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# A Randomized Comparison of Intravaginal Boric Acid versus Terconazole in Treatment of Recurrent Vulvovaginal Candidiasis

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## ABSTRACT

**Background:** Recurrent vulvovaginal candidiasis (RVVC), is usually defined as three or more episodes of symptomatic vulvovaginal candidiasis (VVC) in <1 year, with an estimated prevalence of 9% in women. Boric acid (BA) has been proven to be associated with an antifungal action, so it could be used as a safe, and economic treatment for RVVC. Terconazole is an anti-fungal drug that is mainly used to treat vaginal candidiasis.

**Objective:** To compare the effectiveness of intravaginal use of BA versus terconazole in the treatment of RVVC.

**Patients and methods:** This was a prospective randomized controlled study conducted on a total 70 females who were divided into two group; BA group (n=35) who received vaginal suppositories (600 mg/day) for two weeks and terconazole group (n=35) who received terconazole 80 mg vaginal suppository daily for six days. Mycological cure rate and improvement rates were evaluated on the 15$^{th}$ day. Any reported adverse effects and recurrence rate were also assessed at third month follow-up.

**Results:** Vulval erythema was significantly increased among terconazole group compared to boric acid group. Treatment response was significantly improved among boric acid compared to terconazole one. No significant relation was recorded between response to treatment and complaints of the studied cases with mycological recurrence. Higher median parity was recorded among cases with mycological resistance than cases with mycological cure.

**Conclusion:** In the context of RVVC, boric acid seemed to be associated with promising outcomes as regards treatment outcomes with minimal adverse events compared to terconazole.

**Keywords:** Recurrent vulvovaginal candidiasis, Terconazole, Boric acid.

## INTRODUCTION

Recurrent vulvovaginal candidiasis (RVVC), which is caused by Candida spp, mainly C. albicans is considered a frequent infection of the female genital tract affecting 75% of females at least once during their lives. RVVC usually defined as three or more episodes of symptomatic VVC in <1 year. In addition, it is a chronic, difficult to treat vaginal infection that has an impact on one's quality of life. A lot of factors were accompanied by RVVC which include long-term use of antibiotics, inadequate treatment of infection, uncontrolled diabetes mellitus, immune mechanisms (such as human immunodeficiency virus), using oral contraceptive pills and the resistance of non-albicans Candida spp to traditional antifungal gents [(1)].

Oral administration of fluconazole has been considered as the most frequently utilized antifungal agent in the context of cases with RVVC. On the other hand, throughout the previous years, fluconazole-resistant Candida albicans is recorded in females with RVVC. Terconazole is an antifungal agent for C. albicans as well as for non-albicans. Its utilization in a dose of 80 mg vaginal suppository every day for six days was comparable to the utilization of two dosages of oral fluconazole (150 mg) in the management of cases with extensive forms of RVVC [(2)].

Boric acid (BA) is a weak acid with a confirmed antifungal activity. In RVVC in particular in azole-resistant strains as well as in non-C. albicans, 600 mg of BA vaginal suppository is suggested every 24 hours for 14 days. Such strategy has an average mycologic cure rate of 70% ranging from 40% to 100% [(3)]. On the other hand, there are no recorded researches comparing intravaginal use of BA with terconazole for RVVC. As a result, the current study is carried out on cases with RVVC to evaluate this essential issue.

**Aim of the work was** to compare the effectiveness of intravaginal use of BA versus terconazole in the treatment of RVVC.

## PATIENTS AND METHODS

### Study Design

This was a prospective randomized controlled study conducted on a total of 98 female patients who were assessed for eligibility. Only 76 female patients were included in the study with RVVC at Mansoura University Hospital, Obstetrics and Gynecology Department from October 2021 to December 2022 but 70 female patients were able to complete the study. Cases were divided into two groups; Boric acid group (n=35) and Terconazole group (n=35).

All women (18-50 years old) with diagnosis of RVVC (presence of at least four attacks of VVC which happened throughout the preceding one year), and complaining of manifestations of VVC such as itching, burning sensation, discharges, and erythema and agreed to stop the sexual intercourse throughout the treatment course and to stop utilizing different vaginal products throughout the study period were comprised in the current study.

Postmenopausal women, pregnant women, cases with sexually transmitted infection, cases using antifungal agents or antibiotics in the last two weeks before the treatment, patients with gynecological situations needing treatment, patients receiving



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immunosuppressive therapies, cases expected to menstruate within one week of the beginning of therapy and non-married patients were ruled out from the study.

