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The Pattern of Cervical Smear among Women attending Cervical Cancer Screenig Center at Basra Maternity Hospital

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Abstract

Background: cancer of the cervix is the second cancer among women after breast cancer. Screening for pre-invasive disease prevent progression to malignancy. **Setting**: Clinic for early detection of cervical cancer, Basra Maternity Hospital. **Study Design**: Retrospective cross sectional observational study. **Methods**: All women attended the cervical cancer-screening clinic at Basra Maternity Hospital during the years 2016, 2017, whom underwent Pap smear were included in the study by reviewing their data sheet, which arranged in a special questionnaire form provided by Ministry of Health and includes many variable, analysis of data done and presented in tables as number and percentage. **Results**: A total of 317 women, their age range from 25-65 years.95 (30%) of those women had normal cervical smear, 104 (32.8%) had infection and 114 (36%) had premalignant results.(4 cases reported abnormal result without specifications). We found significant association with postcoital bleeding and with history of infertility. No significant correlation found with vaginal discharge, post-menopausal bleeding and intermenstrual bleeding, age of women, residency and level of education. **Conclusion**: appreciable proportion of women investigated by pap smear diagnosed with premalignant lesion, therefore the need for national guideline and protocols to increase the awareness of the importance of pap smear as it is in case of early detection of breast cancer.

Introduction

Cancer of the cervix has been the most important cancer among women in the past decades [(1)]. Recent data from the national cancer registry indicates that the most common sites of cancer among woman are the breast and the cervix [(2)]. Cervical cancer is the commonest cause of death in developing countries. Mortality due to cervical cancer is also an indicator of health status as 86% of cases can be diagnosed and treated in early stage and prevent complications. It is the second leading female cancer world – wide and the most common female malignancy in the developing countries. Many of those who dies are young mothers. [(3)]. The age standardized incidence rate in developing countries range between 25 and 43 cases/100,000 women in contrast to North America where it is 7.7/cases/100.000 women. [(4,5)]. In developing countries, the incidence of cervical cancer on associated morbidity and mortality has each decreased over the years since 1973. The decrease is largely due to success of mass screening programs using the conventional papaincolaou (pap) test to detect pre-invasive or early stage of the disease[(6)]. Cervical cancer is a preventable disease, because a detectable and treatable pre invasive disease stage of about a period 10-15 years precedes the invasive form. During this period, there may be shedding of cells from the cervix. Such cells form the basis for the pap smear. It is now widely accepted that cytological methods of screening for cervical cancer and its precursors have become the mainstay of population- based prevention programs.[(7)]

Numerous studies have shown that high-grade CIN primarily involves the immature metaplastic epithelial cells of the TZ where most, if not all cervical cancer arise. Taking cells from this part will detect early stage of cervical cancer.

Principles of cervical screening[8]: Cervical intra epithelial neoplasia (C1N) is a premalignant lesion that may exist at any one of three stages C1N1, C1N2 or C1N3. If left untreated C1N2 or C1N3 can progress to cervical cancer. Available screening tests include:

1. Human papilloma virus test (HPV),
2. Visual inspection with acetic acid (VIA) and
3. Cytology (Pap test).

The recommended screening for cervical cancer in women aged 21-65 years with cytology (pap smear) every 3 years or for women 30-65 years who want to lengthen the screening interval, screening with cytology and human papilloma virus (HPV) testing every 5 years.

The 2018 USPSTF cervical cancer screening recommendations for average-risk women.

Category	Recommendation
Women aged < 21 years	No screening
Women aged 21 – 29 years	Cervical cytology every 3 years
Women aged 30 – 65 years	Cervical cytology alone every 3 years Or HPV testing every 5 years Or Co-testing (HPV testing and cervical cytology) every 5 years.
Women aged > 65 yrs **Women who have had Hysterectomy with removal of the Cervix and do not have history of High =grade cervical precancerous Lesion or cervical cancer**	No screening

Screening methods for cervical pre cancer:[9]

1. Cytology based screening method:

Convectional cytology (pap smear)

A sample of cervical cells is taken from the squamo-columner junction, using Ayer's spatula and or endocervical brush fixed onto slides by alcohol and examined by pathologist in the laboratory.

