Section: OBS and Gynae

Original Research Article

EFFICACY OF PROBIOTICS WITH ANTIBIOTIC REGIMEN IN TREATMENT OF BACTERIAL VAGINOSIS (BV) AMONG WOMEN OF REPRODUCTIVE AGE GROUP

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ABSTRACT

Background: Bacterial vaginosis is a prevalent cause of genital discomfort in women of reproductive age and is bonded with various potential complications. The condition is typically treated with metronidazole or clindamycin. In women with bacterial vaginosis (BV), the vaginal count of lactobacilli is notably reduced when compared to that of healthy women. The objective of this study is to evaluate the comparative effectiveness of probiotics in contrast to antibiotic therapy in the management of bacterial vaginosis (BV) in women within the reproductive age demographic.

Materials and Methods: This quasi-experimental study was supervised at Department of Gynecology, University Teaching Hospital, Lahore Lady Aitchison Lahore, DHQ Teaching Hospital Mianwali. Total 120 patients with 66 study participants in each group with age 18 to 40 years, clinically diagnosed to have copious mucoid vaginal discharge on presentation were included. Group A patients receive probiotic treatment (100 g twice a day for 7 days) and Group B patients receive orally administered clindamycin (300 mg twice a day for 7 days). The subjects were checked whether they have achieved cure or not after the treatment. All the data were input and analyzed through SPSS version 25.

Results: Total 120 females in this study, with a mean age of 29.34 ± 6.26 years. Efficacy of probiotic and antibiotic therapy of bacterial vaginosis was recorded as 106 (88.3%). According to group, in Group A, recorded as 55 (91.6%) females show efficacy and 51 (48.5%) in group B (antibiotic).

Conclusion: The study concluded that probiotics were pronouncedly more effective than antibiotics in the treatment of bacterial vaginosis.

Keywords: Bacterial vaginosis, probiotic, antibiotic treatment, effectiveness

INTRODUCTION

Bacterial vaginosis is one of the most frequent cause of of abdominal vaginal discharge in woman.[1] The prevalence rates of bacterial vaginosis surpass 29%.[2] A recent systematic review reported a global burden of 23%-29% among the general population, with Europe and Central Asia and South Asia reporting the highest and lowest prevalence, respectively.[3] Bacterial vaginosis is marked by a shift in the typical vaginal flora, where dominant lactobacilli are supplanted by assorted microorganisms including Gardnerella1vaginalis, Mobil uncus spp., Pepto streptococcus., Mycoplasma hominis, and Urea plasma urealyticum. This condition also leads to an elevated vaginal pH.[4]

Bacterial vaginosis is linked with several diverse outcomes, including preterm labor, premature breaking of amnioctic sacs., chorioamnionitis, miscarriage, infertility, increased risk of HIV infection, and urinary tract infections. There are multiple treatment options available for managing

bacterial vaginosis. One common treatment for bacterial vaginosis involves the use of antibiotics, with Metronidazole being the most frequently prescribed. This drug, a nitroimidazole antimicrobial, is extensively utilized in managing bacterial vaginosis.[5] Oral or intra-vaginal administration of antibiotics (AB), like clindamycin or metronidazole treatment is the current medication for BV with higher cure rate.[6] Research has investigated the side effects associated with clindamycin and metronidazole. Metronidazole is known to induce gastrointestinal issues. On the other hand, clindamycin's most common side effects are allergic reactions, such as rashes, as well as gastrointestinal disturbances like loss of appetite, abdominal pain, nausea, vomiting, diarrhea, and pseudomembranous enterocolitis. As an alternative to conventional antibiotic treatments, probiotics have been explored for treating bacterial vaginosis.[7] Probiotics are defined as "live microorganisms that, when taken in adequate amounts, provide a health benefit to the host." Studies suggest that the effectiveness of antibiotics may be enhanced when used in combination with probiotics. One particular study demonstrated that combining oral metronidazole (500.0 mg twice daily for 7.0 days) with oral probiotics (twice daily1for 30 days) yielded significantly better results compared to metronidazole treatment alone.[8] At the 30-day follow1up, 88.0% of participants who received the probiotic treatment had restored normal vaginal flora, whereas only 40.0% of those in the placebo group achieved the same1outcome.[9]

This research study is aimed at comparing the efficacy of probiotics with antibiotic regime in treatment of bacterial vaginosis among1women of reproductive1age group. This study will put important insight into the use of probiotic in place of antibiotic to minimize the use of antibiotics where possible in women with bacterial vaginosis presenting to outpatient department (OPD) at a tertiary care hospital.