**Sample size Calculation:**

According to **Dawson and Trapp [4] formula (**Where n = sample size, Zα/2 = 1.96, Zβ=0.84, p1= mycological cure rate in patients treated by boric acid (study group) = 86.7% **[5],** p2= mycological cure rate in patients treated by terconazole (control group) = 56% **[6]** and q = 1-P **[7].** The sample size had been equal to 33 subjects per group. Assuming a drop-out ratio of 15%, the sample size had been 38 subjects per group i.e., the total sample size was 76 subjects.

$$n = \left[\frac{Z_{\alpha/2} + Z_{\beta}}{P_1 - P_2}\right]^2 (p_1 q_1 + p_2 q_2)$$

**Methods**

A full history had been obtained from each participant. Thorough clinical examination (local) had been performed. At the initial visit, a **Sobel *et al* [8]** score had been assigned to assess the severity of all manifestations, which include itching, burning sensation, discharges, and erythema, according to the next scale: zero = absent; I = mild; II = moderate; and III = severe. Patients with a total score of seven or more had been considered as severe VVC; meanwhile a score of less than 7 had been designated mild-to-moderate VVC.

On lithotomy position, local pelvic examination was conducted. An un-lubricated speculum was vaginally inserted in an oblique manner with gentle downward pressure and sample of the vaginal discharges was obtained using sterilized dry cotton swab (Test tube SW, China) from the posterior fornix area.

The swab was covered by a cover slip then sent for culture in 90 mm diameter plastic petri dishes with 25 ml of chocolate agar (OXOID media Ultadiagnostic Company, USA) within 20 minutes from collection at room temperature, which was prepared according to manufacturer instructions (suspend 36.2 g in one liter of sterilized water which was obtained by boiling). Sterilization was performed by autoclaving at $121^0$C for fifteen minutes (min). Good mixing was performed prior to pouring**).** The plates were incubated at $30^0$C for 24-48 hours **[9].**

Following that air-dried, heat-fixed smear of cells from culture for 60 seconds (sec) was flooded with crystal violet staining reagent then the slide was washed gently with indirect stream of tap water for two sec, after that the slide was flooded with the mordant and after 60 sec the slide was washed gently with indirect stream of tap water for 2 seconds then the slide was flooded with ethanol 95% for fifteen sec, until ethanol 95% running from the slide runs clear, then the slide was flooded with counterstain (2.5 g safrainO) and after 30 sec to 60 sec the slide was washed gently with indirect stream of tap water. Observation of the outcomes of the staining approach under oil immersion was done by utilizing a Brightfield microscope **[10]**.

Patients had been randomly assigned to two groups using computer generated random tables using SPSS program, the trial was blocked study.

Group 1 received BA vaginal suppositories (600 mg/day) for two weeks (Flugenil 600 mg vaginal suppository, Sakura company). Group 2 received terconazole 80 mg vaginal suppository daily for six days (Gynoconazol 80 mg, Apex Pharma Company).

Cases in both treatment arms were re-assessed clinically and mycologically on the 15th day of therapy. Mycological cure or failure was described as Candida negative or positive by cultures of HVSs acquired throughout this follow-up visit.

In addition, the patient had been questioned about any adverse events caused by drug usage **[11]**. To evaluate prolonged cure following BA and terconazole therapy, all the cases with mycological cure at 15th day were advised for follow-up 2.5 months latter (third month follow-up) for repeat assessment both clinically and mycologically. Patients were informed to report earlier in cases when they had manifestations indicative of VVC, but not to take any medications from other specialists. Cases with HVS culture positivity at 3rd month were regarded to have recurrence of mycological infection **[12]**.

The primary outcome measure had been the mycological cure rate on the 15th day in both treatment arms. Secondary outcome measures had been; clinical cure or improvement rates on the 15th day in both treatment arms, any reported complications and recurrence rate at third month follow-up.

**Ethical approval:**

Mansoura Medical Ethics Committee of the Mansoura Faculty of Medicine gave its approval to this study. All participants gave written consent after receiving all information. The Helsinki Declaration was followed throughout the study's conduct.

***Statistical Analysis***

Statistical analysis had been carried out using the SPSS 19 system (SPSS Inc., USA). Continuous data had been expressed as the mean±SD or as median and interquartile range and range, and categorical variables were expressed as frequency and percentage. Means had been compared by utilizing the unpaired student's test, and on the other hand proportions had been compared using the chi-squared test. P value of less than 0.05 had been considered statistically significant.

