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Prevalence of Abnormal Pap Smears among Sample of Iraqi Women Attending Al Elweiya Cervical Screening Unit in Baghdad

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ABSTRACT

Introduction: Cervical cancer is the13th leading cause of female cancers in Iraq. Pap smear is a simple, cost-effective screening test to detect abnormalities that may lead to cancer. The current study aims to determine the prevalence of abnormal pap smears and to find the association between socio-demographic risk factors and abnormal pap smear results.

Patients and methods: A cross sectional study was conducted in Al Elweiya Teaching Hospital in Baghdad for a period of nine months; from first of January till the first of October 2019 where all female patients visiting the cervical screening unit during the study period were included, total sample size was(401). Smears were collected by Ayre's spatula and slides were evaluated at the cytology lab according to Bethesda Scoring System. Chi square test used to illustrate associations between pap smear results and socio-demographic features. Binary logistic regression was applied for the significant variables. In all statistical analyses, a P value < 0.05 was considered significant.

Results: More than two third of the sample (271;67.7%) had normal pap smear results. While the remaining (130;32.3%) had abnormal pap smears. Vaginal discharge (38.4%), post coital bleeding (18.5%) and irregular bleeding (13.2%) were the main patients complaints. Only one case was diagnosed with carcinoma of cervix. Women ≥40 years of age and smokers showed a highly significant association with abnormal pap smears in which(p=0.002) for both. Being ≥40 years were two times more likely to have abnormal pap smears [p=0.002; OR=2.006; CI 95%(1.29-3.09)], while being smokers increased the odds of having abnormal pap smears three times [p=0.001; OR=3.063; CI 95% (1.53-6.10)]

Conclusions and Recommendations: About one third of the sample size had abnormal pap smear results, Women ≥40 years and smokers showed a highly significant association with abnormal pap smear results. There is a need for activation and implementation of an effective cervical cancer screening program and increase the awareness and health promotion about its risk factors.

Keywords: Cervical cancer; Pap smear; Screening; Prevalence.

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INTRODUCTION

Cervical cancer is responsible for more than 7% of all cancer-related deaths in women worldwide. Most cases of cervical cancer (85%) occur in developing countries that have ineffective screening programs. [1] Globally, cervical cancer is the second most prevalent cancer among all populations and third most common type of cancer after breast and lung cancers among women. [2] In Iraq about 244 new cervical cancer cases are diagnosed annually (estimates for 2018), Cervical cancer ranks as the13th leading cause of female cancer. About 159 cervical cancer deaths occur annually (estimates for 2018), Cervical cancer ranks as the 12th leading cause of female cancer deaths. [3] Precancerous cervical lesions, called cervical intraepithelial neoplasias (CINs), and cervical carcinomas are strongly associated with sexually transmitted high-risk human papilloma virus (HPV) infection, which causes more than 99% of cervical cancers. Types 16 and 18 are high-risk strains that cause 70% of all cervical cancers. [1] Etiology of cervical cancer is complex including several factors such as age; more than half of women with cervical cancer are between the ages of 30 and 55. Smoking is another considerable risk factor; it is estimated that smokers have approximately double the risk of developing cervical cancer than nonsmokers. Socio-economic status, history of abnormal Papanicolaou (Pap) smears, venereal diseases and inflammatory changes within the vagina or vulva, number of previous pregnancies, age at first intercourse, and number of sexual partners are also considered risk factors for cervical cancer. [4]

Cervical cancer is a preventable disease due to the long pre-invasive stage. Early detection and appropriate treatment are possible if robust screening is implemented. [5] Cytological screenings for precancerous lesions and cancer of the cervix and subsequent treatments of these lesions have been effective in reducing the incidence and mortality of cervical cancer. Pap smear is relatively a simple, cost-effective, noninvasive screening test that is carried out in conjunction with gynecologic examination at the primary health care level to detect abnormalities that might lead to cervical cancer. The pap test, when combined with a regular program of screening and appropriate follow-up can reduce cervical cancer deaths by up to 80%. [6]

The aims of this study:

