

Comparison of Combination-Vaginal Clindamycin with Oral Metronidazole and Oral Metronidazole Alone in the Treatment of Bacterial Vaginosis

RABIA SHARIF¹, SHAZIA SHAEEN², BEENISH YOUSAF³, MEMOONA MAQBOOL⁴, UZMA MANZOOR⁵, SABA IQBAL⁶

¹Consultant Gynaecologist/Senior Registrar Gynae and Obstetrics, Allied Hospital, Faisalabad

²Associate Professor

³FCPS Obs and Gynae

⁴Gynae and obstetrics

⁵Consultant gynecologist, KEMU, LHR

⁶FCPS Obs and Gynae

Corresponding author: Rabia Sharif, Email: drabbas_936@hotmail.com

ABSTRACT

Introduction: Bacterial vaginosis is the most common vaginal infection of sexually active woman. Bacterial vaginosis has been associated with preterm labour, amniotic fluid infection, chorioamnionitis and postpartum endometritis.

Objective: To compare the efficacy of combination oral metronidazole-vaginal clindamycin gel with oral metronidazole alone in the treatment of bacterial vaginosis.

Material and methods: This Randomized Controlled Trial was conducted in Gynaecology and Obstetrics Department, District Headquarter Hospital, Faisalabad. Approval from hospital Ethical Review Committee was taken after formulation of synopsis. 422 Patients fulfilling the inclusion criteria enrolled in the study. Informed consent was taken from each participant of the study. Patients were randomized into Group A and Group B using computer generated random number table.

Results: Data was collected from 422 patients with mean gestational age 38.67 ± 1.69 weeks. The cumulative cure rate in the oral metronidazole group was 87% and 89.6% in the oral clindamycin group. There was no statistical difference in the efficacy of the two medications ($p = 0.639$). Nine (13%) of the women who received oral metronidazole and seven (10.4%) of the women in the oral clindamycin group had treatment failures following the test of cure, with an overall failure rate of 11.8%.

Conclusion: It is concluded that both medications have comparable efficacy and similar pregnancy outcomes in the treatment of bacterial vaginosis.

Keywords: Vaginosis, Prevalence, Woman, Postpartum

INTRODUCTION

Bacterial vaginosis is the most common vaginal infection of sexually active woman. Bacterial vaginosis has been associated with preterm labour, amniotic fluid infection, chorioamnionitis and postpartum endometritis [1]. The prevalence of bacterial vaginosis has been reported up to 31.5% and is variable in different studies [2]. The recurrence rate of Bacterial Vaginosis is 2.7%. If treated earlier, the dreadful consequences of these complications can be avoided [3].

Bacterial vaginosis is defined as the vaginal discharge which on examination looks like grey-white discharge with increased vaginal pH greater than 5 and presence of clue cells which consist of vaginal epithelial cells covered with microorganism and absence of lactobacilli. The diagnosis can also be confirmed by adding a drop of vaginal discharge to saline on a glass slide and adding one drop of 10% Potassium hydroxide which release a characteristic fishy amine smell. Usually the vagina is not inflamed and therefore the term vaginosis is used rather than vaginitis [4].

For bacterial vaginosis, first line therapies include oral metronidazole and vaginal clindamycin cream combination, or five days course of oral metronidazole and all have similar short-term efficacy [5]. According to systematic review by Oduyobe et al, Clindamycin and metronidazole showed identical rates of treatment failure, irrespective of regimen type, at two and four-week follow up [6]. In one study recurrence rate for bacterial vaginosis was found to be 9.6% as compared to 3.6% with oral metronidazole and oral metronidazole-vaginal clindamycin combination at one month respectively [7].

Recurrence rate of bacterial vaginosis after treatment with oral metronidazole which is in common use is quite high. [8]. Plenty of research work has been done on treatment of bacterial vaginosis but data regarding prevention of recurrence of bacterial vaginosis is scanty. For this reason, we are making this comparison of oral metronidazole-vaginal clindamycin combination with oral metronidazole alone to determine their efficacy to prevent bacterial vaginosis recurrence. So that recommendations can be provided for local population for use of best treatment regimen to prevent bacterial vaginosis recurrence which is unacceptably high

Objective

- To compare the efficacy of combination oral metronidazole-vaginal clindamycin gel with oral metronidazole alone in the treatment of bacterial vaginosis.

MATERIAL AND METHODS

This Randomized Controlled Trial was conducted in Gynaecology and Obstetrics Department, District Headquarter Hospital, Faisalabad.

