

Papanicolaou Smear Outcome of Referred Women to Health Facilities in Baghdad

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Abstract

Background: Cervical cancer is second most common cancer among women worldwide. It is preventable disease because there is usually a phase of pre-malignancy, dysplasia or intraepithelial neoplasia. As the cervix is relatively accessible organ to examine, cells can be easily obtained in the premalignant phase. Cervical cytology by Papanicolaou smear is an effective means of screening for cervical premalignant and malignant conditions.

Aim of the study: To describe the socio-demographic characteristics of women referred through cervical screening, in addition to cyto-pathological classification of Papanicolaou smears taken.

Patients and Methods: Cross section study carried out from January through June 2012 on a sample of 300 women attending departments of obstetrics and gynecology in two teaching hospitals, and one national cancer center, in Baghdad. All studied women were referred for Papanicolaou smears. Papanicolaou smears were collected; slides were handed to relevant cytopathology laboratories. When reports were due, results were classified according to Bethesda system in order to standardize results coming from different laboratories, and different examiners.

Results: normal Papanicolaou smears were seen in (4%) of the studied women, (42%) had inflammatory reaction, (10%) had atypical cells of undetermined significant, (19%) had low grade squamous intraepithelial lesion, (20%) had high grade intraepithelial lesion, (1%) had cancer of the cervix, and in (3%) of the studied women the smear was inadequate. Mean time from referral till getting the result was (10 ± 6) days. Although Papanicolaou positivity was not significantly associated with residency, marital life duration and parity, it showed high significant association with usage of contraceptive hormones, and menopause.

Conclusion: Premalignant and malignant lesions of cervix are not uncommon in referred women especially in menopausal women and those using hormonal contraception. Lesions can be detected early by Papanicolaou smear. There is discrepancy, and delay in reporting of Papanicolaou smear result, negatively reflected on screening program.

Key words: cervical cancer demographic characteristics, Papanicolaou (Pap) smear, Bethesda system

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INTRODUCTION

Cervical cancer reflects striking global health inequity (1). It is commonest cancer among women in developing countries, with only breast cancer occurring more commonly (2).

Cervical cancer generally develops slowly over a period of 10-15 years. It is preceded by detectable and treatable precursor conditions in which certain cells in the cervix develop abnormal characteristics, but not yet cancerous (3).

The introduction of well organized screening program can result in reduction in cervical cancer mortality rate. Despite an enormous amount of research on screening for cervical neoplasia in developing countries, little progress has been made in establishing effective screening programs (4), although benefits of screening exceeds costs involved (5).

Iraqi program proposal for early detection of cervical cancer has began in 2012, in Baghdad, Basra, and Ninawa governorates (6). Cervical cancer screening by

Pap test is done to ever-married Iraqi women 25-45 years age, having one or more of the following: History of inter-menstrual or post coital bleeding, personal or husband history of sexually transmitted infections (STI), early marriage and pregnancy or married more than once, abnormal vaginal discharge, history or presence of genital warts, continuous use of oral contraceptive pills for 3 or more years, smoker women, grand multipara, low socioeconomic status, and malnutrition. Testing can also be done to married women having no symptoms, but her cervix is abnormal looking on exam (6).

The Bethesda System is a modern reporting system for cervical cytological Pap smear results, revised in 2001(7). The Descriptive diagnoses are either Negative for intraepithelial lesion or malignancy (infection, reactive or atrophic changes), or Epithelial cell abnormalities (squamous or glandular cell abnormality), or Others as endometrial cells in postmenopausal women not on hormone replacement.

The squamous cell abnormalities include four types:

1- ASC (Atypical Squamous Cells): either of undetermined significance (ASC-US), or that cannot exclude high-grade squamous intraepithelial lesion (ASC-H).

2- LSIL (Low-grade squamous intraepithelial lesions): cells show definite minor changes unlikely to progress into cancer, including human papilloma virus (HPV) infection, mild dysplasia, and cervical intraepithelial neoplasia (CIN 1).

3- HSIL (High-grade squamous intraepithelial lesions): cell changes having higher likelihood of progressing to cancer, including presence of moderate to severe

dysplasia, carcinoma in situ (CIS), CIN 2 and CIN 3, or changes suspicious for invasive cancer.

4- Squamous cell invasive cancer (7).

The Glandular cell abnormalities include three types:

The AGUS (Atypical glandular cells of undetermined significant borderline cell) between reactive changes to premalignant / malignant process, Adenocarcinoma in situ, and Adenocarcinoma (7).

The study aims to describe the socio-demographic characteristics of women referred for cervical screening, in addition to studying and classification of cervical cyto-pathology outcome for studied women.

PATIENTS AND METHODS

This is a cross- sectional study, with an analytic element conducted from beginning of January through

June 2012. It was carried on a convenient sample of 300 ever married women selected from referred women for Pap smear in three places in Baghdad: Al Yarmok teaching hospital (Karkh) / Dept of Gynae, Baghdad teaching hospital (Russafa) / Dept of Gyne, and The National center for early detection of cancer (Russafa).