**RESULTS**

**Table (1)** illustrates a non-statistically difference between studied groups as regard age, occupation, residence and body mass index.

**Table (1): Demographic characteristics of the studied groups.**

| | Boric acid group n=35 | Terconazole Group (n=35) | test of significance |
|---|---|---|---|
| Age/years<br>mean±SD | <br>37.06±8.15 | <br>38.23±7.12 | t=0.641<br>p=0.524 |
| Occupation n(%)<br>Not working<br>Working | <br>22(62.9)<br>13(37.1) | <br>20(57.1)<br>15(42.9) | <br>$\chi^2$=0.238<br>p=0.626 |
| Residence n(%)<br>Rural<br>Urban | <br>27(77.1)<br>8(22.9) | <br>23(65.7)<br>12(34.3) | <br>$\chi^2$=1.12<br>p=0.290 |
| BMI (kg/m$^2$)<br>mean±SD | <br>29.80±2.44 | <br>29.06±2.79 | t=1.19<br>p=0.239 |

t: Student t test, $\chi^2$=Chi-Square test

**Table (2**) demonstrates a non-statistically difference between studied groups as regard parity and mode of delivery.

**Table (2): Obstetric history of the studied groups.**

| | Boric acid group (n=35) | Terconazole Group (n=35) | test of significance |
|---|---|---|---|
| Parity<br>Median (min-max) | <br>2.0(1.0-6.0) | <br>3(2.0-5.0) | Z=1.59<br>P=0.181 |
| Mode of delivery n (%)<br>Vaginal<br>CS | N=32<br>12(37.5)<br>20(62.5) | N=34<br>14(41.2)<br>20(58.8) | <br>$\chi^2$=0.093<br>p=0.760 |

Z: Mann Whitney U test, $\chi^2$=Chi-Square test

**Table (3)** shows that there was no statistically significant difference of diabetes mellitus and oral contraceptive intake between studied groups.

**Table (3) Medical history of the studied groups**

| Medical history | Boric acid group n=35(%) | Terconazole group n=35(%) | test of significance |
|---|---|---|---|
| Diabetes mellitus | 2(5.7) | 2(5.7) | FET, p=1.0 |
| Oral contraception | 9(25.7) | 7(20.0) | $\chi^2$=0.324, p=0.569 |

$\chi$2=Chi-Square test, FET; Fisher exact test.

**Table (4)** demonstrates that 10 (14.3%) patients had severe vaginal discharge. Also, 33 (47.1%) had moderate vulval itching. In addition, 21(30.0%) had moderate erythema. There were 33(47.1%) patients with mild burning sensation. The mean of total severity score was 6.71 + 1.97.

**Table (4): Distribution of studied patients regarding complaint**

| | | No | % |
|---|---|---|---|
| **Vaginal discharge** | Mild | 10 | 14.3% |
| | Moderate | 26 | 37.1% |
| | Severe | 29 | 41.4% |
| | No | 5 | 7.1% |
| **Vulval itching** | Mild | 20 | 28.6% |
| | Moderate | 33 | 47.1% |
| | Severe | 12 | 17.1% |
| | No | 5 | 7.1% |
| **Vulval erythema** | Mild | 19 | 27.1% |
| | Moderate | 21 | 30.0% |
| | Severe | 22 | 31.4% |
| | No | 8 | 11.4% |
| **Burning** | Mild | 33 | 47.1% |
| | Moderate | 10 | 14.3% |
| | Severe | 6 | 8.6% |
| | No | 21 | 30.0% |
| **Total score** | Mean +SD | 6.71 + 1.97 | |
| | Range | 2 – 9 | |

**Table (5**) illustrates a non-statistically significant difference of swab1 and swab 3 results between studied groups. A statistically significant difference of swab 2 results was found with better improvement among group with terconazole treatment than boric acid group. In boric acid group 9 female patients were mycologically failure and in terconazole group 5 female patients were mycologically failure