1. To determine the prevalence of abnormal pap smear results among sample of Iraqi women.

2. To find association between some socio-demographic risk factors and abnormal pap smear results.

PATIENTS AND METHODS

This is a cross sectional study was conducted in Al Elweiya Teaching Hospital in Baghdad for a period of nine months; from first of January till the first of October 2019, the study sample were female patients visiting the cervical screening unit. All cases during the time period were included in the study, those who were lost to follow up were excluded. Thus the total sample size reached to 401 cases. The study was ethically approved by Council of Arab Board for Health Specializations and Al Elweiya Teaching Hospital. The requested information was collected from patients' records which included: patients' age, marital status, occupation, parity, use of hormonal contraception, smoking history, chief complaint and family history of cancer. Patients were examined and the result of speculum examination were noted.

All pap smear samples were sent for cytology reporting; pap smear results which adopt descriptive diagnoses, benign cellular changes including infections; no specific inflammation, epithelial cell abnormalities including atypical squamous cells of undetermined significance(ASCUS) and atypical glandular cells of undetermined significance(AGUS) and various grades of squamous intraepithelial lesion(SIL). All cytological smears were collected by the Ayre's spatula and slides were evaluated at the cytology lab. Cytological diagnoses were reached according to the Bethesda Scoring System. [6] Data were summarized and presented in frequencies and percentages, chi square test was used to illustrate associations between normal and abnormal pap smear results and socio-demographic features. Binary logistic regression was applied for the significant variables. In all statistical analyses, a P value < 0.05 was considered significant.

RESULTS

The average age of the studied sample was (39.8±10.7) ranging from 20 to 75 years. Table (1) demonstrate the characteristic features of the studied sample. Majority were married, housewives and not smokers. More than half 256 (63.8%) of the sample used combined hormonal contraception.

Table 1: Distribution of the sample according to socio-demographic features, (n=401)

Socio-demographic features		Frequency	Percentage
Age (in years)	<40	195	48.6
	≥40	206	51.4
Marital Status	Married	352	87.8
	Widow	29	7.2
	Divorced	20	5.0
Occupation	Employed	57	14.2
	Housewife	344	85.8
Smoking	Yes	38	9.5
	No	363	90.5
Used combined hormonal contraception	Yes	256	63.8
	No	145	36.2
Parity	Nulliparous	19	4.7
	1	15	3.7
	2 and more	367	91.5
Family History of Cancers*	Yes	155	38.7
	No	246	61.3
Total		401	100

*Cancers include: cervix, breast, ovary, uterine.

Vaginal discharge (38.4%), post coital bleeding (18.5%) and irregular bleeding (13.2%) were the main patients complaints as shown in table(2).

Table 2: The distribution of patients according to their chief complaint. N=401

Chief complaint	Frequency	percentage
Asymptomatic	18	4.5
Vaginal discharges	154	38.4
Pain (abdominal/Pelvic)	50	12.5
Masses, polyps and/or warts	23	5.7
Irregular bleeding	53	13.2
post-menopausal bleeding	29	7.2
post coital bleeding	74	18.5
Total	401	100

More than two third of the sample (271; 67.7%) had normal pap smear results. While the remaining (130; 32.3%) had abnormal pap smears as shown in figure (1) and table (3).