2. Molecular screening methods: HPV DNA test sample is taken by the doctor stored inacontainer with appropriate preservative solution and sent to the laboratory.

3. Liquid based cytology (LBC):

A sample of cervical cells is taken by the provider with a spatula or endocervical brush, immersed in a preservative solution and send for the laboratory and review by cytologist.

4. Visual screening method: colposcopy visual inspection with acetic acid (VIA):

Trained doctor examines the cervix at least one minute after applying 3-5% acetic acids to visualize cell changes on the cervix.

Aim of the study

This study was conducted to find out the prevalence of abnormal pap smear findings among women attending cervical cancer screening clinic in a tertiary hospital of Basra province and to carry out a clinical, pathological and demographical analysis for establishing the pattern of epithelial cell abnormality in a pap smear.

Patients and Methods:

A retrospective cross-sectional study, in which a chart review of Pap smear data was carried out in cervical cancer screening center of Basra Maternity Hospital which is the main tertiary gynecological hospital in Basra province during the period extending from February to November 2018. All women presented to the center during the year 2016, 2017 were included. A total of 317 women attended the center during the 2 year study whom referred from the out-patient clinic of the hospital or the private clinics of specialist gynecologist were included, the research was accepted by the ethical committee of Basra Medical college and all efforts were made to assure data confidentiality.

All cytological smears were taken by specialist gynecologist using Ayres spatulas which was rotated five 360 degree in clockwise direction. Fixed in alcohol in two slides and the samples were sent to the hospital laboratory as routine procedure and are read by different specialist pathologist according to the laboratory protocol.
A structured questionnaire from designed by special committee in the Ministry of Health of Iraq was used for documentation of the patients data. It consist of many parts including sociodemographic characteristics, health status, gynecological history, infertility, clinical presentations, contraceptive methods, previous pap smears and sexual transmitted diseases.
Data was summarized and presented using appropriate descriptive tables; all categorical variables were presented by their Number and percentages.
All statistical analysis were performed using SPSS version 20. All statistical analysis were two-sided and a p- value <0.05 was considered statistically significant.
Some samples were unsatisfactory for evaluation and were excluded from the study (313 pap smear left), and some information missing for some patients records and were mentioned below each table .

Results:

A total of 317 women included in the study their age range from 25-65 years, were included.
In table 1, which shows the characteristics of women involved in the study, it shows that the age was divided in to three groups and that majority of women were above 40 years old (41.3%) followed by 38.5% from 30-39 years and only 20.2% in the age less than 30 years.
With regards to the parity, about 59.6% were multipara compared to 33.4% Grand multipara, the rest were infertile (23 patients).
Regarding the occupation 85.8% were unemployed compare to 14.2% who were employed.
On the other hand, husband occupation were 57.1% employed.
The marital status, 92.1% of women were married, 4.1% widow and 3.8% divorced.
With regard to residency, 67.8% were lived in urban area compared to 27.8% from rural area and only 4.04 from periphery of the city (not rural).
Regarding educational level, only 20.2% were illiterate compared to 35.6 for primary, 33.8% for secondary and 10.4% for higher education.

Table 2 shows the clinical presentations of the women involved in the study and the results of cervical smear. It shows that 78.2% had vaginal discharge, 42% had postcoital bleeding, 85.5% had intermenstrual bleeding and only 4.1% had post-menopausal bleeding.

Table 3 shows the result of pap smear according tp the age, it shows it shows that 95(30%) smears were normal, 104 (32%) of smear revealed infection and 114(36%) smear were premalignant (4 were missing), it also shows that 48.2% of premalignant lesion were above the age of 40 and that infection were more in the age group 30-39 years and this differences was not statistically significant.

Table 4 shows the relation of pap smear according to marital status. It shows that 90.4% of married had abnormal pap smear only 12 patients widow and12 patients divorced and they have higher percentage of premalignant lesion, but the difference is not significant statistically.

Table 5 shows the relation of the result of pap smear with the residency, there was no statistically significant difference between urban and rural area although most women from urban area had higher premalignant lesion than women from rural area.

Table 6: shows the presence of post-coital bleeding is present in 131 women and that 156 women had no post-coital bleeding and 30 women had no information regarding post-coital test, (24) of whom are widow and divorced and the difference was statistically significant.