MATERIALS AND METHODS

This quasi experimental study was conducted at Department of Gynecology at University Teaching Hospital, Lahore, Lady Aitchison Lahore, DHQ Teaching Hospital Mianwali. Total 120 patients with 60 study participants in each group with age 18 to 40 years, clinically diagnosed to have copious mucoid vaginal discharge on presentation were included. Group A patients receive probiotic treatment (100 g twice a day for 7 days) and Group B patients receive orally administered clindamycin (300 mg twice1a day for 7.0 days). Detailed history and examination were done by the researcher herself. A high vaginal Swab was taken by the researcher under sterile manner.

The subjects were called for follow up after 7 day of treatment and the examination were repeated on all the four pre-decided examination parameters. The subjects were checked whether they have achieved cure or not after the treatment. The groups were given the other treatment if not benefitted from the first treatment for providing relief to the patients regarding their presenting complaints.

Data was systematically input and subjected to analysis utilizing SPSS version 25. The Chi-square statistical test1was employed to evaluate the comparative efficacy of both pharmacological agents, with a p-value of ≤ 0.05 deemed to be of statistical significance. Effect modifiers, including but not limited to age, clinical manifestations, and disease duration, were accounted for through a stratification process. Descriptive statistical measures were calculated for both categorical and numerical variables. The mean and SD were determined for quantitative1variables such as age & vaginal pH. Qualitative variables, encompassing the characteristics and olfactory properties of vaginal discharge, along with the presence of clue cells observed via microscopy, were articulated in terms of frequencies and percentages.

RESULTS

Total 132 patients were included. The mean age was 29.34 ± 6.26. [Figure 1] The mean age was in group A (Probiotic) 29.11 ± 5.80 and group B (Antibiotic) 28.9 ± 5.60 with minimum and maximum value of 18.0 and 40.0. There was 52 (86.6%) married and 8 (13.3%) unmarried in group A (Probiotic) and 47 (78.3%) married and 13 (21.6%) unmarried in group B (Antibiotic). In Group A, 38.4% were nulligravida and 61.7% had a singleton pregnancy, while in Group B, 61.5% were nulligravida and 38.2% had a singleton pregnancy.

Pretreatment appearance of homogeneous thin grayish white vaginal discharge was shown in 92 (76.6%) females and only white discharge in 28 (23.3%) females. According to groups, there were 58 (63.0%) cases of homogeneous thin grayish-white discharge in Group A and 34 (36.9%) in Group B. Meanwhile, in Group A, there were 10 (35.7%) cases of females with only white discharge, compared to 18 (64.2%) in Group B. There was a significant difference of pretreatment of appearance of vaginal discharge between groups ($p < 0.05$). Out of 120, only 15 (12.5%) females had positive test. All Whiff test positive, presence of clue cells on microscopy value > 20 and vaginal pH value > 4.5 in pretreatment. Post treatment appearance of homogeneous thin grayish white vaginal discharge was shown in only 6 (5.0%) females and white discharge in 114 (95.0%) females. According to groups, there was only 1 (33.3%) case of homogeneous thin grayish-white discharge in Group A and 4 (66.6%) in Group B. Meanwhile, in Group A there were 54 (47.3%) cases of females with only white discharge, compared to 62 (48.8%) in Group B. There was a significant difference of post-treatment of appearance of vaginal discharge between groups ($p < 0.05$). [Table 2]

Efficacy of probiotic and antibiotic therapy of bacterial vaginosis was recorded as 106 (88.3%). [Figure 1] According to group, in Group A, recorded as 55 (91.6%) females show efficacy and 51 (48.5%) in group B (antibiotic). There was an insignificant difference of effectiveness with both study groups ($p > 0.05$). [Table 2].

Table 1:

	Pre -1treatment		Post -1treatment	
	Group A (Probiotic)	Group B (Antibiotic)	Group A (Probiotic)	Group B (Antibiotic)
Grayish	58 (63.0%)	34 (36.9%)	2 (33.3%)	4 (66.6%)
White	10 (35.7%)	18 (64.2%)	54 (47.3%)	60 (52.6%)
p-value	0.001		0.04	

Table 2: Comparison of Efficacy of Probiotic and Antibiotic Treatment for Bacterial Vaginosis (n=120)

Efficacy	Group A (Probiotic)	Group B (Antibiotic)
Yes	55 (91.6%)	51 (48.5%)
No	5 (35.7%)	9 (64.2%)
Total	60 (50%)	60 (50%)
p-value		0.34