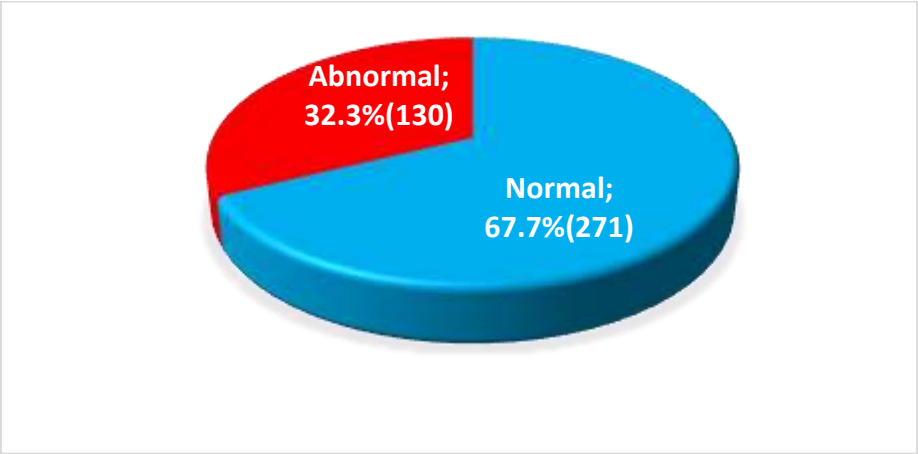

Figure 1: The results for pap smears of the studied sample, N=401

Table 3: Pap smears' results of the studied sample in details, N=401

Result		Frequency	Percentage
Normal	negative for intraepithelial lesion or malignancy (NILM)	131	32.7
	Inflammation	140	35
Abnormal	ASCUS	49	12.2
	LSIL	62	15.5
	HSIL	15	3.7
	AGC-NOS	3	0.7
	Squamous cell carcinoma	1	0.2
Total		401	100

ASCUS: Atypical squamous cell of undetermined significance; LSIL: Low-grade squamous intraepithelial lesion; HSIL: High-grade intraepithelial lesion; AGC-NOS: Atypical glandular cells not otherwise specified.

Women 40 years of age or older and smokers showed a highly significant association with abnormal pap smear results; while no significant association was seen among pap smear results and other variables as shown in table (4).

Table 4: The distribution of the studied sample in relation to their pap smear results by socio-demographic features.

Socio-demographic characteristics		Pap smear		X^2	P value
		Normal	Abnormal		
Age	< 40	146(74.9)	49(25.1)	9.209	0.002
	≥ 40	125(60.7)	81(39.3)		
Marital status	Married	242(68.8)	110(31.3)	1.797	0.180
	Widow/Separated	29(59.2)	20(40.8)		
Occupation	Housewife	236(68.6)	108(31.4)	1.157	0.282
	Employed	35(61.4)	22(38.6)		
Smoker	Yes	17(44.7)	21(55.3)	9.990	0.002
	No	254(70.0)	109(30.0)		
Combined hormonal contraception	Yes	179(69.9)	77(30.1)	1.771	0.183
	No	92(63.4)	53(36.6)		
Parity	Nulliparous	14(73.7)	5(26.3)	0.339	0.560
	1 and more	257(67.3)	125(32.7)		
Family history of cancer	No	163(66.3)	83(33.7)	0.507	0.477
	Yes	108(69.7)	47(30.3)		
Chief complaint	Asymptomatic	13(72.2)	5(27.8)	9.931	0.128
	Vaginal discharges	104(67.5)	50(32.5)		

	Pain	42(84.0)	8(16.0)
	Masses/ polyps/warts	13(56.5)	10(43.5)
	Post coital bleeding	50(67.6)	24(32.4)
	Post-menopausal bleeding	17(58.6)	12(41.4)
	Irregular bleeding	32(60.4)	21(39.6)
Total		271(100%)	130(32.4%)

Applying binary logistic regression analysis for variables that showed significant association with abnormal pap smears; [X^2(19.407, N = 401) = 485.843, p < 0.001], showed that being 40 years of age or older were two times more likely to have abnormal pap smears [p=0.002; OR=2.006; CI 95%(1.29-3.09)], while being smokers increased the odds of having abnormal pap smears three times [p=0.001; OR=3.063; CI 95% (1.53-6.10)] as shown in table(5).

Table 5: Binary logistic regression analysis of the associated variables for abnormal pap smear results among the studied sample.

Variables	B	Wald	P value	OR	95% C.I. for OR	
					Lower	Upper
Age	0.696	9.821	0.002	2.006	1.298	3.099
Smoking	1.119	10.105	0.001	3.063	1.536	6.106
Constant	-1.231-	49.635	0.000	0.292		

DISCUSSION

The current prevalence of abnormal pap smear results among sample of Iraqi women was (32.3%), this high percentage was also found in a study done in Baghdad 2019 which was shown (23.3%) had abnormal intraepithelial lesion and with another study in Baghdad 2014 which was shown that 50% of studied sample were had abnormal pap smear results [7,8] A difference that might be related to the sample size and studies methodologies. Our result were also higher than that reported in Saudi Arabia 2011 (4.95%) and Jordan 2017 (3.8%) [9,10]. This higher prevalence of abnormal pap smears might be related to that most women in the study presented with signs and symptoms, the absence of screening program for cervical cancer in Iraq might have led to lower awareness about this cancer.

