The Frequency of causes of vaginitis with Pap smear test in patients specially based on age as an effective agent on genetic factors

Jamshid Ayatollahi [1], Masih Ghahiri [2], Mahdie Hamidfar [1], Seyed Hossein Shahcheraghi [1, *]

[1]Infectious Diseases Research Center, Shahid Sadoughi Hospital, Shahid Sadoughi University of Medical Sciences, Yazd, Iran; [2]Medical student, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

Corresponding author: *Seyed Hossein Shahcheraghi. Infectious Diseases Research Center, Shahid Sadoughi Hospital, Shahid Sadoughi University of Medical Sciences, Yazd, Iran. Email: shahcheraghih@gmail.com*

ABSTRACT

The present study was conducted to evaluate the frequency of vaginitis based on Pap smear test in patients referred to the gynecology clinic of Milad and Sepahan hospitals in Isfahan. This study was descriptive-cross-sectional. The sampling method was census and all cases referred to the gynecology clinic of Sepahan and Milad hospitals in Isfahan for Pap smear. Data collection method was a pre-prepared questionnaire whose variables included: age (effective agent on genetic factors), clinical manifestations of the disease, level of education and type of vaginitis. Among our patients, 142 patients (70 %) had bacterial vaginitis, 40 patients (19.7 %) had candida and 21 patients (10.3 %) had *Trichomonas vaginalis*. According to the results of the study, no statistically significant difference was found between the frequency distribution of vaginitis by age, discharge, pruritus, frequency of urination, heartburn and education level. The results of this study showed a high prevalence of bacterial vaginitis compared to other types of vaginitis.

Keywords: Bacterial vaginitis, Pap smear, Candida, *Trichomonas vaginalis*, genetic factors

INTRODUCTION

Vaginitis is one of the most serious clinical medical conditions, and is the most commonly mentioned cause for referrals to gynecologists and physicians. Three key reasons of vaginitis are bacterial agents, candidiasis, and finally trichomoniasis [1,2].

Over the previous decade, the prevalence of candidiasis has risen significantly, with the proportion of *non-albicans* variants increasing. [3]. *Candida africana* has been reported mainly from various places as a causal factor of VulvoVaginal Candidiasis (VVC), which is probably to be mistakenly identified as a typical candida. It accounts for one third of all reports of vulvovaginitis in sexually active women, and 70 % of women report having vulvovaginitis caused by candida at some stages in their lives [4]. Recurring candidal vulvovaginitis is a key problem in almost 8 % of women. Among pathogens, *Candida albicans* is now the most prevalent pathogen (90 %) [5-7].

Trichomoniasis is also a Sexually Transmitted Disease (STD) both women and men. It is created by *Trichomonas vaginalis*- a motile agent that exists in the female inferior genitourinary tract and also the men organs including urethra and prostate , leads to vaginitis or urethritis diseases, and is powerfully epidemiologically related to other sexually diseases, including Human Immunodeficiency Virus (HIV) [8,9].

Bacterial Vaginosis (BV) is a vaginal condition that happens either symptomatically or asymptomatically after an inconsistency in the vagina area between *Lactobacillus* generating H_2O_2 and

Gardnerella vaginalis [10]. Overall, the most usual anaerobic bacteria that are involved in BV include *Gardnerella vaginalis*, *Bacteroides* spp, *Prevotella* and *Peptostreptococcus*. BV is a public difficult in the generative system of women in reproductive age groups in the world and is also related to many infections and different properties including HIV, STDs, and disease of pelvic inflammation [11]. BV almost always reappears after therapy in approximately 50 % of women returning to side effects during 12 months. Several risk agents may be related to BV such as culture and race, position of poor socio economic, age, smoking, several sex partners, and finally treatment by antibiotics [12,13].

The Pap smear is applied usually as cytological investigating test for delete of precancerous effects [14]. It is also as an indicative examination for vaginitis disease particularly for its bacterial form [15,16].

The aim of the current study was to evaluate the frequency of vaginitis based on Pap smear test in patients referred to the gynecology clinics of Milad and Sepahan hospitals in Isfahan, Iran.

