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A Prospective Observational Study on Vaginal Infections among Women Attending Government Maternity Hospital in and Around Warangal Region

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ABSTRACT

Vaginal infection is a global health problem among female especially in reproductive age group. Nearly 5–10 million females seek gynecologic advice for vaginitis worldwide. It occurs in 1-14 % of all women of reproductive age throughout the world and its prevalence in India is estimated to be 30 %. Symptomatic treatment is widely practiced in low resource area leading to over diagnosis and treatment

OBJECTIVE: To determine the prevalence of vaginal infections among women attending gynecological department and assess the diagnostic approach and treatment pattern

MATERIALS AND METHODS: An observational study was conducted in Government maternity hospital in Warangal for a period of 3 months in the department of Gynecology. A total of 108 cases were collected from the patients who attended the OPD. A detailed history about age, symptoms, character of vaginal white discharge and odour were taken from the patients. The data obtained was compared with ACOG guidelines.

RESULTS: Bacterial vaginosis (51.85 %) was the most prevalent vaginal infection followed by vulvovaginal candidiasis(40.74 %). 31-40 years age group women are more prone to bacterial vaginosis(48.21 %) and vulvovaginal candidiasis(45.45 %), followed by 21-30 years age group. The major risk factors associated with vaginal infections were tubectomy (33.33 %) followed by use of IUD (16.66 %). Of the different antimicrobials prescribed Metronidazole (59.25 %) was commonly prescribed followed by Doxycycline (51.85 %) and Fluconazole (40.7 %)

CONCLUSION: Prevalence of vaginal infections is on higher margin especially among reproductive age (21-40) group. Clinical profile must be further correlated with laboratory data for definitive diagnosis, appropriate treatment modalities and best patient care. Clinical pharmacists play a major role in educating the women regarding personal hygiene.

Keywords: Bacterial vaginosis, vulvovaginal candidiasis, vaginal white discharge, IUD.

INTRODUCTION

Vaginitis is defined as any condition with symptoms of abnormal vaginal discharge, odour, irritation, itching, or burning. The most common causes of vaginitis are bacterial vaginosis, vulvovaginal candidiasis, and trichomoniasis. Nearly 5–10 million female seek gynecologic advice for vaginitis worldwide. Bacterial vaginosis is implicated in 40 % to 50 % of cases where a cause is identified, with vulvovaginal candidiasis accounting for 20 % to 25 % and 15 % to 20 % of trichomoniasis cases. Abnormal vaginal discharge is a characteristic feature of vaginal infections. It occurs in 1-14 % of all women of reproductive age throughout the world and its prevalence in India is estimated to be 30 %.⁽¹⁾

Bacterial vaginosis (BV) is the most frequent vaginal infection, characterized by the replacement of *Lactobacillus* species of normal vaginal flora with predominantly anaerobic microorganisms. In healthy women, the vaginal environment is a balanced ecosystem characterized by the presence of various species of Lactobacillus. These bacteria inhibit the

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growth of other microorganisms through various mechanisms including production of organic acids such as lactic acid and other antimicrobial substances (hydrogen peroxide and bacteriocins). The depletion of these vaginal Lactobacilli is known to be associated with bacterial vaginosis.⁽²⁾ The prevalence of bacterial vaginosis among non-pregnant women ranges from 15-30 % and in pregnancy it ranges between 11-16 %.⁽³⁾

Vulvovaginal candidiasis (VVC) is a fungal or yeast infection of the female lower genital tract, vulva, and vagina caused by *Candida* spp (*Candida albicans*, *Candida* glabrata, or *Candida* krusei). VVC can be recurrent or relapsing. It has been estimated that approximately 75 % of women experience at least one episode of vulvovaginal candidiasis in their lifetime and 40 % - 50 % of them will have recurrences. If a woman presents with four or more episodes per year, it is called recurrent or relapsing VVC.^(4, 5) Trichomoniasis is a sexually transmitted infection (STI) caused by the motile parasitic protozoan *Trichomonas vaginalis*. *T vaginalis* destroys epithelial cells by direct cell contact and by release of cytotoxic substances. Trichomoniasis is typically found in sexually active patients. Transmission occurs predominantly via sexual intercourse. The global prevalence of TV has been estimated at 8.1 % for women and 1.0 % for men. ⁽⁶⁾

S.No	Type of vaginitis	Risk factors
1	Bacterial vaginosis	Low socioeconomic status, vaginal douching, smoking, new or multiple sex partners, unprotected intercourse, women who have sex with women
2	Vulvovaginal candidiasis	Recent antibiotic use, pregnancy, uncontrolled diabetes mellitus, AIDS, corticosteroid use, other immunosuppression
3	Trichomoniasis	Low socioeconomic status, multiple sex partners, other sexually transmitted infections, unprotected intercourse, drug use, smoking

TABLE 1: RISK FACTORS CONTRIBUTING TO VAGINITIS (7,8)