Table 7: Shows the type of infertility and its relation to pap smear result, it shows statistically significant difference, where majority of premalignant lesions were in women with primary infertility compared to women with secondary infertility.

Table (1): Patient Characteristics

Characteristic		**Frequency**	**Percentage%**
Age group/year	Less than 30	64	20.2%
	From 30 to 39	122	38.5%
	40 years or older	131	41.3%
Parity*	Multipara	189	59.6%
	Grand multipara	106	33.4%
Respondent`s occupation	Employed	45	14.2%
	Unemployed	272	85.8%
Marital status	Married	292	92.1%
	Widow	13	4.1%
	Divorced	12	3.8%
Address	Urban	215	67.8%
	Rural	102	32.2%
Educational level	Illiterate	64	20.2%
	Primary	113	35.6%
	Secondary	107	33.8%
	Higher	33	10.4%
History of smoking **	Yes	64	20.2%
	No	214	67.5%
Total		**317**	**100.0**

*Missing = 22 (6.9%)
**Missing = 39 ()

Table (2): Clinical presentation

		Frequency	Percent
Vaginal discharge*	Yes	248	78.2
	No	52	16.4
Postcoital bleeding **	Yes	133	42.0
	No	157	49.5
Intermenstrual bleeding	Yes	271	85.5
	No	46	14.5
Postmenopausal bleeding	Yes	13	4.1
	No	304	95.9

*Missing =17(5.4%)
**Missing =27 (8.5%)
*** Missing = 4 (1.3%)

Table (3): Result of pap smear according to the age

Age group/ year	PAP smear			Total
	Normal	**Premalignant/ Malignant lesion**	**Infection**	
Less than 30	16	20	26	62
	16.8%	17.5%	25.0%	19.8%
From 30 to 39	38	39	44	121
	40.0%	34.2%	42.3%	38.7%
40 years or older	41	55	34	130
	43.2%	48.2%	32.7%	41.5%
Total	**95**	**114**	**104**	**313**
	100.0%	**100.0%**	**100.0%**	**100.0%**

Chi^2= 6.37, P-value= 0.173 NS

Table (4): Result of pap smear according to marital status

Marital status	PAP smear			Total
	Normal	**Premalignant/ Malignant lesion**	**Infection**	
Married	87	103	99	289
	91.6%	90.4%	95.2%	92.3%
Widow	4	6	2	12
	4.2%	5.3%	1.9%	3.8%
Divorced	4	5	3	12
	4.2%	4.4%	2.9%	3.8%
Total	**95**	**114**	**104**	**313**
	100.0%	**100.0%**	**100.0%**	**100.0%**

Fisher`s Exact Test= 2.25, P-value= 0.715

Table (5): PAP smear according to residency

Address	PAP smear			Total
	Normal	**Premalignant/ Malignant lesion**	**Infection**	
Urban	64	87	62	213
	67.4%	76.3%	59.6%	68.1%
Periphery	5	3	4	12
	5.3%	2.6%	3.8%	3.8%
Rural	26	24	38	88
	27.4%	21.1%	36.5%	28.1%
Total	**95**	**114**	**104**	**313**
	100.0%	**100.0%**	**100.0%**	**100.0%**

Fisher`s Exact Test=7.81, P-value= 0.091

Table (6): Postcoital bleeding and PAP smear

Postcoital bleeding	PAP smear			Total
	Normal	**Premalignant/ Malignant lesion**	**Infection**	
Yes	48	36	47	131
	53.9%	35.6%	48.5%	45.6%
No	41	65	50	156
	46.1%	64.4%	51.5%	54.4%
Total	**89**	**101**	**97**	**287**
	100.0%	**100.0%**	**100.0%**	**100.0%**

Chi^2=6.84, P-value=0.033

Table (7): Type of infertility and PAP smear

Type of infertility	PAP smear			Total
	Normal	**Premalignant/ Malignant lesion**	**Infection**	
Primary	0	5	1	6
	0.0%	71.4%	12.5%	27.3%
Secondary	7	2	7	16
	100.0%	28.6%	87.5%	72.7%
Total	**7**	**7**	**8**	**22**
	100.0%	**100.0%**	**100.0%**	**100.0%**