**Table (5): Comparison of swab results between studied groups**

| Swab | Boric acid group | Terconazole group | Test of significance |
|---|---|---|---|
| Swab1 | N=35 | N=35 | |
| Candida | 18(51.4) | 10(28.6) | $\chi^2$=3.81 |
| Candidaand staph | 17(48.6) | 25(71.4) | p=0.51 |
| Swab2 | n=35 | n=35 | |
| No growth | 2(5.7) | 18(51.4) | $\chi^{2MC}$=23.29 |
| Staph | 12(34.3) | 11(31.4) | p<0.001* |
| Candida | 9(25.7) | 5(14.3) | |
| Gram -ve | 12(34.3) | 1(2.9) | |
| Swab3 | n=26 | n=30 | |
| No growth | 18(69.2) | 17(56.7) | $\chi^{2MC}$=5.54 |
| Staph | 3(11.5) | 3(10.0) | p=0.136 |
| Candida | 3(11.5) | 10(33.3) | |
| Gram -ve | 2(7.7) | 0 | |

χ2=Chi-Square test, MC:Monte Carlo test, *: Statistically significant

**Table (6)** illustrates statistically significant difference between studied groups as regard mycological recurrence frequency. Better results are shown among boric acid group.

**Table (6): Comparison of mycological treatment response between studied groups**

| Result | Boric acid Group, n=35 (%) | Terconazole group n=35 (%) | test of significance |
|---|---|---|---|
| Mycological cure | 23(65.7) | 20(57.1) | $\chi^2$=0.27, p=0.61 |
| Mycological failure | 9(25.7) | 5(14.3) | $\chi^2$=1.43, p=0.23 |
| Mycological recurrence | 3(11.5) | 10(33.3) | $\chi^2$=4.63, p=0.03* |

χ2=Chi-Square test *: Statistically significant

**Table (7)** illustrates statistically significant higher median parity among cases with mycological recurrence than cases with mycological cure. No statistically significant relation was detected between mycological cure and recurrence and failure in sociodemographic, obstetric and medical history among studied cases.

**Table (7): Comparison of Mycological results between studied groups**

| | Mycological recurrence/ failure (N=27) | Mycological Cure N=43 | Test of significance |
|---|---|---|---|
| Age/years mean±SD | 39.04±7.11 | 36.77±7.87 | t=1.22 p=0.227 |
| Occupation | | | |
| Not working | 13(48.1) | 29(67.4) | $\chi^2$=2.57 |
| Working | 14(51.9) | 14(32.6) | p=0.109 |
| Residence | | | |
| Rural | 10(37) | 33(76.7) | $\chi^2$=11.04 |
| Urban | 17(63) | 10(23.3) | p<0.001* |
| BMI (kg/m$^2$) mean±SD | 28.81±2.04 | 29.81±2.89 | t=1.57 p=0.122 |
| Parity | | | z=2.43 |
| Median(min-max) | 3(2-5) | 2(1-6) | p=0.015* |
| Mode of delivery | | | |
| vaginal | 10(40) | 16(39.0) | $\chi^2$=0.006 |
| CS | 15(60) | 25(61.0) | p=0.937 |
| Diabetes mellitus | 1(3.7) | 3(7.0) | FET=0.330, P=1.0 |
| oral contraception | 6(22.2) | 10(23.3) | $\chi^2$=0.01 p=0.920 |

χ2=Chi-Square test, t: Student t test, FET: Fisher exact, Z: Mann Whitney U test, *: Statistically significant

**Table (8)** shows that there was statistically significant relation between treatment response with vulvar itching and vulvar erythema. Whereas, there was no statistically significant relation between treatment response and other complaints.