TABLE 2: SIGNS AND SYMPTOMS OF DIFFERENT TYPE OF VAGINAL INFECTIONS

	Normal	Trichomoniasis	Vaginal candidasis	Bacterial vaginosis
Causes	Balance of normal vaginal flora	Trichomonas vaginalis	Candida albicans, Candida glabrata, or Candida krusei	Gardnerella vaginalis and Prevotella spp, Peptostreptococcus and Bacteroides spp
VAGNAL PH	3.8 - 4.2	> 4.5	< 4.5	> 4.5
ODOR	unnoticeable	Foul or fishy	None	Unpleasant, foul

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				fishy or musty
DISCHARGE	Clear and slight milky	Yellow, green, grey, frothy and sticky.	Thick , curdy and white like cottage cheese	Thin, milky, white or gray usually increased in volume
OTHER SYMPTOMS	None	Itching and Irritation	Dysuria, dyspareunia, itchy and soreness	Itchy and burning
CLINICAL FINDINGS		Cervical petechiae	Inflammation and erythema	

TREATMENT GUIDELINES: ^(9, 10)

TABLE 3: TREATMENT OF BACTERIAL VAGINOSIS

AGENTS	DOSAGE			
Recommended regimens				
Metronidazole tablets	500 mg orally twice daily for 7 days			
Metronidazole 0.75% gel	5 g intravaginally once daily for 5 days			
Clindamycin 2% vaginal cream	5 g intravaginally once daily at bedtime for 7 days			
Alternative regimens				
Metronidazole tablets	2 g orally in a single dose			
Clindamycin tablets	300 mg orally twice daily for 7 days			

TABLE 4: TREATMENT OF VAGINAL CANDIDIASIS

AGENT	DOSAGE
Butoconazole 2 % vaginal cream	5 g intravaginally per day for 3 days
Butoconazole 2% vaginal cream, sustained release	5 g intravaginally one time
Clotrimazole 1 % vaginal cream	5 g intravaginally per day for 7 to 14 days
Clotrimazole 100-mg vaginal tablet	One tablet intravaginally per day for 7 days or
	Two tablets intravaginally per day for 3 days
Clotrimazole 500-mg vaginal tablet	One tablet intravaginally one time

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AGENT	DOSAGE
Miconazole 2 % vaginal cream	5 g intravaginally per day for 7 days
Miconazole 100-mg vaginal suppository	One suppository intravaginally per day for 7 days
Miconazole 200-mg vaginal suppository	One suppository intravaginally per day for 3 days
Nystatin 100,000-unit vaginal tablet*	One tablet intravaginally per day for 14 days
Tioconazole 6.5 % ointment	5 g intravaginally one time
Terconazole 0.4 % vaginal cream	5 g intravaginally per day for 7 days
Terconazole 0.8 % vaginal cream	5 g intravaginally per day for 3 days
Terconazole 80-mg vaginal suppository	One suppository intravaginally per day for 3 days
Fluconazole	150mg orally Single dose
Itraconazole	200mg orally BID for 3 days
Ketaconazole	400mg orally BID for 3 days

TABLE 5: TREATMENT OF TRICHOMONIASIS

AGENTS	DOSAGE			
Recommended regimens				
Metronidazole	2g orally in single dose			
Tinidazole	2g orally in single dose			
Alternative regimens				
Metronidazole	500mg BID for 7days			

2. MATERIALS AND METHODS:

A prospective observational study was conducted in the department of Gynecology in Government Maternity Hospital, warangal for a period of 3 months.

Inclusion criteria:

- Women with 20 to 50 age group
- Women visiting OPD with complaints like vaginal white discharge and genital itching

Exclusion criteria:

- Pregnant women
- Age below 18 years and above 50 years
- Women with different gynecological cancers

3. RESULTS:

3.1. DIFFERENT TYPES OF VAGINAL INFECTIONS:-

Of 108 patients clinically diagnosed with vaginal infection 51.85 % had bacterial vaginosis and 40.74 % were diagnosed with VVC. 7.4 % patients were diagnosed with Trichomoniasis.

Types	Patients(no.)	%	
1. Bacterial vaginosis	56	51.85	
2. Vulvovaginal candidiasis	44	40.74	
3. Trichomoniasis	08	7.40	

Table-1: Distribution based on types of vaginal infect	tion	infec	l i	agina	Va	of	pes	ty	on	based	ution	istrik	: D	le-1	Tab
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3.2. Age wise of distribution of vaginal infections:-

Of the 56 patients with bacterial vaginosis 48.21 % patients were among 31-40years age group and 35.7 % patients were 21-30 years age group. Of 8 patients with Trichomoniasis, 50 % were 21-30years age group. 45.5 % women with VVC were 31-40years age group.

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Age	Bacterial vaginosis	Vaginal Z candidasis	Frichomoniasis
	No of patients	No of patients	No of patients
1.<20	3 (5.3 %)	2 (4.54 %)	
2.21-30	20 (35.7 %)	16(36.36 %)	4 (50 %)
3.31-40	27 (48.21 %)	20(45.45 %)	3 (37.5 %)
4.41-50	6 (10.71%)	6 (13.63 %)	1 (12.5 %)

Table-2:	Age	wise	dist	ribı	ıtion
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3.3. DISTRIBUTION BASED ON SYMPTOMS:

The most common symptoms observed in our study are white discharge (49.07 %) followed white discharge with itching (29.62 %). 10% were with white discharge+itching+erythema , 6% with itching and 5% with erythema.

