THE ROLE OF CERVICAL SCREENING IN EARLY DETECTION OF CERVICAL LESIONS

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Abstract

Background: Papanicolaou (pap) smear is the most effective cancer prevention screening tool ever devised.

Objective: To study the prevalence of cervical inflammatory, premalignant and malignant lesions and to identify factors related to the prevalence of those lesions.

Methods: A cross sectional study was conducted over 3 months period on 302 women attending a Gynecology and Obstetrics outpatient clinic. A detailed history was recruited and pap smear was performed after taking patient consent.

Results: Among the total of 300 satisfactory pap smears, pathological changes were found in 209 (67.7%) while the rest 91 (30.3%) did not show any abnormality. More than one type of pathology were found in some cervical smears. The prevalence of different pathological changes revealed by cytological diagnosis of 302 pap smear were: Non-specific cervicitis 188(62.7%), Squamous metaplasia 23 (7.7%), Moniliasis 11 (3.7%), Squamous dysplasia (mild and moderate) 7 (2.3%), trichomouns vaginalis 4(1.3%), HPV infection 4(1.3%), IUCD changes 4(1.3%) and 2 smears (0.7%) were unsatisfactory and excluded from the study.

Conclusions: The prevalence of pre-carcerous and carcerous cervical lesions are low and comparable to other studies. Low educational level and improper genital and sexual hygienic practices are associated with inflammatory smears, and they are common findings among women with pre-carcerous lesions. History of prior genital infection, using contraception, abortion and curettage are associated with cervicitis.

Keywords: pap smear, cervical cancer, cervicitis

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Introduction

Cervical cancer is the second or third most common neoplastic disease affecting women[1]. In Iraq cervical cancer ranks the tenth within the leading cancers for females[2]. The Pap test is a screening tool that identifies women likely to have pre-malignant disease and high risk for cervical cancer[3].

Cervical Intraepithelial neoplasia (CIN) and cervical cancer remain important health problems for women worldwide, with high morbidity and mortality[4,5]. Risk factors for cervical cancer are: multiple sexual partners, male partners with multiple sexual partners, early age of first intercourse, male sex partner who has had a partner with cervical cancer, current or prior HPV infection or condyloma, history of herpes simplex infection, HIV infection, history of STD, immuno-suppression (*e.g.* renal transplant), smokers of abusers of other substances including alcohol, history of lower genital tract dysplasia or cancer, and low socioeconomic status[6-8]. This study aims at studying the prevalence and factors associated with various cervical lesions (inflammatory, pre-malignant, and malignant).

Patients and methods

A cross sectional study was carried out at the gynecology and obstetric outpatient

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clinic of Al-Kadhimiya teaching hospital during the period between the first of July to the end of September 2000. A convenient method of sampling was used sample was obtained from women attending the outpatient clinic of Gynecology and Obstetric at Al-Khadhimiya teaching hospital.

A pre-coded, pre-tested questionnaire form was administered to each woman and a gynecological examination was performed after taking patient consent. Cervical smear was done to each woman. Inclusion criteria was married woman (divorced and widows are included also) while the exclusion criteria were pregnancy, abortion, and vaginal bleeding of any type.

Data obtained from the study sample included information on demographic and socioeconomic status like age in years, age at marriage and edcational level, hygienic practices like using sanitary pads,method of underwear drying and washing after intercourse, and other data related to reproductive, obstetrical and gynecological history such as aage at menarche, age at first livebirth, gravidity, parity, prior lower genitaltract infection for the last year and curettage, and contraception.

Each woman was examined gynaecologicaly, then cervical smear was taken. The prevalence of Different pathological changes detected by pap smear were studied in relation to different variables.. Statistical analysis were done using SPSS version 7.5 computer software (statistical package for social sciences) in association with EPI.6.2 computer software.

Results

Of the total of 302 women to whom pap smear was performed, 99.3% (300 women) had satisfactory smears and only 2 (0.7%) were inadequate. Pathological changes were found in 209(69.7%) women while 91(30.3%) had normal cervical smears. It was possible to find more than on cytological changes in one smear, that,s why addition of the number of different pathological changes in some tables of this study are higher than 209. Results showed that 62.7% of women had non-specific cervicitis.

The prevalence of pathological changes evident by pap smear and its types were; Non-specific cervicitis 188(62.7%), Squamous metaplasia 23 (7.7%), Moniliasis 11 (3.7%), Squamous dysplasia (mild and moderate) 7 (2.3%), trichomouns vaginalis 4(1.3%), HPV infection 4(1.3%), and IUCD changes 4(1.3%) (Table 1).

