Original Paper

Epidemiologic Features of Vulvovaginal Candidiasis in Women of Childbearing Age in a Combined Military Hospital

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Abstract

Introduction: Vulvovaginal Candidiasis is a reproductive tract infection which remains a common cause of morbidity adversely affecting women's physical and emotional health. Vaginal discharge in the childbearing age group is the most common complaint encountered every day both by gynaecologists and general practitioners. Among the cases of symptomatic vaginal discharge, Bacterial vaginosis is the commonest cause followed by Candidiasis and Trichomoniasis. It is characterized by curd-like vaginal discharge and itching and is associated with considerable health and economic costs.

Objective: To detect the prevalence of Candida species in patients with complaints of vaginal discharge of reproductive age group attending at Child Welfare Centre (CWC), Gynaecology Outpatient Department (GOPD) and Medical Inspection Room (MI Room) of Combined Military Hospital (CMH) Ghatail.

Materials and Methods: A cross-sectional descriptive study was conducted at CMH Ghatail during the period of April 2017 to October 2017. A total of 183 patients of reproductive age group with the complaints of vaginal discharge attending CWC, GOPD and MI Room of CMH Ghatail were included in this study. Two specimens of High Vaginal Swabs (HVS) were collected from each patient, one for direct microscopy and another for culture. For every patient, two wet film preparations and two Gram's staining were done. Specimens were cultured on Blood Agar Medium and Sabourad's Dextrose Agar Medium. Identification of Candida species was carried out by Wet film, Gram's staining and culture examination.

Results: According to the results of this study, the prevalence of Vulvovaginal Candidiasis (VVC) was found in 57(31.15%) of the cases. The maximum number of patients 126(66.66%) were found between 26 years to 35 years of age group. On the other hand, amongst 57 VVC positive cases, 44(77.19%)were identified as Candida albicans and 13(22.81%) were Candida non-albicans.

Conclusion: *Candida albicans* is the predominant organism amongst candida species identified from VVC in this study. The high prevalence necessitates adequate screening of woman with vaginal discharge in order to give appropriate treatment and to avoid complications associated with it.

Key-words: Vaginal discharge, Vulvovaginal candidiasis, Candida albicans, Women of childbearing age.

Introduction

Vulvovaginal candidiasis is caused by an overgrowth of Candida yeast species in the vagina and is characterized by curd like vaginal discharge, itching, and erythema. Vulvovaginal candidiasis has been associated with considerable direct and indirect economic costs, enhanced susceptibility to HIV infection and is being investigated for a potential relationship with preterm birth. Treatment of vulvovaginal candidiasis is warranted when a woman presenting with a complaint of symptoms consistent with vulvovaginal candidiasis also has laboratory confirmation of the presence of Candida from a vaginal specimen. Short-course azole-based treatment regimens are considered effective and safe and are accessible and affordable in most settings[1].

Vaginal discharge is a common presenting symptom among the females attending the dermatology outpatient clinic. It represents a major public health problem but many women bear it silently. Reasons for not seeking medical advice can be innumerably ranging from social stigma, hesitation, ignorance and illiteracy. As a result of this stigma and shame, many of these females resort to self-medication. Its impact on mental health and in-terference with routine activities is a matter of concern and hence need to be dealt properly[2].

Materials and Methods

This cross-sectional descriptive study was conducted at CMH Ghatail during the period of April 2017 to October 2017. A total of 183 women of reproductive age group with the complaints of vaginal discharge attending CWC, GOPD and

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MI Room of CMH Ghatail were included in this study. Two specimens of HVS were collected from every patient, one for direct microscopy and another for culture. For each woman, two Wet mount preparations and two Gram's staining were done. HVS specimens were cultured on Blood Agar Medium and Sabourad's Dextrose Agar medium. Identification of Candida species was done by Wet film, Gram's staining and culture examination.

Wet mount examination: The vaginal secretion was taken on a clean, grease-free, dry glass slide and a drop of normal saline was added, mounted with a coverslip. The number of pus cells was counted. Candida was identified as highly refractile, round or oval budding yeast cells.

Gram's staining: Smears were prepared from the specimens and were fixed by flaming. Then the slide was stained by Gram's Method and was examined under a microscope for detection of gram positive budding yeast cells with or without pseudohyphae.

Culture: Culture was done on Blood Agar Medium and Sabouraud's Dextrose Agar (SDA) Medium. Incubated at 37˚C for 24 and 48 hours and colony morphology was observed.

Identification: Yeast colonies in the culture were identified by colony morphology, Gram's staining and Germ tube formation for Candida species.

Germ tube test: For Germ tube test, 500 µl of human serum was pipetted into a small test tube. Using a sterile wire loop, a yeast colony from the SDA plate was inoculated. The tube was incubated at 35-37ºC for 2-3 hours. Using the Pasteur pipette, a drop of serum yeast culture was transferred to a glass slide and covered with a cover glass. Tube-like outgrowths from the cells were examined using the 10X and 40X objectives.

Results

Out of 183 HVS processed, only 57(31.15%) specimens were positive for VVC and no Candida species was found in 126 (68.85%) specimens. All the patients had the history of vaginal discharge and many of them have one or more symptoms of vaginal itching, irritation, erythema, burning sensation and dysuria (Table-I).