3.4. DISTRIBUTION BASED ON TREATMENT PATTERN:

Among 108 patients, 59.25 % were prescribed with metronidazole, 51. 85 % were prescribed with

doxycycline and 40.7 % were prescribed with fluconazole.

3.5. RISK FACTORS ASSOCIATED WITH VAGINAL INFECTIONS:

In the present study, major risk factor was found to be tubectomy (33.33 %) followed by use of IUD (16.66 %) and 10.18 % of the women had recurrent vaginal infections.

Risk factors	No.of patients	Percentage
1.Diabetes mellitus	6	5.55
2.Previous infections	11	10.18
3.Use of IUD	18	16.66

Table-3: Distribution based on risk factors

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4.Tubectomy	36	33.33
5.No of abortions	4	3.70

4. DISCUSSION

4.1. PREVALENCE:

Of 108 patients clinically diagnosed with Vaginal infections, 51.85 % were bacterial vaginosis and 40.74 % patients had vaginal candidiasis. The results are similar to the observation made by abdelsattar M *et al.*,^[11] & Chaitra S *et al.*,^[12] whereas in a study conducted by Ankur A Bhute *et al.*,^[13] VC (63.14 %) was the most common cause of vaginal discharge followed bacterial vaginosis by (25.7)%). Sociodemographic characteristics, sexual activity, reproductive health information, behavioural and genital hygiene may be the cause for variation in prevalence rates.

Our study revealed that the proportion of BV was highest in age group 21- 40 years with peak incidence around 31-40 years (48.2 %) which is comparable to the study conducted by Eliza Ranjith et al.,^[2] The prevalence of Vaginal Candidiasis was predominant in 21-30 years age group. Similar observation was made by emeribe A *et al.*,^[5] 50 % of the women diagnosed with Trichomoniasis were among 21-3years age group. This might be due to the increased sexual activity at this age. Besides, some physiological and tissue changes caused bv reproductive hormones which increase susceptibility to vaginal infection.

4.2. SYMPTOMS:

In our study, vulval itching and vaginal discharge are the common symptoms associated with vaginal infections which were in accordance with the findings of Ankur A *et al.*,^[13]

4.3. RISK FACTORS:

In present study, there was a significant association between tubal ligation and prevalence of vaginal infection. 33.3 % of the patients were tubectomised which was similar to the observation made by K.Padma Leela *et al.*, ^[14]16.6 % IUD users had vaginal infections.10.2 % of the women had previous vaginal infections which was similar to the observation made by Kamya Ramesh *et al.*,^[15]

4.4. DIAGNOSIS:

Volume 2, Issue 5; September-October 2019; Page No.09-16 © 2019 IJMSCR. All Rights Reserved According to the American college of obstetricians and gynecologists ^[10], BV is commonly diagnosed using the Amsel criteria, which include vaginal pH greater than 4.5, positive whiff test, milky discharge, and the presence of clue cells on microscopic fluid. examination of vaginal Features of trichomoniasis are trichomonads seen microscopically in saline, more leukocytes than epithelial cells, positive whiff test, and vaginal pH greater than 5.4. vulvovaginal candidiasis are diagnosed by the presence of vulvar inflammation plus vaginal discharge or with microscopic examination of vaginal secretions in 10% potassium hydroxide solution. In contrast diagnosis in our study was solely based on clinical presentation and per speculum examination. This may be due to lack of facilities in government setup required to perform tests. Diagnosis using clinical criteria often leads to misdiagnosis as the components are subjective and depends on the acuity of clinician.

4.5. TREATMENT:

According to ACOG, first-line therapy for BV includes seven-day courses of oral metronidazole, intravaginal metronidazole, or intravaginal clindamycin and alternative regimen includes oral Tinidazole or clindamycin 5- 7 days. Whereas in our hospital setup, oral doxycycline is preferred over clindamycin along with metronidazole.

All topical treatments listed in Table 5 as well as oral fluconazole, are recommended by the CDC as firstline therapy for vulvovaginal candidiasis. Similar treatment pattern was followed in our study. (Fluconazole oral tablet and clotrimazole vaginal tablet)

First-line therapy for trichomoniasis is a single 2-g dose of metronidazole or tinidazole. It was observed that the same treatment pattern was followed in our study.

5. CONCLUSION:

The study concludes that the vaginal infections are prevalent in reproductive age group (21-40 years) and is affected by individual hygiene, method of

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contraception and previous history of infections. The present study helps us to understand the magnitude of problem in our region which will help to implement the necessary treatment modalities.

In our study we found that the diagnostic approach was not satisfactory. Diagnosis was based on symptoms and pelvic examination which may lead to misdiagnosis and unnecessary antibacterial therapy. For reliable diagnosis of vaginal infections, culture test results adjunctive to clinical symptoms should be considered.

There is need to promote health education program for women in order to induce proper vaginal hygiene and prevent vaginal infections. Clinical pharmacist can create awareness in personal hygiene and early detection of symptoms

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