Table 1: The prevalence 95% CI (%) of pathological changes evident by pap smear

Type of pathological changes		No.	%
Non specific cervicitis		188	62.7
Squamous metaplasia		23	7.7
Moniliasis		11	3.7
Squamous dysplasia	Mild	6	2
	Moderate	1	0.3
	Severe	0	0
Trichomonus vaginalis		4	1.3
HPV		4	1.3
IUCD changes		4	1.3
All pathology*		209	69.7
No pathology		91	30.3
Total		300	100

*More than one type of pathology is possible

Table 2 shows that the prevalence of non-specific cervicitis was more among women below 30 years of age (69.5), while all cases of HPV and squamous dysplasia were among those below 40 years of age. The mean age ±SD of women with non-specific cervicitis was 34.6±9.4 , mean age at marriage and age at first live birth was 18.4± 4.4 and 19.9± 4.3 respectively , the latter two were found to be significantly lower than those without cervicitis (P<0.05) by using t-test.

Table 2: The prevalence of different pathological changes shown by pap smear by age of women

Type of pathological* changes	Age of women (years)						
	<30		30-39		40+		Total
	No. (n=95)	%	No. (n=103)	%	No. (n=102)	%	No.
Non specific cervicitis	66	69.5	62	60.2	60	58.8	188
Squamous metaplasia	7	7.4	8	7.8	8	7.8	23
Moniliasis	3	3.2	5	4.9	3	2.9	11
Squamous dysplasia	2	2.1	5	4.9	0	0	7
Trichomonus vaginalis	0	0	2	1.9	2	2	4
HPV	1	1.1	3	2.9	0	0	4
IUCD changes	2	2.1	0	0	2	2	4

* More than one type of pathology is possible

Table 3 summarizes the studied factors that were significantly associated with cervicitis. The prevalence of non-specific cervicitis were found more among women with lower educational level (P<0.001). results also showed that more prevalence of cervicitis was among women not using sanitary pads 65.5%, women using indoor method of underwear drying 86.9%, and those who did not use to wash after intercourse 88.7% and the difference was found to be significant (P<0.001). It was also found that the prevalence of cervicitis was significantly higher among women with history of lower GTI 73.1% and those with history of curettage 80.4% (P<0.001).

The mean age±SD of women with HPV and dysplasia was 34± 1.6 and 32± 1.3, mean age at menarche 12± 1.2 and 13± 1.1, age at marriage 20± 1.4 and 21± 1.2, age at first live birth 22± 1.5 and 23± 1.4, gravidity 4± 0.8 and 3± 0.7,and parity 4± 0.7 and 3± 0.4 respectively.

Table 3: The prevalence of non-specific cervicitis by different Variables

Variable	Non specific cervicitis						X^2	df	$P(X^2)$
	Present		Absent		Total				
	No.	%	No.	%	No.	%			
Educational level									
Illiterate	51	67.1	25	32.9	76	100	23.8	5	<0.001*
Read & write	39	72.2	15	27.8	54	100			
Primary ed.	52	71.2	21	28.8	73	100			
Intermediate ed.	29	63.0	17	37.0	46	100			
Secondary ed.	10	34.5	19	65.5	29	100			
Higher ed.	7	31.8	15	68.2	22	100			

Table 3: *Continued*

Using sanitary pads									
Yes	1	9.1	10	90.9	11	100	14.5	1	<0.001*
No	173	65.5	91	34.5	264	100			
Method of underwear drying									
Indoor	133	86.9	20	13.1	153	100	78.6	2	<0.001*
Outdoor	54	37.5	90	62.5	144	100			
Both	1	33.3	2	66.7	3	100			
Washing after intercourse									
Yes	77	45.0	94	55.0	171	100	56	1	<0.001*
No	102	88.7	13	11.3	115	100			
History of prior lower G.T.I.									
Yes	171	73.1	63	26.9	234	100	49.3	1	<0.001*
No	17	25.8	49	74.2	66	100			
History of curettage									
Yes	78	80.4	19	19.6	97	100	19.3	1	<0.001*
No	110	54.2	93	45.8	203	100			
Using contraception									
Yes	113	68.9	51	31.1	164	100	7	1	<0.001*
No	55	52.9	49	47.1	104	100			

* significant association

Table 4 shows that all women with HPV were housewives with history of prior lower GTI (during the last year) and all of them were not using sanitary pads. Half of those womwn had genital warts and used indoor method of underwear drying. One quarter of them were illiterate but none of them were using barrier method of contraception.

