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PREVALENCE AND RISK FACTORS OF VULVOVAGINAL CANDIDIASIS IN FEMALES OF REPRODUCTIVE AGE GROUP ATTENDING GYNECOLOGICAL OPD AT NAVODAYA MEDICAL COLLEGE

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ABSTRACT

Background: Vulvovaginal candidiasis is caused by candida species, most commonly affects the reproductive age group females affecting their sexual and social life. various factors influences the disease prevalence specially in developing countries, where the prevalence is often underestimated because of lack of knowledge about reproductive tract infection and less of treatment seeking behaviour. therefore diagnosing and adequate treatment will reduce the recurrence. **Aims and Objectives:** To study the prevalence and most common risk factors of Vulvovaginal candidiasis and help in reducing the infection and improve quality life of the patient. **Methods:** A Cross sectional study was done at Gynaecological OPD at Navodaya medical college on 100 Reproductive age group females over 1 year, with complaints of vaginal discharge and itching. Thorough history and examination is done and a high vaginal swab is taken for culture sensitivity. Candida positive results are noted and statistical analysis done. **Results:** The prevalence in the present study found to be 35% and more common in 19-24 years age. the previous history of vaginal candidiasis being the most common risk factor followed by diabetes and intra uterine contraceptive device. **Conclusion:** The prevalence of vulvovaginal candidiasis is high, So any women coming with white discharge per vagina or itching, a routine high vaginal swab to be taken. the distribution of cases are more in reproductive age group, among the low socioeconomic group and in less educated category explains the need for awareness about personel hygiene, health and sex education.

KEYWORDS: High Vaginal Swab, Vulvovaginal Candidiasis, Antifungal Agents, White Discharge Per Vagina.

INTRODUCTION

Vulvovaginal candidiasis(VVC) is caused by dimorphic fungi Candida, which is a commensal of the mouth, rectum and vagina.[1] imbalence between this yeast and host can develop and can lead to VVC. it is most commonly caused by Candida albicans, but occasionally can be caused by other candida species like C tropicalis and C glabrata. unlike other forms of candidiasis, VVC is the disease of immunocompetant and is more common in the reproductive age group.[2]

VVC is estimated to affect approximately 75% of the women atleast once a lifetime[2], tells us the need to find out the risk factors. Sexual activity, usage of antibiotics, oral contraceptive pills, pregnancy, intra uterine contraceptive devices are the few risk factors[2] which are most commonly associated. usage of antibiotics is also considered as one of the risk factor as it might alter the normal vaginal flora, such as lactobacilli which plays a major role in protecting against candida infection.[3]

VVC presents with most common symptoms like curdy white discharge, itching or burning at the vulval area. And hence any patient coming with such symptoms a routine high vaginal swab is taken for diagnosing and finding out the risk factors, treating the disease and hence reducing the extent of the disease. The CDC-2015 classifies VVC into uncomplicated and complicated.[4] uncomplicated cases are infrequent with less severity symptoms. complicated accounts for 10-20%[1,4] with frequent recurrence and greater symptom severity.

METHODS

Methods of collection –100 Reproductive age group females attending gynaecological OPD at Navodaya Medical College Hospital and Research Centre

a) Study site: Navodaya medical college Hospital and Research Centre, Raichur.
b) Study design: cross sectional study.

c)**Inclusion criteria**
1)women of reproductive age group
-2)women willing to give consent for the study

d**) Exclusion criteria**
1)Menstruating women
2)women attained menopause
3)women not willing for consent
4)women who are pregnant

METHODOLOGY
After obtaining Institutional Ethical Committee approval, written and informed consent from the patient is taken. It was cross sectional study conducted in gynaecological OPD, Department of Obstetrics and Gynaecology at NMC, Raichur. Those women who are in reproductive age group with vaginal discharge, itching at vulval area and not menstruating, a through history taking, general physical examination and systemic examination is done. on per speculum any discharge or lesions, erosions noted and under all aseptic precautions a high vaginal swab is taken and sent for culture and sensitivity.

