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Original Research Article

Sociodemographic profile of women with abnormal vaginal flora: a prospective study

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ABSTRACT

Background: The objective of the study was to evaluate the prevalence and association of abnormal vaginal flora with socio demographic profile of patients.
Methods: The present study was undertaken in outpatient's department of obstetrics and gynaecology, government medical college, Patiala. We studied 300 cases with symptoms and signs of vaginal infections in the reproductive age group (15-49 years). After taking detailed history, examination and collecting samples of vaginal discharge, patients were subjected to colposcopy followed by microbiological analysis of vaginal discharge. Recorded data was analysed for prevalence and sociodemographic profile of affected women.
Results: The prevalence rate of vaginal infections was 31% among patients who had reported to us with symptoms and signs of vaginal infections. The most common micro-organism detected was *B. vaginosis* (BV) in 14%, *C. albicans* (C) in 12% and *T. vaginalis* (T) in 3.33%. It was analysed that association is more with 25-34 years age, low education level, lower socioeconomic status, unemployed and with married and multiparous group. White and watery discharge characteristic were found to be more common. Lower abdominal pain, dysuria and backache were the most prevalent co-morbidities associated with vaginal infections.
Conclusions: We concluded that vaginal discharge is a common gynaecological complaint and vaginal infections are an important cause of vaginal discharge thus leading to significant proportion of female morbidity in sexually active age group. Education and women's empowerment can prove powerful methods to solve this feminine issue.

Keywords: Colposcopy, Colposcopic findings, Vaginal infections

INTRODUCTION

Though reproductive tract infections affect both men and women, women tend to suffer disproportionately more than men. The commonest symptom of reproductive tract infection among women is vaginal discharge. It is found to be very common in South Asian women. Almost every fourth woman in gynaecological outpatient department has the complaint of vaginal discharge.[1]

Women are the silent sufferers of this problem. It restricts her domestic and occupational work thus resulting in social and economic problems. It not only affects her routine physical and social activities but also affect mental health and all aspects of a women's life.[2]

The most common infection causing vaginal discharge is non-inflammatory bacterial vaginosis, responsible for 40% to 50% of vaginal infections, followed closely by vulvovaginal candidiasis (20% to 25%) and finally trichomoniasis, which occur less frequently (15% to 20%).[3]

Abnormal vaginal discharge predisposes to significant morbidity in the form of vaginal itching, dyspareunia, emotional irritability, pelvic inflammatory disease,

infertility, cuff cellulitis, urethral syndrome, pregnancy loss, preterm labor, premature rupture of membranes and chorioamnionitis, to enumerate a few.[4]

So vaginitis with symptoms include vaginal discharge, odour, introital itching or irritation along with physical discomforts and socioeconomic implications, it deserves special attention and concern.

By understanding the pathophysiology of these diseases and having an effective approach to their diagnosis, one can institute appropriate antimicrobial therapy to treat these conditions and reduce long-term sequelae.[5]

In this background therefore the purpose of this study was to collect and do the microbiological examination of the vaginal discharge in these patients and to evaluate the prevalence and association of abnormal vaginal flora with socio demographic profile of patients.

METHODS

The present study was carried out prospectively on 300 patients over a period of 1 year (from November 2009 to December 2010) in the department of obstetrics and gynaecology, Rajendera hospital Patiala, Punjab, a tertiary care institute after gaining permission from institutional ethical committee. All females of reproductive age group with complains of discharge per vaginum, itching genitalia, burning sensation and dyspareunia.

Type of sample

The respondents were women of reproductive age group of 15 to 49 years attending the gynae OPD. The sample size was calculated by statistician, using formula with confidence level 90%, error of margin 5 and population size of 3000.

Inclusion criteria

All married women of reproductive age group were included in the study.

Exclusion criteria

Pregnant and lactating women, menstruating and unmarried women, those who have undergone hysterectomy, those who did not give consent were excluded from the study.

Detailed history regarding last menstrual period, menstrual history, obstetric history, last childbirth, contraceptive method used, hormonal supplement, about partner, any medical or surgical history was taken. After explaining procedure to the patient, informed consent was taken for external examination followed by per speculum examination and collecting samples of vaginal discharge, patients were subjected to colposcopy followed by microbiological analysis of vaginal discharge. Findings of colposcopic examination were recorded on a proforma. Recorded data analysed, all observations were compiled in tabulated form and statistically analysed by SPSS 2010 software.

The objective of this study was to evaluate the prevalence and association of abnormal vaginal flora with sociodemographic profile of patients.

RESULTS

During study, a total of 300 patients who had attended the OPD of obstetrics and gynaecology department of government medical college and Rajendera hospital, Patiala in reproductive age group with vaginal infections were studied. In 31% of the women (93 out of total 300 women) single or multiple micro-organisms were detected in the microbiological analysis of sample of collected vaginal discharge.