Fisher`s Exact Test = 8.872, P-value = 0.009

Discussion

Papanicolaou (Pap) smear is a simple, non-invasive, but simultaneously, useful and beneficial diagnostic test for the detection of cancer of the cervix. However, it is associated with low sensitivity with a false negative rate which may be as high as 50%. Therefore, establishment of the diagnosis of cervical cancer in suspected cases requires performing histopathological examination of the cervix via cervical biopsy.[10] The present study revealed that intermenstrual bleeding was the main presenting symptom among the studied women that occurred in the vast majority of patients (80.5%). The second complaint was vaginal discharge noticed among 78.2% of patients. On the other hand, post coital bleeding was the third presenting symptom with a frequency of 42.0%. The least presenting complaint among the study group was postmenopausal bleeding occurred in 4.1% of women. Other study reported that main presenting symptoms was vaginal discharge, followed by irregular menstruation and abdominal pain with equal frequencies (17.0%).[11] This study illustrated that more than one-third (36.0%) of the studied women have a pap smear with pre malignant/malignant cervical lesion. Infective etiology was responsible for another 32.8% of results of pap smear. On the other hand, normal pap smear was documented in 30% of patients. The finding of pap smear were considerably variable in accordance with different studies performed elsewhere. Sharma and Upreti[10] found that non-neoplastic intra-epithelial lesion was the diagnosis on pap smear among 95% of patients. Similarity, Nair et al [14] and Patel et al[11] confirmed the existence of non-neoplastic intraepithelial lesion among the vast majority of women with frequencies of 94.87% and 86.50% respectively. Whereas others observed different results. Bahala et al[16] diagnosed the existence of non- neoplastic intra – epithelial lesion among 48.33% of patients, on the other hand, other workers observed lower frequencies of non- neoplastic intraepithelial lesion on pap smear. Like Akinfolarin et al and Al-jaroudi and Hussain [17] with comparative figures of 34.6% and 2.9%. Furthermore, other studies documented that inflammatory and infective etiologies were the main pathological findings on pap smear. Lakshmi and Gouri[12]– reported that inflammatory lesions were observed among 67% of women. Bahala et al[16] confirmed the presence of infections among 46.29% of patients. Other worker reported lower figures of infections among patients on pap smear like Patel et al[11] and Akinfolarin et al [15] with frequencies of 30% and 29.9% respectively, while Nair et al[14] and Al-Joroudi and Hussain[17] found distinctly lower rate of infections on pap smear with comparative frequencies of 6.3% and 3.9%.

Moreover, premalignant/malignant lesions on pap smear also shows variable results in different reports, Mbamara et al[13] documented a frequency of premalignant/ malignant lesions of 29,3% among patients. While others such as Aknoflarin et al[15] and Lakshmi and Gouri[12] reported comparable figures of premalignant/malignant lesions or pap smear with frequencies of 25.2% and 23.5% respectively, on the other hand, Balahta et al[16] diagnosed premalignant/ malignant lesions among 10.58% of women.

Concerning the definite diagnosis of malignancy of pap smear, the highest rate was reported by Akinflolarin et al [15],in whom a frequency of 6.0% of squamous cell carcinoma among women with pap smear. Others reported low frequencies of squamous cell carcinomas or pap smear with 0.1-0.34% of women.[10,11, 14,16] on the other hand Mbamara et al[13]and Al-Jaroudi and Hussain [15] reported no case of squamous cell carcinoma among women on pap smear.

The results of normal pap smear were also non- Consistent in various studies. The highest rates of normal pap smear were reported by Mbamara et al [13] and Al-Jarondi and Hussain[17] with comparative frequencies of 68.6% and 68.9%. while Bahala et al[16] and Akinfolarin et al[15] reported frequencies of normal pap smear of 43.13% and 40.6%

respectively on the other hand, Lakshmi and Gouri [12] reported the lower of normal pap smear with a figure of 4%. The frequencies of unsatisfactory/ inadequate pap smear was relatively higher according to the result of Patel et al[11] with a figure of 8.9%, whereas other workers reported lower rates of unsatisfactory/ inadequate results of pap smear with frequencies of 1,7%-3.27%. [10,13,14,15,16,17].