After getting ethical approval from MOH, women were interviewed (with verbal consent) for socio-demographic information, gynecological & medical history, & reasons for referral. Pap smears were taken in the referred centers either by Ayres spatula (conventional) or by endo-cervical brush, done by the gynecologist consultant with researcher attendance & collaboration. Pap smear cytological reports were classified (by the researchers) according to the Bethesda system in order to standardize cytological reports of different labs & different examiners. Descriptive & analytic data were generated utilizing SPSS v.16 (statistical packages for social sciences), with P value of 0.05 as cut-off denoting significant results..

RESULT

The first table summarizes the socio-demographics of studied women. Around two thirds (66%) are in their thirties or forties, with age ranging 17-70 years. The majority (87%) are living in Baghdad urban areas, and the majority (84%) are housewives. Around two thirds (62%) are illiterate, and only 15% have a college degree. According to inclusion criteria, all women were either currently or previously married.

Tab 1: Socio-demographics of studied women

Variable	No. (%)
Age groups (yrs) mean 39(17-70))	<20 5 (1.7)
	20-29 44 (14.7)
	30-39 107 (35.7)
	40-49 91 (30.3)
	50-59 43 (14.3)
	>=60 10 (3.3)
Residency	Urban 260 (86.7)
	Rural 40 (13.3)
Occupation	unemployed 253 (84.3)
	employed 47 (15.7)
Education level	illiterate 185 (61.7)
	primary 46 (15.3)
	intermediate 13 (4.3)
	secondary 10 (3.3)
	higher 46 (15.3)
Marital status	married 289 (96.3)
	widow 11 (3.7)
Tot	300 (100)

It took a mean time of (10 ± 6) days to get Pap smears results. Cyto-pathological reports showed discrepancies, because they were not following a standard classification. That necessitated re-classification using a standard (Bethesda) system. Only a minority of pap smears taken (3%) was inadequate (faulty smears). About two fifths (42%) of referred women has only an inflammatory reaction in their pap smears, while 4% of smears are completely normal. Positive smears comprise 50% of results as follows: HSIL & LSIL constitute one fifth each (20% & 19% respectively), while the ACUS comprises 10% of women, and only 1% of smears taken shows carcinoma of cervix (fig.1).

Percentages sum up to 99% due to rounding error

Mean time from referral till getting the result was (10 ± 6) days.

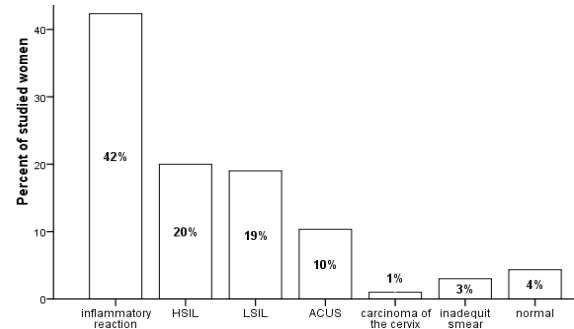


Fig 1: Pap smear cyto-pathology outcome (Bethesda system) of studied women

Cross tabulating pap smear results with socio-demographic and reproductive variables reveals highly significant association with hormonal contraceptive usage, and with occurrence of menopause. However, residency, duration of marriage, and parity were not significantly associated with Pap positivity (table 2).

Tab 2 : Pap positivity Cross tabulation for studied women

	Pap positivity		Tot*	X ² , df, p significance
	Negative	Positive		
Residency				
Urban	120 (47%)	133 (53%)	253 (100%)	0.36, 1, 0.550 (NS)
Rural	20 (53%)	18 (47%)	38 (100%)	
Tot	140 (48%)	151 (52%)	291 (100%)	
Marriage duration				
1-10yrs	50 (53%)	45 (47%)	95 (100%)	2.68, 2, 0.26 (NS)
11-20yrs	62 (49%)	64 (51%)	126 (100%)	
>20yrs	28 (40%)	42 (60%)	70 (100%)	
Tot	140 (48%)	151 (52%)	291 (100%)	
Parity				
Nulliparous	15 (58%)	11 (42%)	26 (100%)	5.51, 3, 0.14 (NS)
1-2	32 (57%)	24 (43%)	56 (100%)	
3-4	39 (40%)	59 (60%)	98 (100%)	
>4	54 (49%)	57 (51%)	111 (100%)	
Tot	140 (48%)	151 (52%)	291 (100%)	
Hormonal contraception				
Used hormones	70 (59%)	48 (41%)	118 (100%)	8.82, 1, 0.003 (HS)
Not used hormones	18 (35%)	34 (65%)	52 (100%)	
Tot (contraceptive users)	88 (52%)	82 (48%)	170 (100%)	
Menopause				
No	128 (52%)	117 (48%)	245 (100%)	10.61, 1, 0.001 (HS)
Yes	12 (26%)	34 (74%)	46 (100%)	
Tot	140 (48%)	151 (52%)	291 (100%)	

*Nine smears (3%) were faulty (inadequate)

DISCUSSION

The highest percentage of the referred women was in the age group of (30-39) years. This is in agreement with other study in India ⁽⁵⁾, but disagrees with previous study in Iraq where the majority was in age

group (25-35) years ⁽⁸⁾. This may reflect the current study design sampling referred women for Pap smear, not every woman attending consultant gynecological clinic.