MATERIALS AND METHODS

The present study was a descriptive cross-sectional study and was performed on all

16

women who referred to the gynecology clinic of Sepahan and Milad hospitals in Isfahan in 2019 for Pap smear for infectious vaginitis. Our university ethics committee confirmed this study.

Limitations of the study included incompleteness of some files, lack of access to patients to complete the file and lack of cooperation of some patients.

All ethical considerations include: obtaining informed written consent from patients to participate in the study, optional participation of patients samples in the research and explaining all the objectives of the research to patients, assuring patients about the confidentiality of information, observing the principles of ethics in writing materials and using books and scientific resources, as well as not imposing additional costs on patients were considered.

The sampling method was census. Patients information were recorded by reviewing their files. The data collection tool in this study was a questionnaire designed by the researcher whose information included: age, clinical manifestations of the disease (discharge, itching, erythema based on examination findings, dysuria and frequent urination) and type of vaginitis (Candida, Trichomonas, Bacterial).

The samples were from the cervix or vagina. Samples of the liquid medium were prepared manually or with a machine and stained with Papanicolaou and then examined under a microscope.

Diagnosis of candida by observation of *pseudohyphae* and blastospores and detection of bacterial agents by observation of Clue cell and also examination of bacterial flora of the sample and diagnosis of Trichomonas was based on observation of parasite.

After collection, the data were entered into SPSS software version 22 and the continuous data were expressed as mean±standard deviation (SD) and discrete data as percentage. Chi-Square and T-test were also used to analyze the data. In all cases, $p<0.05$ was considered as a significant level.

RESULTS

Among the 803 women examined for Pap smear, 203 (25.3 %) had vaginitis. The study was performed on these 203 patients. The mean age (effective agent on genetic factors) of the patients was 31.06±7.13 years with a minimum age of 18 and a maximum age of 49 years.

142 patients (70 %) had bacterial vaginitis, 40 patients (19.7 %) had candida and 21 patients (10.3 %) had trichomonas. Also 118 patients (58.1 %) had discharge, 100 patients

17

(49.3 %) had itch, 81 patients (39.9 %) had erythema, 75 patients (36.9 %) had frequent urination and 86 patients (42.4 %) had dysuria.

The frequency distribution of age in the studied patients showed that 97 patients (47.8 %) were in the age group of 18-29 years, 78

(38.4 %) in the age group of 30-39 years and 28 (13.8 %) in the age group of 40-49 years. Most patients, 84 (41.4 %), had a diploma.

There was no statistically significant difference between the frequency of vaginitis types and clinical symptoms (Table 1).

Table 1. Association between the vaginitis types frequency and clinical symptoms

Clinical Symptoms		Vaginitis type			P-value
		Bacterial	**Candida**	**Trichomonas**	
		Number	Number	Number	
		(Percent %)	(Percent %)	(Percent %)	
Discharge	Yes	81 (57%)	24 (60%)	13 (61.9%)	
					0.883
	No	61 (43%)	16 (40%)	8 (38.1%)	
Itch	Yes	71 (50%)	21 (52.5%)	8 (38.1%)	
	No	71 (50%)	19 (47.5%)	13 (61.9%)	0.536
Erythema	Yes	59 (41.5%)	16 (40%)	6 (28.6%)	
	No	83 (58.5%)	24 (60%)	15 (71.4%)	0.526
Frequent urination	Yes	49 (34.5%)	14 (35%)	12 (57.1%)	
					0.128
	No	93 (65.5%)	26 (65%)	9 (42.9%)	
Dysuria	Yes	55 (38.7%)	20 (50%)	11 (52.4%)	
					0.275
	No	87 (61.3%)	20 (50%)	10 (47.6%)	

18

Table 2. Association between the vaginitis types and the different age groups

	Vaginitis type			Total
	Bacterial Number (Percent %)	**Candida** Number (Percent %)	**Trichomonas** Number (Percent %)	
18-29	66 (46.5 %)	18 (45 %)	13 (61.9 %)	97 (47.8 %)
30-39	54 (38 %)	18 (45 %)	6 (28.6 %)	78 (38.4 %)
40-49	22 (15.5 %)	4 (10 %)	2 (9.5 %)	28 (13.8 %)
Total	142 (100 %)	40 (100 %)	21 (100 %)	203 (100 %)
P-value	0.563			