Sample size: Sample size was calculated using WHO sample size calculator for two proportions (2-sided)

$P1 = 3.6\%$

$P2 = 9.6\%$

Power of study = 80%

Level of Significance = 5%

Sample size = 422 (211 in each group)

Sampling Technique: Non-Probability Purposive Sampling.

Inclusion Criteria:

- Female with age ranges from 15 to 55 years
- Symptomatic bacterial vaginosis as mentioned in operational definition. ¹⁸⁻¹⁹

Exclusion Criteria:

- Pregnancy (confirmed by history of gestational amenorrhea and urinary pregnancy test)
- Lactating mothers
- Those who are not willing to abstain vaginal sex. ¹⁸⁻¹⁹

Data collection procedure: Approval from hospital Ethical Review Committee was taken after formulation of synopsis. 422 Patients fulfilling the inclusion criteria enrolled in the study. Informed consent was taken from each participant of the study. Patients were randomized into Group A and Group B using computer generated random number table. Group A had given Metronidazole 400mg twice a day and vaginal 2% Clindamycin gel prescribed as one applicator vaginally for 7 nights. Group B had given Oral Metronidazole alone 400mg twice a day to group B. Follow up had done by Out Patient Department after one month. Efficacy is measured in terms of relief of symptoms and prevention of recurrence of bacterial vaginosis. Information collected comprises age, address, contact number. All the findings are recorded in Performa by me.

Statistical analysis: All the collected information is transferred to SPSS version 20 and analyzed accordingly. Mean and standard deviation is calculated for all quantitative variables like age. Frequency and percentages are calculated for all qualitative variables like bacterial vaginosis recurrence and Efficacy. P value of <0.05 is considered as significant.

RESULTS

Data was collected from 422 patients with mean gestational age 38.67 ± 1.69 weeks. The cumulative cure rate in the oral metronidazole group was 87% and 89.6% in the oral clindamycin group. There was no statistical difference in the efficacy of the two medications (p = 0.639). Nine (13%) of the women who received oral metronidazole and seven (10.4%) of the women in the oral clindamycin group had treatment failures following the test of cure, with an overall failure rate of 11.8%.

Table 1: Comparison of Efficacy of treatment for patients with BV using combination oral metronidazole-vaginal clindamycin gel with oral metronidazole alone

Post BV treatment status	Group I	Group II	P-value	Chi-square
Positive	252 (59.7)	154 (36.49)	0.639	0.221
Negative	9(13.0)	7(10.4)		
Total	269	169	422	

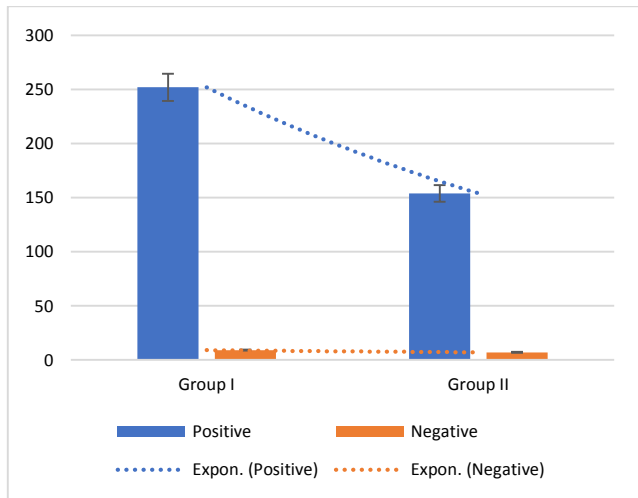
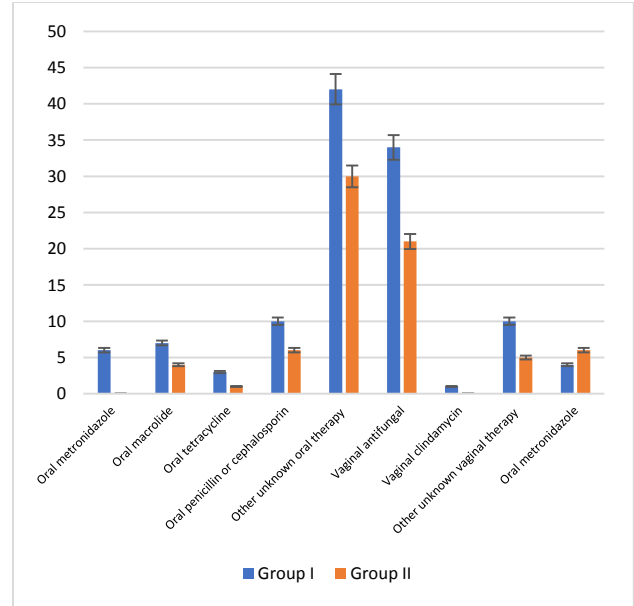


