



INTERNATIONAL JOURNAL OF RESEARCH IN PHARMACEUTICAL SCIENCES

Published by JK Welfare & Pharmascope Foundation

Journal Home Page: <https://ijrps.com>

Comparison of Pap smear result between premenopausal and postmenopausal women

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Article History:

Received on: 08.06.2018

Revised on: 16.09.2018

Accepted on: 18.09.2018

Keywords:

Premenopausal,
Postmenopausal,
Pap smear,
Carcinoma cervix

ABSTRACT



Across Iraq, the incidence of cervical cancer is in the downward trend although it remains to be a significant public concern for women in the country. Pap smear is a test developed to determine the premalignant lesions of cervical cancer, and thus it can be described as a screening tool which is employed for early detection of cervical cancer. Old age is associated with a high prevalence of cervical cancer thus screening is advised at a young age to decrease the incidence of cervical cancer. The aim of this study is that to review the pap smears and find out the results and that established prevalence of pre-malignant and malignant lesions. For this study, a retrospective examination was instituted at the Department of Pathology, Al-Nahrain University in a full year (2017) in which all the Pap smears data for the whole year was encompassed. The study was able to review 900 Pap smears, in which 59 percent of this was obtained from the premenopausal women, and 41 percent of the Pap smears were gotten from the postmenopausal women. The results of the present study were established that the prevalence of pre-malignant and malignant lesions was common across the women in their postmenopausal age in comparison to those in premenopausal age cluster. In this process a lot of inhibiting features for reporting recorded which including drying artifact, background staining, and insufficient fixation. In that case the present study, the incidence of low-grade Squamous Intraepithelial Lesion is five times higher in women in their pre-menopausal age stage in comparison to their counterpart in the post-menopausal stage. It is evident from the study that squamous intraepithelial lesions are more prevalent among the postmenopausal women in comparison to those still in their premenopausal age stage. The fact is that screening using Pap smear is mandatory for women in either stage to enable early detection and intervention of any epithelial anomalies.

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ISSN: 0975-7538

DOI: <https://doi.org/10.26452/ijrps.v9i4.1726>

Production and Hosted by

IJRPS | <https://ijrps.com>

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INTRODUCTION

Across the globe, cervical cancer accounts for almost 16% of all the cancers cases reported in women. Studies show that estimation of 440 thousand new cases happening annually (Aboud *et al.*, 2017). According to the Iraqi Ministry of Health, it is postulated that at least 100 thousand women are diagnosed with cancer each year. But an expert in the field of medicine has shown that cervical cancer is a preventable disease among women, especially when detected in its early stages (Ali *et al.*, 2017). It is possible to diagnose cervical cancer in its early stages via screening and thus, to ensure

early interventions which will inhibit the progression of the disease hence becoming a life-threatening illness. In the contemporary world, Pap smear is among the leading tools which are employed for screening cervical cancer thus preventing its spread (Alwan *et al.*, 2017). One of the widely used Pap smear tools is the Bethesda System developed in the year 2001. This tool has a sensitivity range of 72% and a specificity in the range of 95% which is appropriate for the population-based approach. Women who are advanced in their age stand a high chance of contracting cervical cancer in comparison to their young counterparts as a result of lack in awareness and knowledge (Ali *et al.*, 2017) The high mortality rate occasioned in Iraq due to cervical cancer can be prevented if measures are taken to be screening women when they are young and in a monthly basis (Ali *et al.*, 2017). This paper seeks to compare the incidence of pre-malignant and malignant lesions occasioned by cervical cancer in the women of either pre or post-menopausal age-stage in Iraq.

PATIENTS AND METHODS

A retrospective examination was instituted at the Department of Pathology, Al-Nahrain University, Iraq in a full year (2017) in which all the Pap smears data for the whole year was encompassed. Informed consent obtained from the patients as an ethical approval. The smears were taken by medical professions employing the use of modified Ayres wooden spatula which was implanted and revolved 360 degrees over the cervix. The two, endocervix and ectocervix were sampled. All the smears were examined and reported as per the provision of the Bethesda system. In methodology, the main aim is to find out what happens during the pap smears test? The test is done in a specialist's doctor or person who has the facility and takes around 10 to 20 minutes. The patients lie on a table with feet set immovably in stirrups. Spread your legs, and your specialist will embed a metal or plastic apparatus (speculum) into your vagina. He'll open it with the goal that it extends the vaginal dividers. This enables him to see your cervix. Your specialist will utilise a swab to take an example of cells from your cervix. He'll put them into a fluid substance in a little container, and send them to a lab for the survey. The Pap test doesn't hurt, yet you may feel a little squeeze or a touch of weight.