Variables that shows significant influence on the result of pap smear include parity, educational level, residency, postcoital bleeding and the type of infertility. Grand multiparous women have higher rates of premalignant/malignant. Pap smear in comparison to multiparous women. In addition, illiterate patients and those living in urban areas have higher frequencies of premalignant/ malignant pap smear than educated women and those residing in rural regions. Furthermore, the presence of postcoital bleeding is associated more with infection rather with premalignant/ malignant lesion. Moreover, primary infertility is associated with premalignant conditions other than with infection unlike secondary infertility with in favor infection rather than premalignant/ malignant conditions. On the other hand, factors that shows non-significant association with the result of pap smear were age, marital status, the presence of vaginal discharge, current contraceptive method, smoking, intermenstrual bleeding and post-menopausal bleeding. Mbamara et al[13] found that age as well as parity were significantly affected the pap smear results, where increasing age and multiparty in favor abnormal rather normal pap smear result, also. They found that educational level. Marital status, contraceptive method and vaginal discharge have no significant influence on the finding of pap smear.

In addition, Sharma and Upreti[10] found that age significantly affect the result of pap smear, where low grad squamous intra-epithelial lesions were more in the age range of 51-60 years, and squamous cell carcinoma were documented on pap smear among women age 51 years and older.

In conclusion, appreciable proportion of women investigated by pap smear diagnosed with premalignant/ malignant cervical lesions. Therefore, pap smear represent simple, non-invasive and, simultaneously, effective initial diagnostic method in the investigation of cervical cancer.

Recommendations

1. It is necessary to start national guidelines for the screening of early stage of cervical cancer.
2. Early detection of cervical cancer should take the same importance of early detection of breast cancer including increase awareness of the women about the benefit of screening through the broad cast media like television and radio.
3. The clinic for early detection of cervical cancer should be well- equipped and provided by trained personnel.
4. The record system should be very good and computerized so that accurate estimation of the prevalence and types of premalignant lesions of the cervix will be obtained for the health indicators of the country and for future researches.

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انماط مسحات عنق الرحم بين النساء اللواتي تراجع مركز التحري عن سرطان عنق الرحم في مستشفى البصرة للنسائية والاطفال

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الملخص:

يعتبر سرطان عنق الرحم هو ثاني سرطان بعد سرطان اثدي لدى النساء. التحري المبكر في المراحل قبل الاجتياحي يمنع تطور سرطان ،

نمط الدراسة:

دراسة تراجعية مقطعية عرضية

مكان الدراسة

مركز الكشف المبكر عن سرطان عنق الرحم في مستشفى البصرة للنسائية والاطفال .

الطريقة:

تم شمول كل النساء اللواتي راجعن مركز الكشف المبكر عن سرطان عنق الرحم في مستشفى البصرة للنسائية والاطفال للفترة الزمنية 2017، 2016 وتم عمل مسحات عنق الرحم لهن (مسبحات باب) تم اخضاعهن في الدراسة من خلال مراجعة الملف المرضي لهن المعد من قبل وزارة الصحة والتي تحتوي على عدة متغيرات ورقة اسئلة خاصة لكل مراجعة ن تم تحليل المعلومات المستحصلة وتمثيلها بشكل جداول وارقام ونسب .

النتائج:

المجموع الكلي للنساء 317 تتراوح اعمارهن بين 25-65 سنة .95(30%) منهن كانت نتيجة المسحة لعنق الرحم لهن طبيعية . 104 (32.8%) منهن كانت النتيجة خمج . 114 (36%) نامية سابقة خبيثة . 4 حالات كانت النتيجة دموية غير محددة التغيرات . لقد وجدنا بالدراسة علاقة وثيقة بين النزف المهبلي بعد الجماع و تأخر الحمل مع سرطانات عنق الرحم في حين لمن نجد اي علاقة يعتد بيها مع الافرازات المهبلية ، النزف بعد انقطاع الطمث ، العمر ، التحصيل الدراسي او محل الاقامة .

الاستنتاج :

هنالك تأثير ملموس للنساء المتحريات بمسحات عنق الرحم (مسحة الباب) مع سابقة الخبيثة لعنق الرحم لذلك هنالك حاجة لخطة وطنية وبروتوكول لزيادة الوعي حول اهمية اجراء مسحات عنق الرحم التحريية لما لها من دور في اكتشاف السابقة الخبيثة لعنق الرحم .