Table 2: Interim antibiotic use and self-reported side effects to trial medications

	Group I	Group II	P value
Oral metronidazole	6 (4.3)	0	0.05
Oral macrolide	7 (5.0)	4 (3.0)	0.67
Oral tetracycline	3 (2.1)	1 (0.8)	0.63
Oral penicillin or cephalosporin	10 (7.1)	6 (4.5)	0.64
Other unknown oral therapy	42 (30)	30 (22.6)	0.14
Vaginal antifungal	34 (24.3)	21 (15.8)	0.16
Vaginal clindamycin	1 (0.7)	0	0.77
Other unknown vaginal therapy	10 (7.1)	5 (3.8)	0.27
Oral metronidazole	4 (2.9)	6 (4.5)	0.58

8.3% of the women who received oral metronidazole had preterm pre-labour rupture of membranes (PPROM), while four (6.7%) had the same in the oral Clindamycin group. There was no statistically significant difference in the occurrence of PPROM between the two groups of treated women. Furthermore, nine (7.5%) of the 120 women who received either oral metronidazole or oral clindamycin and followed up had preterm deliveries.



DISCUSSION

Bacterial vaginosis (BV) is a common cause of malodorous vaginal discharge in women of reproductive age. Metronidazole is a nitroimidazole antimicrobial agent used to manage protozoal infections such as trichomoniasis and anaerobic infections. Efficacy of antibiotics can be increased by addition of probiotics [9]. This study was conducted to find out the new treatment regimens for bacterial vaginosis, as resistance is being developed against the routinely used treatment regimens [10].

If probiotics found to be effective in increasing the efficacy of antibiotics then they can be used in our routine practice. Comparison of efficacy of combined probiotic and antibiotic therapy with antibiotic therapy alone in treatment of bacterial vaginosis was recorded as 83.33%(n=25) in Group-A and 36.67%(n=11) in Group-B [11]. Our findings correlate with Menard JP et al9 study with oral Metronidazole therapy (500mg twice daily for 7 days) plus oral probiotics twice daily for 30 days (1 capsule containing 109 L. Marconi et al have carried out adjuvant treatment with probiotics containing lactobacilli following treatment with oral metronidazole for 7 days. The cure rates at 6 and 12 months was higher that is >80%. This showed that probiotic treatment also decreases the recurrence of bacterial vaginosis [12].

A proper diagnosis of BV is of clinical relevance, since these infections enable the transmission of sexually transmittable infections, including human immunodeficiency virus (HIV), Neisseria gonorrhoeae, Chlamydia trachomatis, and herpes simplex virus 2 (HSV-2), and can cause preterm birth and miscarriage in pregnant women [13]. Over the last decades, several treatments have been developed, and therapy guidelines of BV treatment are now publicly available. However, despite these treatment guidelines, recurrence rates of BV remain high, as illustrated by 30% recurrence after 3 months or 60% after 6 months. The formation of biofilms might be partially responsible for this phenomenon, as recommended antibiotic therapy with oral or vaginal metronidazole or clindamycin are not able to destroy these [14]. The antiseptic dequalinium chloride, which is also recommended in the World Health Organization/International Union against Sexually Transmitted Infections (WHO/IUSTI) guideline, can dissolve BV-associated Gardnerella biofilms only in vitro [15]. Additionally, it has been demonstrated that treatment with metronidazole does not result in restoration of the healthy vaginal microbiota. Therefore, additional therapies and prophylactic treatments after initial therapy, such as probiotics, pH-regulating products, and vaginal or oral lactobacilli, are desired to

control maintenance of the healthy vaginal microbiota [16]. Medical resources, diagnosis, and treatment must improve in developing countries. There are limited resources: access to medical and health resources; knowledge about disease; awareness, trainings, and awareness about health. Health literacy is mandatory for any disease and facilitates the patients access to resources, databases, and trainings about the disease in print and electronic (hybrid) format.²⁰⁻²⁷

CONCLUSION

It is concluded that both medications have comparable efficacy and similar pregnancy outcomes in the treatment of bacterial vaginosis.

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