The maximum number of patients were in the age group of 25-34 years (60%) followed by those in 35-44 years (29%), hence vaginal infections were more common in females of reproductive age groups (Table 1). Majority of patients 284 (94.67%) were from local population. The maximum number of women had education level of secondary (25.67%), higher secondary (18.67%) and middle class (15.33%) with 16% of them were illiterate, hence vaginal infections were more prevalent in women with low education. The 98% of the subjects were found to be unemployed. The majority 58.67% of patients were belonged to low socioeconomic group, 32% in lower middle and 9.33% were of upper middle-class group. Majority of women 94% were married and staying with their husbands. Association with single sexual partner were given by 94% of all married women. Only 6% of women were married but presently not living with their husbands as they were divorced, separated or widowed. According to the above table out of 300 patients, 97% were multiparous and only 3% of them were nulliparous. Majority of patients 209 (69.67%) were in their 2nd half of menstrual cycle when they had the symptoms. As evident from the above table that out of 300 cases studied, 35.67% were having permanent sterilization (in the form of tubectomy), 30.33% were using condoms, 21.33% were not using any methods of contraception, 8.33% were using other conventional methods, 3% were using OCPs and 1.33% were using IUCDs as a method of contraception. So, majority of the subjects were tubectomised, using condoms or not using any contraceptive methods.

The maximum number (36%) of patients reported to us within one month of onset of their symptoms, 34% of them within six months of onset of symptoms and only 12.67% of them reported after one year (Table 2). Out of 300 women studied based on symptoms, 38.67% of women were having vaginal discharge, 22.67% were having backache, 17.67% itching genitalia, 9.33% with burning sensation, 8.33% had foul smell, 7.33% with

pelvic pain, 7.33% with low abdominal pain, 2.67% with frequency of micturition and 2.33% with dysuria. So, majority of women had symptoms of vaginal discharge, backache and itching genitalia, so on statistical analysis results were found to be highly significant. Majority 58.62% of women had watery vaginal discharge, 21.55% had cheesy, 12.07% had mucoid and 9% of women had thick creamy vaginal discharge. So, on statistical analysis results were found to be highly significant. 54.31% patients had white coloured, 25.86% had yellow coloured and 19.83% had grey vaginal discharge. So maximum number of women had white coloured discharge per vaginum. According to per speculum findings, normal looking cervix seen in 86.33% patients, inflamed/congested cervix in 7%, erosion in 2.33%, cervicitis in 2.33%, keratosis in 1.33% and cervical polyp in 0.67% of the women, so majority of the women were having normal per speculum findings. On the basis of micro-organisms present in analysed samples of the vaginal discharge, the normal vaginal flora (where no abnormal microbiological agent was detected), seen in 69% of women, BV in 14%, C in 12%, T in 3.33%, (BV+T) in 1.33% and (BV+C) in 0.33% of the women. So, majority of the women were having normal vaginal flora.

Table 1: Sociodemographic profile of patients under study.

Socio-demographic variables	Number with vaginal discharge N=93 (% prevalence)	Total number screened N=300 (%)	Chi square, p value
Age group (in years)			
15-24	27	9	243.120, <0.001
25-34	180	60	
35-44	87	29	
≥45	6	2	
Local/migrant population			
Local	284	94.67	239.413, <0.001
Migrant	16	5.33	
Education level			
Illiterate	48	16	23.8, 0.002
Primary	41	13.67	
Middle	46	15.33	
Secondary	77	25.67	
Higher secondary	56	18.67	
Graduate and above	32	10.67	
Occupation			
Employed	6	2	276.48, <0.001
Unemployed	294	98	
Socioeconomic status			
Low	176	58.67	109.76, <0.001
Lower middle	96	32	
Upper middle	28	9.33	
Low	176	58.67	
Marital status and number of partners			
Married and living with husband	282	94	232.313, <0.001
Married and not living with husband	18	6	
Parity			
Nulliparous	9	3	265.08, <0.001
Multiparous	291	97	
Menstrual cycle			
1st half	91	30.33	46.413, <0.001
2nd half	209	69.67	
Contraceptive methods used			
IUCDs	4	1.33	190.96, 0.001
OCPs	9	3	
Tubectomy	107	35.67	
Condoms	91	30.33	
No contraceptive methods	64	21.33	
Other conventional methods	25	8.33	

Table 2: Symptoms, signs and microbiological profile of patients under study.

Symptoms of patients	Number with vaginal discharge N=93 (% prevalence)	Total number screened N=300 (%)	Chi square, p value
Duration of symptoms			
<15 days	1	0.33	135.23, <0.001
≥15 days-1 month	108	36	
>1-6 months	102	34	
>6 months-1 year	51	17	
>1 year	38	12.67	
Symptoms			
Vaginal discharge	116	38.67	272.82, <0.001
Foul smell	25	8.33	
Itching genitalia	53	17.67	
Burning	28	9.33	
Frequency	8	2.67	
Dysuria	8	2.67	
Pelvic pain	22	7.33	
Lower abdominal pain	22	7.33	
Backache	68	22.67	
Type of vaginal discharge			
Watery	68	58.62	74.552, <0.001
Cheesy	25	21.55	
Mucoid	14	12.07	
Creamy	9	7.76	
Color of vaginal discharge			
White	63	54.31	23.60, <0.001
Yellow	30	25.86	
Grey	23	19.83	
Per speculum findings			
Normal	259	86.33	1052.8, <0.001
Inflamed cervix/vagina	21	7	
Erosion	7	2.33	
Cervicitis	7	2.33	
Keratosis/leukoplakia	4	1.33	
Cervical polyp	2	0.67	
Bleed on touch	0	0	
Genital ulcer	0	0	
Genital wart	0	0	
Microbiological analysis of vaginal discharge			
Normal vaginal flora	207	69	620.55, <0.001
BV	42	14	
C	36	12	
T	10	3.33	
BV+T	4	1.33	
BV+C	1	0.33	