Statistical analysis

Statistical analysis was carried out using statistical package for social sciences (SPSS version 23.0) and Medcalc 15. Numeric variables were expressed as mean and standard deviation while categorical variables were expressed as number and percentage. The level of significance was considered at $P \leq 0.05$.

RESULTS

This study examined a total of 900 cases for one year. The patients who were examined their age ranged from 24 to 80 years in which 59% were women in premenopausal age while 41% were women in postmenopausal age. Table 1 offers an overview of various pathologies reported in two categories.

Pre-menopausal age group

In the total of 900 women, 43.5% showed a normal pap smear in which inflammatory smear was lacking any pathology was observed in 50.2% of the women. STDs such as *Candida albicans*, bacterial vaginosis, and *Trichomonas vaginalis* were identified in the cytology smears. For instance, six women were found to have bacterial vaginosis (1%), *Trichomonas* was detected in 3 women (0.5%), while Candidiasis was diagnosed in 15 women (2.6%).

Post-menopausal age group

A 41 percent of the total 900 women fell in post-menopausal age group. A normal Pap smear showed a result of 34.75% women, while the inflammatory smear without any pathology was found in 41% of cases. STDs such as candidiasis were observed in 2.2% cases while bacterial vaginosis was diagnosed in 1.8% of cases of the total post-menopausal women.

Multivariate Analysis

The present's after-effects of the strategic relapse models. Factors fundamentally connected with expanded of "Pap test mindfulness" were expanding the age, more noteworthy English familiarity, being hitched, higher instructive accomplishment, having wellbeing support association (HMO) protection, regularly having asked for a Pap, having a specialist prescribe a Pap, and leaning toward a female reserve. Factors fundamentally connected with lower Pap test mindfulness were low or obscure salary, having Medicare protection, and seeing racial predisposition in the social insurance framework.

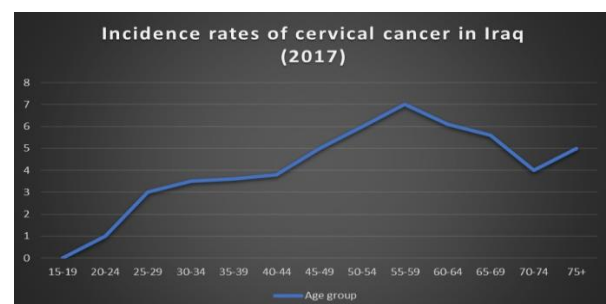


Figure 1: Annual number of cases and age-specific incidence rates of cervical cancer in Iraq (estimates for the year 2017)

Table 1: Distribution of lesions of the cervix in pre & post-menopausal women, n=900

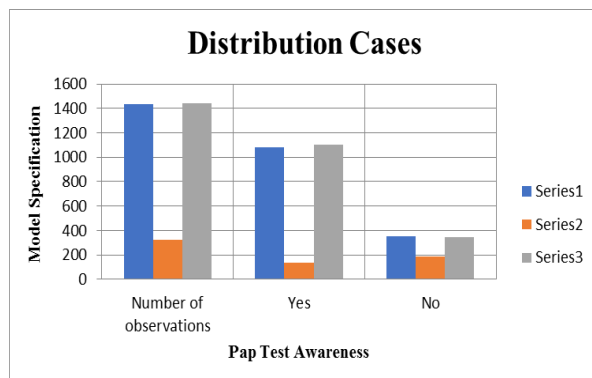
Pap smear results/findings	Pre-menopausal age group	Post-menopausal age group	Total
Normal	25.7%	14.2%	40.0%
Inflammatory smear lacking underlying pathology	29.9%	16.8%	46.7%
Inflammatory smear with infection:	2.5%	1.6%	4.1%
Vaginosis	0.6%	0.7%	1.3%
Trichomoniasis	0.3%	0%	0.3%
Candidiasis			
Squamous cell carcinoma	0.2%	1.3%	1.6%
Atrophic smear	0	4.2%	4.2%
	59%	41%	100%

Table 2: Summary of FP (False positives) cases in 130 premenopausal women

Pap smear findings	Histologic findings		HPV	
	Normal	Reactive	Positive	Negative
LSIL (n= 119)	28	91	23	10
HSIL (n=11)	2	9	2	0

Table 3: Summary of Pap test awareness cases in 1443 Pap test receipt

Model specification	Pap test awareness	Pap test intention	Pap test receipt
Number of observations	1432	322	1443
	Distribution of cases		
Yes	1080	135	1100
No	352	189	345

**Figure 2: Summary of Pap test awareness**

DISCUSSION

Cervical carcinoma is arguably the most significant cancer in women for the past one decade. In Iraq, the peak age in which a woman is at risk of contracting cancer is 55-59 years as shown in table 2. Current data from the Iraq Ministry of Health and WHO indicates that the common location of cancer in women are breast and cervix (Al-Othman *et al.*, 2015). Cervical cancer is understood to be an ideal malignancy for screening for premalignant epithelial anomalies by gynaecologist because it meets both the test and disease criteria for screening.