**Table (8): Relation between treatment response and complaints of studied groups.**

| Complaint | Score | Mycological cure | | Mycological failure | | Mycological recurrence | | Test value | P-value |
|---|---|---|---|---|---|---|---|---|---|
| | | No. | % | No. | % | No. | % | | |
| Vaginal discharge | No | 4 | 9.3% | 0 | 0.0% | 1 | 7.1% | $\chi^2$= 11.22 | 0.082 |
| | Mild+ | 6 | 14.0% | 4 | 30.8% | 0 | 0.0% | | |
| | Moderate++ | 19 | 44.2% | 4 | 30.8% | 3 | 21.4% | | |
| | Severe+++ | 14 | 32.6% | 5 | 38.5% | 10 | 71.4% | | |
| Vulvar itching | No | 3 | 7.0% | 0 | 0.0% | 2 | 14.3% | $\chi^2$= 13.81 | **0.032*** |
| | Mild+ | 11 | 25.6% | 3 | 23.1% | 6 | 42.9% | | |
| | Mod++ | 25 | 58.1% | 7 | 53.8% | 1 | 7.1% | | |
| | Severe+++ | 4 | 9.3% | 3 | 23.1% | 5 | 35.7% | | |
| Vulvar erythema | No | 7 | 16.3% | 0 | 0.0% | 1 | 7.1% | $\chi^2$= 25.79 | **<0.001*** |
| | Mild+ | 15 | 34.9% | 3 | 23.1% | 1 | 7.1% | | |
| | Moderate++ | 5 | 11.6% | 5 | 38.5% | 11 | 78.6% | | |
| | Severe+++ | 16 | 37.2% | 5 | 38.5% | 1 | 7.1% | | |
| Burning | No | 13 | 30.2% | 1 | 7.7% | 7 | 50.0% | $\chi^2$= 7.22 | 0.252 |
| | Mild+ | 21 | 48.8% | 7 | 53.8% | 5 | 35.7% | | |
| | Moderate++ | 5 | 11.6% | 4 | 30.8% | 1 | 7.1% | | |
| | Severe+++ | 4 | 9.3% | 1 | 7.7% | 1 | 7.1% | | |
| Age (years) | Mean± SD | 6.4± 2.04 | | 7.62± 1.56 | | 6.86± 1.96 | | KW= 3.648 | 0.161 |
| | Median (IQR) | 7 (5-8) | | 8 (7-9) | | 7 (6-9) | | | |
| | Range | 2-9 | | 5 - 9 | | 3 - 9 | | | |

*: Statistically significant, $X^2$: Chi- Square test, KW: Kruskal Wallis Test.

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## DISCUSSION

Recurrent vulvovaginal candidiasis (RVVC), could be described as the presence of at least as four confirmed infections within a period of one year. It happens in about 10% of females. In such women, the aim is occasionally symptomatic management instead of mycologic treatment [(13)]. However, limited number of researches still not confirmed such effects in the context of RVVC management.

This was prospective randomized study conducted in Mansoura University Hospital, Obstetrics and Gynecology Department on a total of 98 patients who were assessed for eligibility. Only 76 were included for complaining of recurrent vulvovaginal candidiasis but 70 female patients could complete the study in which 35 patients received boric acid and 35 patients received terconazole to compare the effectiveness of intravaginal use of BA Vs terconazole in the context of RVVC treatment.

Of note, this was the first study to compare between the effectiveness of intravaginal use of BA versus terconazole in the context of RVVC. Most of the preceding researches mainly focused on each drug separately.

As regards, the demographic features, obstetric history and medical history, the current study demonstrated that there were no significant differences among both groups as regards all such parameters (P>0.05).

Regarding complaint, the current study demonstrated that; 10 (14.3%) patients had mild vaginal discharge, 26 (37.1%) with moderate discharge and 29 (41.4%) with severe discharge. Also, 20 (28.6%) patients had mild vulval itching, 33 (47.1%) with moderate vulval itching and 12 (17.1%) with severe itching. In addition, 19 (27.1%) had mild vulval erythema, 21(30.0%) with moderate erythema and 22 (31.4%) with severe erythema. There were 33 (47.1%) patients with mild burning sensation, 10 (14.3%) with moderate burning and 6 (8.6%) with severe burning sensation. The mean of total severity score was 6.71 + 1.97 and it ranged from 2 – 9. This came in accordance with **Arechavala *et al.*** [(14)] who have demonstrated that; the most frequent clinical manifestations were increased discharge (88%), itching (77.8%), burning (73.7%), vulvitis (39.2%) and dyspareunia (19.9%). Approximately 90% of the cases had formerly received antifungal therapies.

Also, **Brown *et al.*** [(15)] have displayed that; RVVC was the conclusive diagnosis in 57 cases (73%), with 34 cases (60%) having bacterial vaginosis (BV), vulvodynia in 18% of cases and vulval eczema in 16%

of cases. In twenty-one cases in which RVVC wasn't the conclusive diagnosis, primary diagnoses comprised VVC (29%), vulval eczema (14%) and dry skin (14%).

As regards mycological results, among boric acid group; 65.7% showed mycological cure, 25.7% mycological failure and 11.5% mycological recurrence. Better results were shown among boric acid group. Among terconazole group; 57.1% showed mycological cure, 14.3% mycological failure and 33.3% mycological recurrence. There was a significant difference between the studied groups in terms of mycological recurrence frequency.

In the same line, **Iavazzo *et al.*** [16] have identified 14 studies in which BA was compared with different types of antifungal therapies; as monotherapy, BA was evaluated in seven researches. The mycologic cure ratios differed from 40% to 100% in cases managed with BA; four out of the nine comprised case series recorded significant outcomes as regards cure rates. None of the comprised researches recorded significant differences in relapse frequencies.

