relationship was found between BV and puerperal infections in our study. BV infections also cause pediatric concerns releated with preterm birth in this presented study %10 of the neonates have needs for NICU.

The basic treatment methos of BV in pregnancy have been nitroimidazole either oral or vaginal. Clinicians have tried many regimens orally, vaginally or both orally and vaginally and plus erythromycin orally, clindamycin and clotrimazole vaginally (14-16). Treatment of BV reduced the risk for preterm birth (16), but it remains controversial which treatment method is more effective. On the other hand %20 to 50 of the asymptomatic patient can recover without treatment(17-19). Our results show that both oral and oral + vaginally treatment modalities have similar efficacy and cure rates are similar.

One-third of patients with bacterial vaginosis have candida infections (20), therefore adding miconazole to treatment seems rational and this combination allows an effective activity against both bacterial and fungal infections (16). Moreover, the synergistic effect of these drugs can be mentioned but we found that miconazole dit not improve the treatment results.

Inadequate number of the patients may limit the validity of the our findings. With a larger group of patients and enough number of resources, the outcome of the study will be more reliable.

As a result treatment of the BV detected early in pregnancy may have a positive impact on the outcome of the pregnancy. Oral or vaginal use of nitroimidazolide is effective in the treatment of BV. Behavioral factors are important in determining the treatment method.

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