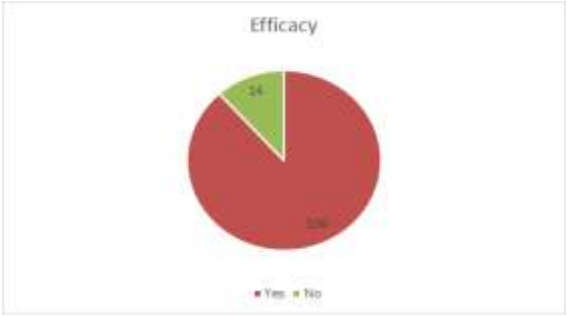

Figure 1

DISCUSSION

Bacterial vaginosis represents a prevalent etiology of undesirable vaginal1discharge among females of reproductive age. Metronidazole, classified as a nitroimidazole1antimicrobial agent, is frequently employed in the management of protozoal infections including trichomoniasis, in addition to a range of anaerobic infections.[10,11] Various treatment modalities have been employed for managing bacterial vaginosis (BV), including oral and topical therapies, as well as a combination approach involving metronidazole. Studies indicate that while oral metronidazole and topical clindamycin vaginal gel have been used, their effectiveness varies. Specifically, intravaginal applications, such as vaginal clindamycin, have demonstrated a notably higher cure rate of 96.6%, in contrast to a 23% cure rate associated with oral metronidazole. This suggests that intravaginal treatments may offer superior efficacy for BV management.[12] The significance of bacterial vaginosis (BV) extends beyond causing lower genital tract symptoms, as it is strongly linked to obstetric and gynecological complications. BV is closely associated with preterm delivery and is now considered a common cause of upper genital tract infections during pregnancy, as well as those following surgical procedures.[13,14]

This study aimed to explore new treatment options for BV due to increasing resistance to standard therapies. If probiotics are proven to be as effective as antibiotics, they could become a regular part of treatment protocols. It has been reported by many studies that the women in their productive age can face the disease of bacterial vaginosis (BV), which is the most common vaginal infection. Unfortunately, in this disease there is always a high risk of relapse even after undergoing the initial treatment and reported cure report varies from case to case. Multiple epidemiological studies revealed that the rate of complete cure depends on numerous factors such as ethnicity, immunity of the host and vaginal micro-biota. Therefore, the treatment of BV for each patient should be tailored while taking into account the above-mentioned factors.[15,16] The review in this study provides an evaluation of the existing clinical cure rates through numerous ways of administration routing and therapies.

Total 120 females in this study, with a mean1age of 29.34 ± 6.26 years. Efficacy of probiotic and antibiotic therapy of bacterial vaginosis was recorded as 106 (88.3%). According to group, in Group A, recorded as 55 (91.6%) females show efficacy and 51 (48.5%) in group B (antibiotic). There was an insignificant difference of effectiveness with both study groups ($p > 0.05$). clinically, notable difference were observed in the pretreatment and post-treatment appearances of vaginal discharge between the groups. Previous treatment, a majority of the females in both groups presented with homogeneous thin grayish-white vaginal discharge, but this was more common in Group A. Following treatment, the prevalence of this discharge was reduced, and only white discharge being reported in 95% of the females. This significant change in discharge appearance, which varied between the groups, highlights the differential impacts of probiotic versus antibiotic treatments on the clinical presentation of vaginal conditions. The statistical significance of these findings suggests that the type of treatment administered plays an important role in the therapeutic outcomes observed in this population.

One study found the highest prevalence of bacterial vaginosis in the 26–30-year age group at 28%, decreasing to 16% in individuals over 40.

Employment status varied slightly between the probiotics group (Group A) and the antibiotics group (Group B), with a similar distribution of nulligravida and singleton pregnancies. Both treatment groups showed equal recurrence rates of 50%. Probiotics are recommended due to their ability to support normal flora, comparable efficacy to antibiotics, high patient acceptability, and lack of side effects.[17]

The effectiveness of combing probiotics and antibiotics therapy in treating bacterial vaginosis was significantly higher at 83.33% in Group - A compared to 36.66% in Group - B, indicating that combined1therapy markedly outperforms antibiotic monotherapy. Further research with larger sample sizes is recommended to confirm these results.[4]

One meta-analysis was done, the analysis of 1,006 probiotic and 528 control samples across 16 studies revealed a significantly higher cure rate with probiotic treatment, which also significantly reduced recurrence rates. Despite these advantages, the incidence of adverse events was comparable between the probiotic and control groups.[18]

In a study conducted in India, the use of oral1probiotics demonstrated a significant response.[19] Probiotics are being widely studies as a promising new & effective treatment for1bacterial vaginosis, providing a natural &non-toxic alternative for managing the conditions.[20] This research contributes to the treatment of bacterial vaginosis by investigating new therapeutic regimens. Given the scarcity of studies in our region on this condition, additional research involving larger sample sizes is essential to confirm our results.

CONCLUSION

The conclusion of the study that Probiotic was significantly more effective when compared with antibiotic for bacterial vaginosis treatment. The probiotics use represents a novel and effective 1treatment approach for bacterial1vaginosis, however further studies1on a large-scale are necessary to validation our results.

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