Also, **Jovanovic *et al.*** [17] have reported that; BA, given in a 600 mg vaginal suppository every 12 hours for 14 days and after that daily throughout menstruation, is of great efficiency as regards the treatment of females with resistant infections.

In addition, **Powell *et al.*** [18] have reported that; satisfaction with the BA treatment was high. Unsatisfied women recorded that vaginal manifestations were persistent or deteriorated. Even though there were no statistically significant differences between ratio of cases who recorded satisfaction with their regimen based on receipt of BA induction, BA dosage, or antifungal/antibacterial induction, the only cases with recurrent BV who weren't satisfied with their treatment strategy didn't receive antibacterial therapies.

In this study there was statistically significant correlation between therapeutic response with vulvar itching and vulvar erythema. Whereas, there was no statistically significant correlation between therapeutic response and other complaints. Moreover, another study was made of the use of fourteen every day as intravaginal gelatin capsules comprising 600 mg of BA powder Vs the utilization of the same capsules comprising 100,000 U nystatin diluted to volume with cornstarch in the context of RVVC treatment. Cure rates for BA were 92% at seven to ten days following treatment and 72% at 30 days, on the other hand the nystatin cure rates were 64% at 7 to 10 days and 50% at 30 days. The rate of improvement of manifestations was comparable for both drugs [19].

Notably, vulvovaginal candidiasis due to C. glabrata is accompanied by a greater mycological cure rate when managed with a BA, 600 mg daily for three weeks, or intravaginal flucytosine cream for two weeks [12,20]. While they have demonstrated that terconazole cured the two cases of VVC caused by C. glabrata and one case of VVC caused by C. parapsilosis, that recommends that terconazole has to be the best modality in the context of management of such infections [2].

The mechanism by which BA could alleviate manifestations in females with RVVC isn't clear, though BA is recorded to suppress *in vitro* growth of yeast, and bacteria, and the formation of biofilms [21,22]. In addition, it is possible that BA enhances manifestations by modulation of the metabolites formed by yeast or bacteria [18].

Likewise, **Iavazzo *et al.*** [16] have displayed that; as regards the complications induced by BA utilization, burning sensation (less than 10% of cases), watery discharge throughout treatment, and erythema were recognized in seven researches. In addition, 2 researches revealed that intravaginal BA is occasionally well-tolerated, especially in short-term treatment. A local burning sensation, watery discharge, erythema, and male dyspareunia have been considered as the most frequent adverse effects [23,24]. In addition, **Powell *et al.*** [18] have displayed that one patient complained of boric acid leaking out the day after use. One patient who was using 600 mg demonstrated irritation and reduced the dosage to 300 mg BA with promising outcomes. Three others recorded also moderate vaginal irritations.

The current study demonstrated that; there was a statistically significant higher median parity among cases with mycological recurrence than cases with mycological cure (3 versus 2). However, no statistically significant relation is detected between mycological cure and failure in sociodemographic, obstetric and medical history among studied cases.

Of note, BA has restrictions that must be considered. It isn't submitted for approval by FDA. Until recently when OTC BA products were introduced, it required to be compounded. Moreover, there are no long-term safety data available in terms of vaginal use [25,26]. On the other hand, physicians have to advise care with storage of BA capsules, far from orally ingested drugs. Furthermore, during use, oral sex has to be avoided. BA has to be avoided in pregnant women [25]. On the other hand, **Powell *et al.*** [18] offered certain reassurance as regards the long-term tolerability of intravaginal BA maintenance therapy. They recommended that BA maintenance plans of 300–600 mg used every 12 hours every week, in particular following induction BA and perhaps antifungal or antibacterial therapies might hold promise in the treatment of RVVC as well as in the treatment of RBV. On the other hand, larger, prospective researches are needed before such plans could be suggested for routine clinical utilizations.

Essentially, patient's compliance was better than for vaginal creams, and self-made capsules comprising BA powder are cheap in comparison to the expensive medication frequently prescribed [19].

## CONCLUSION

In the context of RVVC, BA seemed to be associated with promising outcomes as regards

treatment outcomes with minimal adverse events compared to terconazole.

Small sample size has been considered the main limitation. Recommendation to be applied further studies have to be conducted on large number of cases. Utilization of BA is a promising alternative to terconazole in the context of RVVC treatment.

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