19

Table 3. Association between the vaginitis types and education level

Education level of patients	Vaginitis type			Total
	Bacterial Number (Percent %)	**Candida** Number (Percent %)	**Trichomonas** Number (Percent %)	
Illiterate	14 (9.9 %)	3 (7.5 %)	1 (4.8 %)	18 (8.9 %)
Primary education	25 (17.6 %)	7 (17.5 %)	4 (19 %)	36 (17.7 %)
Diploma	56 (39.4 %)	14 (35 %)	14 (66.7 %)	84 (41.4 %)
Bachelor's degree and higher	47 (33.1 %)	16 (40 %)	2 (9.5 %)	65 (32 %)
Total	142 (100 %)	40 (100 %)	21 (100 %)	203 (100 %)
P-value	0.197			

Also, there was no statistically significant difference between the frequency distribution of vaginitis types and the age of the patients (0.563) (Table 2).

Finally, there was no statistically significant difference between the frequency distribution of vaginitis types and education level (0.197) (Table 3).

DISCUSSION

The present study showed that the prevalence of vaginitis among women referred for Pap smear was 25.3 %. The prevalence of vaginitis has varied in different studies.

In the study of Danesh *et al.,* it was found that the overall prevalence of vaginitis was 32 % [17]. In Ziaei study, the prevalence of vaginitis was also 10.42 % [18]. Differences in the prevalence of vaginitis

20

and its types can be attributed to differences in geographical area, sexual behaviors, culture and customs of those areas, as well as differences in the type and population of participants in the study and the diagnosis method.

In present study, the mean age was 31.06±7.13 years with a minimum and maximum age of 18 and 49 years, respectively.

In a study in Yazd, out of 189 patients with vaginitis, 68 (36 %) between 30-39 years, 54 (28 %) between 40-49 years and 43 (22.8 %) between 20-29 years and 24 cases (12.7 %) were over 50 years old [17]. In a study conducted by Kalantari *et al*. in 2014, the highest percentage of bacterial vaginitis infection was in women aged 20-30 years [19]. The present study also showed that the frequency of vaginitis is more prevalent in the age group of 18-29 years, which its main reason can be women sexual activity in this age group.

The higher prevalence of bacterial agents in the present study indicates that these agents are the main causes of vaginitis.

In the study of Danesh *et al.,* the prevalence of bacterial vaginitis was 29 %, candida 4.25 % and Trichomonas 0.34 % [17]. In another study, 5.8 % were diagnosed with candidal vaginitis and 12.1 % with bacterial vaginitis [20]. In Ziaei study, the incidence of Trichomonas was 7.3 %, candida 46.6 % and bacterial agents 46.1 % [18]. In general, bacterial vaginitis is the most common type of vaginitis in women.

According to the results of the present study, no statistically significant difference was found between the frequency distribution of vaginitis based on age, clinical symptoms and education level.

In the Rezaei study, there was no statistically significant relationship between age, marital status, occupation and occupation of the spouse with vaginitis, but a significant relationship was observed between the level of education and bacterial vaginitis [20]. In Ziaei study, there was a statistically significant difference between age and the causes of trichomoniasis and candidiasis vaginitis [18].

CONCLUSION

Bacterial infections play an important role in women vaginitis and bacterial vaginitis is the most common type of vaginitis in women. Also, according to the results of the study, none of the variables of age, clinical symptoms and level of education

were effective on the frequency of vaginitis in women. Therefore, further studies to identify risk factors affecting the incidence of bacterial vaginitis and increase women awareness, to reduce the prevalence of this disease seems necessary. Also, increasing public awareness about the dangers and consequences of vaginitis, its ways of transmission and prevention of sexually transmitted diseases can play an important role in reducing treatment costs and also public health improvement.

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