DISCUSSION

Vaginitis is a common medical problem in women that is associated with substantial discomfort, significant morbidity and hence frequent medical visits. These infections if not treated or ignored could debilitate the patients and could become a source of infection for the neonate especially in case of women belonging to the childbearing age.[6]

Etiologies associated with vaginitis are multiple and establishing the etiology helps in successful management and prevention of complications.[7]

In our study the vaginal infections with one or the other organism detected in 31% of the patients. Various studies estimate the prevalence rates range from 2.5% to 48%.[8]

The maximum number of patients were in the age group of 25-34 years (60%) followed by those in 35-44 years (29%), hence vaginal infections were more common in females of reproductive age groups (Table 1). Majority of patients 284 (94.67%) were from local population. The maximum number of women had education level of secondary (25.67%), higher secondary (18.67%) and middle class (15.33%) with 16% of them were illiterate, hence vaginal infections were more prevalent in women with low education. The 98% of the subjects were found to be unemployed. The majority 58.67% of patients were belonged to low socioeconomic group, 32% in lower middle and 9.33% were of upper middle-class group. Majority of women 94% were married and staying with their husbands. All these findings coincide with the findings of Sharma et al. Unhygienic practices and illiteracy are associate risk factors in our study associated with vulvovaginitis.[9] Vulvovaginitis is most observed in multiparous women than in nulliparous and primiparous women. This was observed in our study which coincides with the findings of Nurat et al.[10]

The most common presentation among women with vaginal infections (38.67%) in our study was vaginal discharge (Table 2). The other main complaints were backache (22.67%), itching genitalia (17.67%) and lower abdominal pain (7.33%). Sharma et al reported 51.9% of patients with vaginal discharge. Msuya et al reported lower abdominal pain in 47% and itching genitalia in 27% of patients. Devi et al reported lower abdominal pain in 4.9%, backache in 3.5% and itching genitalia in 4% of patients.[11-13]

By grossly observing the type of vaginal discharge while doing per speculum examination, we can have fairly good idea about causative organisms as many of organisms produce typical discharge (Table 2). Frothy discharge is characteristic of trichomonas infection especially when associated with the presence of strawberry spots on vagina and marked erythema and edema. Curdy white discharge is typical of candidiasis often associated with intense pruritus, soreness and edema of vulva. In bacterial vaginosis, vaginal discharge has typical fishy odour with minimal or no vulvar irritation.[13-15]

While studying the patients with vaginal infections, it was found that *B. vaginosis*, *Candida* and *Trichomonas* were the leading cause of vaginal infections either singly or in combination (Table 2). *B. vaginosis* was the commonest organism isolated with prevalence rate of 14%, prevalence rate of *Candida* was found to be 12% and *T. vaginalis* was detected in 3.3% cases with vaginal discharge in present study. Bhalla et al on women in reproductive age group, the most common infection was bacterial vaginosis (32.8%), followed by candidiasis (16.9%); *T. vaginalis* was diagnosed in 2.8% cases.[13] Patel et al reported a lower prevalence of these infections in his study, 26.3% cases (from a population of 2494 women) were infected by endogenous infections (bacterial vaginosis 17.8%; candidiasis 8.5%).[16]

Table 2 shows that out of 93 patients in which infections were detected only 5 (1.66%) were the polymicrobial infection and in the remaining one or another organism was present singly. Polymicrobial/mixed infection reported by Nigam et al in 4% and by Sobel et al who reported that although data remain sparse, mixed vaginitis occurs rarely (<5%). Approximately 20%-30% of women with bacterial vaginosis are co-infected with candida. Coexistence of bacterial vaginosis and trichomonas vaginalis is even more common, with co-infection rates of 60%-80%.[17,18]

Though sample size was not so big in the present study, but several such studies has been done earlier and sociodemographic profile may vary place to place due to local factors. Community awareness regarding RTI/STI and easy access for diagnosis and treatment should be encouraged for these strata of society.

CONCLUSION

Bacterial vaginosis was the most common single infection followed by candidiasis and trichomonas vaginalis. There were also the cases of mixed infections that were diagnosed in our study. The present study was conducted with to understand the sociodemographic factors and causative organisms associated with abnormal vaginal flora among the women attending a tertiary care hospital, which help in early intervention and treatment of these women and can also prevent future complications and morbidities. Awareness among females about the symptoms and consequences of RTI/STI through information, education and behaviour changes should also be encouraged.

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