Additionally, the disease has a long latent stage which provides enough time for pathologists to diagnose it in its early stages. Traditional Pap smears were used during this examination (Channon *et al.*,

2018). Throughout the process, a lot of inhibiting features for reporting were recorded including drying artifact, background staining, and insufficient fixation. For the case of the present study, the incidence of low-grade Squamous Intraepithelial Lesion is five times higher in women in their premenopausal age stage in comparison to their counterpart in the post-menopausal stage. According to Al-Othman *et al.* women exhibited a continuous increase in the growth of LSIL to an invasive carcinoma with the advancement in age. Also, it was found out that 80% of all the epithelial anomalies such as squamous and glandular lesions were commonly established in women above 40 years (Al-Othman *et al.*, 2015). The base age for cervical cancer patients was 49 years. Alabbody *et al.* noted that in all the women who were studied, an estimate of 40 percent was above 40 years in where 10.1% showed signs of SIL and 1.3% had carcinoma cervix.

Inflammatory smear is prevalent in premenopausal women in comparison to the postmenopausal age group. The common STDs such as Trichomonas vaginalis, Bacterial vaginosis, and Candida albicans were all diagnosed in the case of cytology smears. It was also more prevalent in women in their premenopausal age stage (Grandahl *et al.*, 2013). In a group of 500 women, it was only 24 of them who reported inflammatory smear coupled with infection, a percentage of 4.1%. For the case of

postmenopausal age stage, 41% of the women reported inflammatory smear without any underlying pathology. STDs such as candidiasis (2.2%), vaginosis (1.8%) cases. Additionally, Ali shows women in the age group range 21 to 75 having a 26% inflammatory smear, 1% had candidiasis, 0.45% had trichomoniasis, while a further 7.6% possessed Herpes simplex virus infection (Grandahl *et al.*, 2013). Donnelly *et al.*, additionally demonstrated Atypical Squamous Cells of Undetermined Significance (ASCUS) 2 %, Atypical Glandular Cells (AGC) 2 %, LSIL 3 %, HSIL 6% and Squamous carcinoma 2% in which 75 % (1.5%) of ASCUS was in postmenopausal age gather , no AGC was accounted for in postmenopausal age stage, 83.3% (2.5%) of LSIL was in postmenopausal age level, 66.4%(4%) of HSIL and the 100% (2%) of squamous cell carcinoma were in the postmenopausal age assemble which likewise supports the present investigation. In (Abboud *et al.*, 2018) cervical biopsy was taken in all instances of serious dysplasia and the cytology report demonstrated 100% similarity with histopathology. A cervical biopsy was performed in just 182 of the 219 instances of straight to the point carcinoma cervix analyzed on cytology. The similarity among histology and cytology was 100%. Be that as it may, 29 crisp instances of cervical carcinoma were accounted for on histology. The cytologic discoveries in these 29 cases had been provocative in 21 and lacking smear in 8. The level of false negatives with cytology, for determination of obtrusive carcinoma of the cervix, was in this manner 10.3% (Payton *et al.*, 2016).

In the instance when the traditional Pap smear was employed in this study, Different analysis shown the noteworthy connection between customary Pap smear, Liquid-based cytology (LBC) and Colposcopy technique (Perks *et al.*, 2016). Abdulghany *et al.*, has thought about the consequences of customary Pap smear, Liquid-based cytology, and Colposcopy technique and found that Colposcopy with affectability of 70.9% can be expressed to be better than LBC pap with affectability of 55.3%, and in the examination of consistency of the regular pap smear with that of the LBC, no critical relationship was found (Abdulghany *et al.*, 2017) and the investigation demonstrated, general colposcopy strategy has a higher affectability in determination of any cervical cancer cases contrasted with the ordinary pap smear and fluid-based pap smear.

CONCLUSION

It is evident from the study that squamous intraepithelial lesions are more prevalent among the postmenopausal women in comparison to those still in their premenopausal age stage. The fact is that

screening using Pap smear is mandatory for women in either stage to enable early detection and intervention of any epithelial anomalies. The recommendations are that at least all Iraq women to undergo a single lifetime Pap screening cytology in their uterine cervix especially in the age of 24 to 40 as this is the period where there is a rapid escalation of cervical cancer as women approach their menopause stage.

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