The majority of abnormal pap smear results in this study were (ASCUS 12.2%, LSIL 15.5%, HSIL 3.7%) which need further follow up and intervention, this results nearly similar to two studies done in Baghdad 2019 and 2014 (ASCUS 11.2%, LSIL 10.1%, HSIL 1.5%) and (ASCUS 10%, LSIL 19%, HSIL 20%) respectively[7,8], yet it disagree with results from Saudi Arabia 2011(ASCUS 2.99%, LSIL 0.09%, HSIL 0.68%) and India 2017(ASCUS 2.90%, LSIL 5.09%, HSIL 0.48%).[9,5]

Only one case (0.2%) was diagnosed with carcinoma of cervix for the study period agreeing with results from Baghdad 2019(0.4%) and Saudi Arabia 2011(0.34%).[7,9] The low prevalence of cervical cancer is probably a reflection of sexual behavior governed by religious and cultural values. In Iraq, according to Islamic rules, sexual activity typically starts only after marriage, and the cultural and religious traditions of our conservative society restrict the likelihood of multiple sexual partners. However other practices such as male circumcision, which is well established in our country, may play an important role as well.

In this study women 40 years of age or older showed a highly significant association with abnormal pap smear results; and this results agree with study done in Baghdad 2019 which was found that the mean age of patients with ASCUS (40.5±10.8) , LISL (38.4±11.3), HISL (44.9±12.95) and with a study done in Kirkuk 2012 which was found that the mean age of abnormal pap smear results 47 years, and also agreeing with a study done in India 2018 which was shown that most of abnormal cytology was detected in patients in the age group between 40 and 60 years. [7,11,5] The binary logistic regression analysis showed significant association of age with abnormal pap smears, being 40 years of age or older were two times more likely to have abnormal pap smears. The predominance of high-grade cytological results among older women could be explained by the fact that cervical cancer peaks among women in their late 40s and 50s. [12]

Smoking had a significant effect on abnormal pap smears , being smokers increased the odds of having abnormal pap smears three times this finding agree with Guarisi R. et al a study done in Brazil and Argentina 2009 which found that smoking contributes additional risk for developing high-grade CIN in women with ASC or LSIL cytology but normal colposcopy[13], Also agree with Scholes D. et al a study done in USA 1999 which found that smoking predisposes to development of a spectrum of cervical abnormalities.[14]Yet the current finding is discordant with results from Saudi Arabia 2018 which found that smoking habits had no significant association with the appearance of abnormal pap smears but found that passive smoking was statistically significant with abnormal pap smear results.[15] Women who smoke are about twice as likely as non-smokers to get cervical cancer. Tobacco by-products have been found in the cervical mucus of women who smoke. Researchers believe that these substances damage the DNA of cervix cells and may contribute to the development of cervical cancer. Smoking also makes the immune system less effective in fighting HPV infections. [16]

None of the studied socio-demographic factors like marital status, occupation, parity, use of combined hormonal contraception, chief complaint and family history of cancer were found to be statistically significant with abnormal pap smear results and this agree with study done in Saudi Arabia

2018.[15] This results disagree with a study done in Baghdad 2016 which was found that high parity, use of hormonal contraception and chief complaint (postcoital bleeding , vaginal discharge) were significant association with pap smear abnormalities and premalignant changes in the cervix.[6]

CONCLUSIONS AND RECOMMENDATIONS

About one third of the sample size had abnormal pap smear results, Women ≥40 years and smokers showed a highly significant association with abnormal pap smear results. These results giving a clue to the need for activation and implementation of an effective cervical cancer screening program and to increase the awareness and health promotion about its risk factors and continuous follow up for cases with abnormal pap smear results.

CONFLICT OF INTEREST

None

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