Table-I: Prevalence of vulvovaginal candidiasis amongst the study group (n=183)

Cases	Number	Percentage
Positive	57	31.15
Negative	126	68.85
Total	183	100

Table-II: Age distribution and their relative percentage in the study group (n=183)

Age in year	Number of patients	Percentage
20-25	42	22.95
26-30	48	26.23
31-35	63	34.43
36-40	24	13.11
41-45	06	3.28
Total	183	100

Table-III: Distribution of respondents in relation to vulvovaginal candidasis and contraceptive methods (n=148)

Methods	Vulvovaginal Candidiasis		Total
Contraception	Yes	No	
IUD	20(13.51)	13(08.79)	33(22.30)
Others	16(10.81)	99(66.89)	115(77.70)
Total	36(24.32)	112(75.68)	148(100.00)

Table-IV: Types of Candida species amongst the positive cases (n=57)

Candida species	Number of isolates	%
Candida albicans	44	77.19
Candida non-albicans	13	22.81
Total	57	100

Table-II shows that 42(22.95%) were between 20-25 years of age, 48(26.23%) were between 26 to 30 years, 63(34.43%) were between 31 to 35 years, 24(13.11%) were between 36 to 40 years and 6(3.28%) were between 41 to 45 years of age. The number of patients in the age group 31 to 35 years is more (34.43%).

Table-III showing, 148 women were using different types of contraceptive methods. Amongst 148 contracep-tive users, 33 women were using intrauterine contraceptive device (IUD) and 115 were using other methods of contraception. Out of 33 IUD users, 20(13.51%) were positive for vulvovaginal candidiasis while 13(8.79%) patients were negative. In IUD users the VVC found more in number.

Table-IV showing, in a total of 57 isolates of VVC, the overall prevalence of *Candida albicans* were 44(77.19%) while 13 (22.81%) were Candida non-albicans species. The Candida non-albicans species includes *Candida tropicalis Candida glabarata*, *Candida kreusei*, *Candida dubliniensis* which were not identified in this study.

Discussion

Despite therapeutic advances, vulvovaginal candidiasis remains a common problem worldwide, affecting all strata of society. Their epidemiological profile varies from country to country and from one region to another within a country depending upon demographic, socio-economic and health factors[3].

Vaginal discharge can be physiological or pathological. Physiological discharge is usually clear, odourless and non-irritant. On the other hand, pathological discharge is usually symptomatic and may or may not be sexually transmitted. Non-sexually transmitted causes include bacterial vaginosis and vulvovaginal candidiasis whereas sexually transmitted causes mainly include infections due to *T. vaginalis*, *Chlamydia trachomatis*, *N. gonorrheae* and *Herpes simplex* virus[2].

In the present study, amongst 183 women with symptomatic vaginal discharge, the prevalence of VVC was found in 31.15% cases. In a study conducted at Dhaka city by Rahman S et al[4] showed the incidence of VVC in women with symptomatic vaginal discharge as 32.4%. Another similar study conducted in Dhaka at Sir Salimul-lah Medical College by Yusuf MA et al[5] reported the incidence as 56.3%.

A study conducted in Surat of India by Gandhi TN et al[3] showed the prevalence as 29.75%. Another study conducted in north India by Kaur J[2] reported the incidence as 25%. In another similar study conducted in Amritsar, India by Kalin N et al[6] reported the prevalence as 31%.

The prevalence reported in the present study is consistent with the results of earlier workers. The study conducted at Sir Salimullah Medical College in Dhaka by Yusuf MA et al reported the incidence a bit higher[5]. The women living in a highly crowded, relatively unhygienic condition and with poverty usually report more to Sir Salimullah Medical College from Jinjira area, Dhaka. These could be the probable cause of relatively higher incidence found by Yusuf MA et al[5].

Similar results like the incidence of this study have also been obtained from other works from India, Nepal and other countries[5,7,8].

Vaginal infections commonly occur in women of reproductive age i.e between 25-35 years[8]. In this study, age group 26 to 30 years and age group 31 to 35 years together comprise more (60.66%) number of patients. It is noted in several other studies. In the study of Gandhi TN et al[3], this age group was 26 to 35 years, Bonyadpour B et al[9] reported it as 25-35 years, in Yadav K et al's[10] study it was 21-25 years while in Francisca IO et al[11] this age group was 26-30 years.

Use of IUDs increases the risk of infections associated with microbes' colonization on these implanted devices, including VVC[12]. In the present study, VVC is found more in IUD users. Amongst 33 IUD users' women, 20(13.51%, 60.60%) were positive for VVC and 13(8.79%, 39.39%) were negative for VVC. Although some researchers, it has been proposed as an important risk factor for sporadic VVC and recurrent episodes by many others. In fact, several studies reported higher IUD use in VVC and recurrent VVC-infected women 13.1–43.8% and 28.1–71.4%, respectively than in healthy women 2.9–37.6%. In addition, some studies also found that VVC incidence and vaginal colonization by Candida is higher among IUD users than in non users[12,13].

In the present study amongst 57 VVC positive cases, 77.19% were found as *Candida albicans* and 22.81% were Candida non-albicans. Similar prevalence of C*andida albican*s 74.40% and 79.05% have been reported in VVC by Jindal N et al and Nancy BA et al respectively[14,15].

Conclusion

This study provides valuable information regarding prevalence, age distribution, the risk of IUD and commonest Candida species involved in Vulvovaginal Candidiasis. The *Candida albicans* is the predominant organism isolated from VVC. The high prevalence rates necessitate adequate screening of women with vaginal discharge in order to give appropriate treatment and to avoid risks such as VVC related morbidity in pregnancy which can cause abortion, candida chorioamnionitis, subsequent preterm delivery, emotional stress and enhanced susceptibility to HIV infection.

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