Data Collection
All data of patients were collected in approved proformas. Later relevant data for analysis and comparison were recognized into Microsoft excel data sheet format. and the data obtained was processed by SPSS21 version.

RESULTS
In the present study, A high vaginal swab is taken over a 100 reproductive age group females and tested for candidiasis.

Table-1:Prevalence of vulvovaginal candidiasis (n=100).

Culture Results	Total number of patients	Percentage
Positive	35	35%
Negative	65	65%
Total	100	100%

Out of 100 swabs, 35 swabs were positive for culture for candida and 65 were negative. so, the prevalence was found to be 35% in our study(Table-1)

The positive cases are tabulated and distribution with respect to various demographic factors is looked for, with respect to Age, Socioeconomic group(according to modified BG Prasad classification), Education,Parity. And the results are tabulated as follows.

Table 2: Age wise distribution of vulvovaginal candidiasis.

Age group	CANDIDA				Total
	Negative	Negative	Positive	Positive	
19-24	18	27.7%	14	40.0%	32
24-28	23	35.4%	13	37.1%	36
28-32	17	26.2%	6	17.1%	23
32-36	7	10.8%	2	5.7%	9

In table -2, the maximum cases of VVC were observed in the age group of 19-24years(40%) followed by 24-28 years(37.1%),28-32years(17.1%) and the lowest is in the age group of 32-36years(5.7%).the disease trend is declining with increasing age.

Table 3:Distribution of cases according to socioeconomic class.

Socioeconomic class	CANDIDIA				Total
	Negative	Negative	Positive	Positive	
1	2	3.1%	1	2.9%	3
2	6	9.2%	4	11.4%	10
3	22	33.8%	13	37.1%	35
4	26	40.0%	16	45.7%	42
5	9	13.8%	1	2.9%	10
Socio economic class is according to modified BG Prasad classification(2021)					

VVC is most commonly associated with socioeconomic class 4(40%) which is a lower category followed by class 3(33.8%) and it is found least in class 1(3.1%), which is high economic category.

Table 4:Distribution of the cases according to the education status.

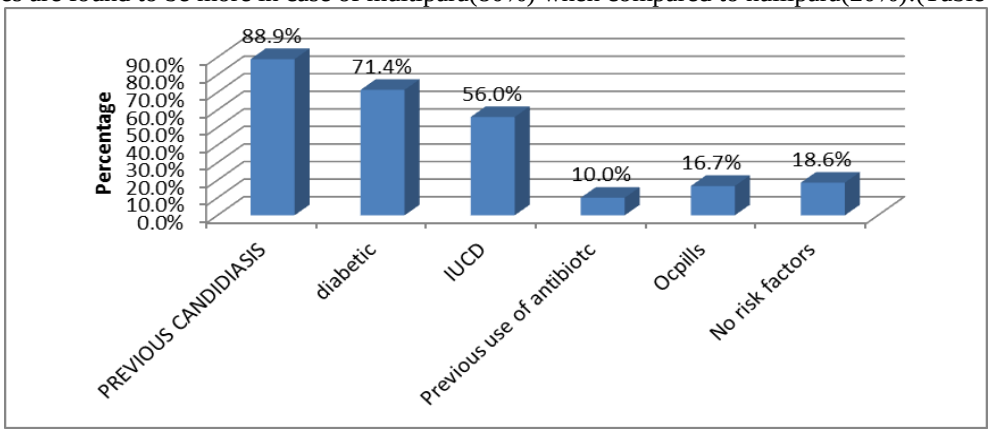
Education	CANDIDIA				Total
	Negative	Negative	Positive	Positive	
(A)Illiterate and lower primary	27	41.5%	29	82.9%	56
(B)Upper primary and above	48	73.8%	6	17.1%	54
Classification according to 4 level school system in India					

The cases are distributed more among the category-A(82.9%) and less in category B(17.1%) and it is showed to be significant with p value 0.001.hence it is more prevalent in less education category.

Table 5: Distribution of the cases according to parity.

Parity	CANDIDIA				Total
	Negative	Negative	Positive	Positive	
multipara	43	66.2%	28	80.0%	71
nullipara	22	33.8%	7	20.0%	29

The VVC cases are found to be more in case of multipara(80%) when compared to nullipara(20%).(Table-5).