Table 4: The prevalence of some characteristics of women with HPV *

Characteristics	Prevalence % (no.)
Housewife	100 (4)
Illiterate	25 (1)
Not using sanitary pads	100(4)
Indoor underwear drying	50 (2)
Not washing after intercourse	25 (1)
Genital warts	50 (2)
Prior lower G.T.I.(for the last year)	100 (4)
Using Contraceptive pills	25 (1)
Using IUCD	25 (1)

***number of cases=4**

Table 5 shows that majority of women with cervical intraepithelial neoplasia (squamous dysplasia) were housewives 85.7% and had history of lower GTI 85.7%. All of them were not using sanitary pads but 71.4% were using indoor underwear drying and 28.6% did not use to wash after intercourse. However none of them were using barrier method of contraception although 40% used contraceptive pills.

Table 5: The prevalence of some characteristics of women with dysplasia (shown by pap smear)*

Characteristics	Prevalence %(no.)
Housewife	85.7 (6)
Illiterate	14.3 (1)
Not using sanitary pads	100 (7)
Indoor underwear drying	71.4 (5)
Not washing after intercourse	28.6 (2)
Genital warts	28.6 (2)
Prior lower G.T.I. (for the last year)	85.7 (6)
Using Contraceptive pills	40 (2)
Using IUCD	20 (1)

* number of cases=7

Discussion

The percentage of total different pathological changes revealed by pap smear was higher than in other study[9], this may be due to differences; in population's characteristics, smear taking and other technical factors. but regarding the type of pathological changes the prevalence of Trichomonus vaginalis infection was lower than in other studies[9,10] and The percentage of non-specific cervicitis was lower than in other studies too[11,12] and was more common among younger age groups[11] which may be related to socioeconomic, reproductive and behavioral differences.

On the other hand the percentage of HPV infection was in agreement with that of Hassan[9]. Squamous dysplasia was mainly prevalent in cervical smears of women aged from 30-39 years which was in agreement with other studies[13,14]. It has been found that inflammatory changes (cervicitis) are important in the pathogenesis of pre-malignant lesions[15,16] and they are related to sexually transmitted infections[17] and in 40-47% of them, microbiological tests proved to have specific infections[5,18,19].

The mean age at marriage and at first live birth among women with non-specific cervicitis were significantly lower than those without such pathology which was in agreement with other studies[10,20], these changes were more common among women with lower educational level because they were adopting unhygienic genital and sexual practices[11] and the percentage of those lesions was significantly lower among women using proper genital and sexual hygienic practices. The percentage of non-specific cervicitis was significantly higher among women who had history of previous lower genital tract infection, history of abortion and curettage which was in agreement with other study[10].

The mean age of women with HPV in this study were approximately similar to that found by other study in Iraq[8], but higher than in other European studies[21], this is probably due to early sexual practicing habits and multiple partners leading to a higher chance of harboring the virus in European women.

The prevalence of HPV findings on pap smear was within the range found by other studies which lies between <1% and 3%. The percentage of Squamous dysplastic changes (CIN) that were found in cervical smears of women with HPV infection was similar to that reported by other studies[8]. Women who had dysplastic epithelial changes in cervical smear were below 39 years old which was in agreement with other studies[13,14] while other studies in United States reported the peak age of first coitus with multiple sexual partners which may be surrogate markers of sexually transmitted infectious pathogens involved in cervical neoplasia.

The mean gravidity and parity of women with CIN were similar to that in other studies[10,13]. Generally those women with

HPV and/or CIN had poor sexual and genital hygienic practices, and none of them were using barrier method of contraception, these factors might be responsible for increasing the possibility of infection, cervical neoplasia and cancer.

Conclusions

The prevalence of pre-carcerous and carcerous cervical lesions are low and comparable to other studies. Low educational level and improper genital and sexual hygienic practices are associated with inflammatory smears, and they are common findings among women with pre-carcerous lesions. History of prior genital infection, abortion and curettage are associated with cervicitis.

In view of the results obtained from this study, the recommendations suggested were; establishment of cervical clinics at all maternity hospitals and at general hospitals with maternity departments, these clinics would enhance the establishment of screening programs for cervical lesions so that women are encouraged to participate and to have cervical smears annually or biannually, and health education programs emphasizing on the importance of papanicolaou screening test in prevention and early diagnosis of cervical cancer and the need for genital and sexual hygiene and proper treatment of genital infection.

These programs should be directed also at men since genital tract infections are sexually transmitted; adoption of the Bethesda System to unify the terminologies in the reporting of papanicolaou smears by different pathologists and laboratories; and inclusion in intermediate and secondary school curricula of specific messages on reproductive and sexual health with special emphasis on the risk factors of cervical pre-cancerous and cancerous lesions.

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