Urban residents represented the majority of referred women. This may be due to sample pooling from centers in Baghdad, or may reflect better awareness and compliance of urban, rather than rural women about their health. In addition, the majority of referred women were house wives and illiterate, which agrees with other study in Iraq⁽⁸⁾. This gives a signal to health authorities to target housewives, illiterate women, and not to forget rural women in screening programs who were shown in this study to be least referred for Pap smear.

Positive Pap smears in the current study represent half the referred women, which is higher than other Iraqi study on 2011, where positive smears represented only 19%⁽⁸⁾. This is because the present study enrolled symptomatic women only, in addition to the possibility of up going (increasing) disease trend in our country.

Normal result of pap showed very low percent (4%) if compared with other studies in Iraq, Saudi Arabia, and South Africa^(8, 9, 10). This is because the present study was carried out on women with signs/symptoms, while other studies were to screen all women (symptomatic or not). A study on symptomatic women in India⁽¹¹⁾ agreed with the present study having lower percentage of normal results, while a previous Iraqi study revealed higher normal pap result (23%) in spite of taking symptomatic women⁽¹²⁾. This again may point out an increase in disease with time, and/or improvement in diagnosis via introduction of endo-cervical brush technique able to detect abnormalities obscured by blood or discharge.

Percentage of inflammatory reaction revealed by pap was higher than other studies^(8, 12). This may reflect an increase infection rate in referred women.

Pap smear results of ACUS, LSIL, and HSIL were higher than other studies^(8,10). This is mainly because of selecting symptomatic women for this study, or may be due to the absence of screening in Iraq in the past, thus lesions progressed without awareness.

In the light of the current study, Carcinoma of the cervix represented only small percent of the studied women. Although this is in agreement with other studies^(8, 5, 10), the possibility of underreporting can't be ruled out, as the case in late cancers where pap smears become inappropriate. In addition, lot of cases is missed when treated outside the country.

Small percentage of pap smears was inadequate (unsatisfactory). This is not different from other studies^(5,8), resulting from variety of causes; such as inappropriate doctors' training, inappropriate women preparation, poor women compliance, or inappropriate

cytological smears (staining, fixation, or reading). Inadequate smears need to be repeated and patients should be given new appointment to repeat the pap. Unsatisfactory smear results can be minimized by using endo-cervical brush rather than conventional smear to avoid effects of limitation factors as blood, mucus or inflammatory cells.

During the period of this study, the researchers noticed insufficient cyto-pathologists for Pap smear reading. Referred women has to wait long to get the result putting them in stress, in addition of generating cyto-technicians workload. A positive Pap smear can include only a few abnormal cells that can easily be missed by an overloaded cyto-pathologist, increasing false negative results. Cyto-pathological reports were only descriptive, not standardized according to a modern classification system (Bethesda).

Parity of the referred women, didn't show significant association with pap positivity, which is in agreement with an Iraqi study (2009)⁽¹²⁾. The role of parity in cervical cancer development hasn't yet fully clarified. Early reports suggest association with high parity⁽¹³⁾, but this disappeared after correction for early age of marriage⁽¹²⁾. High parity is considered a cofactor in development of cervical neoplasia, particularly for women infected with HPV⁽¹⁴⁾.

Menopause was significantly associated with pap positivity. It may be due to increasing women's age, never screened before, lacking awareness about cervical cancer screening. Pones et al in Mexico found menopausal women among under users of cytological screening, in spite of harboring bulk of premalignant/malignant lesions⁽¹⁴⁾. Other possibility is the poor positive predictive value of cervical smears in post menopausal women⁽¹⁵⁾.

The current study shows high significant association between hormonal contraception and pap positivity. Several studies show hormonal contraception to increase moderately cervical cancer risk, particularly in HPV positive women^(16,17).

Although the study was confined to referred women (not screening) from Baghdad only, it clarifies the importance of early detection of lesions via pap smear to decrease the cervical cancer not only for symptomatic women or those with abnormal cervix, but for every women in Iraq. Premalignant and malignant lesions of cervix were not uncommon. There is delay in reporting, lack of standardization, and discrepancy of Pap smear results, negatively affecting the early detection program that has already begun in Iraq.

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