Graph-1: Risk factors, Associated with VVC.

The graph 1explains about the most common risk factors associated with vulvovaginal candidiasis. the highest risk factor in the present study is found to be previous history of vaginal candidiasis(88.9%) followed by the second most risk factor diabetic patients(71.4%) and third risk factor found to be IUCD(56%).other risk factors are OC pills(16.7%), previous usage of antibiotic(10%) and 18.6% had no risk factors.

DISCUSSION

In the present study, the prevalence of Vulvovaginal Candidiasis among reproductive age group females is 35%,which correlates with study done by kamya ramesh et al(37.3%)[5] and found slightly lower in meena salvi(31.69%)[6] but in a study done by ugwa EA,in Nigeria the prevalence is found to be high(84.5%).[7] the change in prevalence is changing geographically probably because of the risk factors associated like change in socioeconomic class, education, ethnicity, personel hygiene.this finding suggest that it is difficult to diagnose and determine the prevalence only based on the clinical symptoms, and requires confirmation(culture positivity in our study).

The age wise distribution in our study concluded that it is more common among the age group of 19-24years(40%) which is closely relating with study done by kamya ramesh et al and less in the study done by meena salvi(22.22%),where the most common age group found to be 26-30years(39.08%).but in all the studies the prevalence is decreased above 32 years. comparing the socioeconomic status,most common category is falling into class 4(45.7%) which belongs to lower class and least in upper class of BG Prasad classification. comparing to Education status it is most common in illiterate and lower primary education (82.9%) which is slightly more than the study done by kamya ramesh et al(66.7%) and less in upper primary and above category(17.1%)in our study compared to kamya ramesh et al(29.1%).but over all more prevalent in less educated category,which has got P value 0.001 and statistically significant. parity is also compared in our study where it was more in multipara(80%) and less in primi(20%) which is correlating with study done by Meena salvi(75.43%) and ugwa(77.9%).

COMPARISON OF DEMOGRAPHIC FACTORS

STUDY	PREVALENCE	PARITY
PRESENT STUDY	35%	80%
MEENA SALVI	31.69%	75.43%
EA UGWA	84.5%	77.9%

Comparing the risk factors,previous history of candidiasis found to be the most common risk factor where 8 out of 9 cases are positive (88.9%), which is slightly high when compared to the study done by Meena salvi(66.66%), and is statistically significant with p value <0.05. this explains about the importance of treating the disease adequately when it is diagnosed at first,which is why diagnosing becomes very important.the next most risk factor is diabetes, 5 out of 7 is positive(71.64%) with significant p value of 0.036.which is more compared to Meena salvi(56.52%).so this is one of the preventable risk factor. IUCD in our study showed to be positive among 14(56%) out of 25,which is correlating with the study done by kamya ramesh et al (50.8%) and is slightly more compared to Meena salvi(40%).previous usage of antibiotic and OC pills are not shown to be much statistically significant in our study.

COMPARISON OF RISK FACTORS

STUDY	PREVIOUS HISTORY OF CANDIDIASIS	KNOWN CASE OF DIABETES	IUCD
PRESENT STUDY	88.9%	71.4%	56%
MEENA SALVI	66.66%	56.52%	40%

Based on these findings, it is concluded that Vulvovadinal candidiasis is more prevalent among reproductive age group females, low socio economic status, lower education and previous history of vaginal candidiasis is the most common risk factor followed by diabetes and IUCD.

CONCLUSION

The prevalence of VVC is often difficult to determine because of lack of the specific clinical diagnosis and is to be confirmed by identifying the organism. Hence a routine high vaginal swab is taken for all the reproductive age group females coming with vulval itching or vaginal discharge. based on the various socio demographic factors, risk factors and their strong association with the disease, it is important to take the measures to prevent the disease where ever is possible like personel hygiene, health and sex education, control of diabetes etc and hence improving their quality of life.

ABBREVIATIONS

1)VVC-Vulvovaginal candidiasis
2)IUCD- Intra uterine contraceptive device

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