ORIGINAL RESEARCH

EVALUATION OF PATTERN OF CERVICAL PAP SMEAR CYTOLOGY AND TO CORRELATE IT WITH HISTOPATHOLOGICAL FINDINGS

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ABSTRACT
Background: Cervical cancer is the third most common cancer among women worldwide, with 85% of its global burden occurring in less-developed countries. The present study was conducted to evaluate the pattern of cervical Pap smear cytology and to correlate it with histopathological findings.
Materials & Methods: 360 females of age ranged 18-60 years were enrolled. Cervical smears were taken with the help of Ayer's spatula and cyto brush to collect specimen from thesquamocolumnar junction. Thesmears were stained with Papanicolaou stain(PAP stain) and slides wereexamined under light microscope following 2001 Bethesda system.
Results: Age group 18- 30 years had 68 patients, 31-40 years had 112, 41-50 years had 120 and 51-60 years had 60 patients. The difference was significant (P< 0.05). Maximum number of cases 160 were categorized as negative for intraepithelial lesion or malignancy (NILM). Atypical squamous cells of undetermined significance (ASCUS) seen in 54 followed by followed by low gradesquamous intraepithelial lesion (LSIL) in 50 and high gradesquamous intraepithelial lesion (HSIL) in 30, squamous cell carcinoma 4 and cases of adenocarcinoma 2. 88%diagnosed on Pap smears correlated on histopathology findings.
Conclusion: Pap smears found to be effective in screening for earlydetection of premalignant and malignant lesionsof cervix.
Key words: Papanicolaou, Cervical cancer, histopathology

INTRODUCTION

Cervical cancer is the third most common cancer among women worldwide, with85% of its global burden occurring in less-developed countries. Although incidence rates of cervical cancer have declined in recent years, high rates persist in in the United States (US). The number of cervical cancer cases is expected to increase46% by 2030 with global population growth and aging.[1]

The Papanicolaou (Pap) smear has been shown to be highly effective in developed countries that have widespread screening programs. In countries where Pap smear screening is routine, it is recommended that females who have had sex should seek regular Pap smear testing.[2] Guidelines on frequency vary from every three to five years. If results are abnormal, and depending on the nature of the abnormality, the test may need to be repeated in six to twelve months. Screening is checking the cervix by the Pap smear for cervical cancer and has been credited with dramatically reducing the number of cases of mortality from cervical cancer in developed countries.[3]

Histopathology and cytopathology form the scientific and clinical basis for current prevention and treatment of cervical cancer.[4] Histopathology determines treatment of cancer and precancer through classifying into a diagnosis the patterns of microscopic organization of cells in tissue sections from biopsy or surgical specimens. Histopathology also remains important as the most widely used clinical end points by which the performance of new techniques for cervical cancer prevention is currently evaluated.[5]The present study was conducted to evaluate the pattern of cervical Pap smear cytology and to correlate it with histopathological findings.

MATERIALS & METHODS

The present study comprised of 360 females of age ranged 18-60 years. All were informed regarding the study and written consent was obtained.

Data such as name, age etc. was recorded. Cervical smears were taken with the help of Ayer's spatula and cyto brush to collect specimen from the squamocolumnar junction. The cellular material obtained on the spatula and cyto brush was quickly smeared on a clean glass slide. Two smears were prepared. The glass slides were then fixed immediately by immersing them into the coplin jar containing 95% ethyl alcohol and sent to the pathological laboratory. During the examination disposable speculums were used. The smears were stained with Papanicolaou stain(PAP stain) and slides were examined under light microscope following 2001 Bethesda system. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Age group (years)	Number	P value
18-30	68	0.05
31-40	112	
41-50	120	
51-60	60	

Table I, graph I shows that age group 18- 30 years had 68 patients, 31-40 years had 112, 41-50 years had 120 and 51-60 years had 60 patients. The difference was significant (P< 0.05).
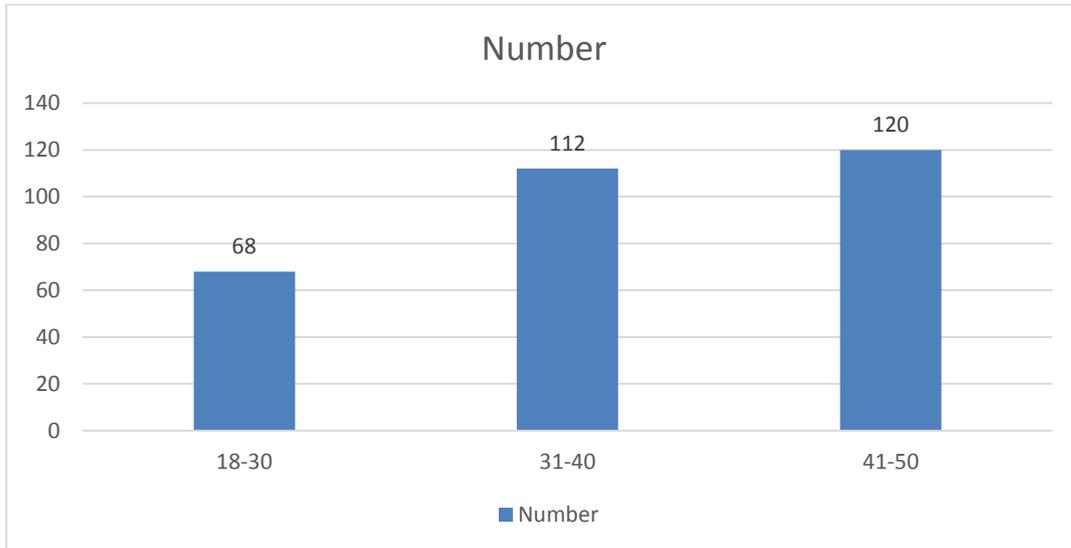
Graph I Distribution of patients

Table II Cyto-histopathological correlation of Pap smears and cervical biopsies

Cytological diagnosis	Chronic cervicitis	Chronic cervicitis with squamous metaplasia	CIN I	CIN II	CIN III	Adenocarcinoma	SCC
NILM (216)	160	50	6	-	-	-	-
ASCUS (54)	10	24	20	-	-	-	-
LSIL (50)	-	10	40	-	-	-	-
HSIL 30)	-	5	8	9	8	-	-
SCC (4)	-	-	-	-	-	-	4
Adenocarcinoma(2)	-	-	-	-	-	2	-

Table II shows that maximum number of cases 160 were categorized as negative for intraepithelial lesion or malignancy (NILM). Atypical squamous cells of undetermined significance(ASCUS) seen in 54 followed by followed by low gradesquamous intraepithelial lesion (LSIL) in 50 and high gradesquamous intraepithelial lesion (HSIL) in 30, squamous cell carcinoma 4 and cases of adenocarcinoma 2.

Table III Correlation between Pap smear and histopathological diagnosis

Histopathological Pap smear	Positive	Negative	Total
Positive	154	56	210
Negative	6	144	150
Total	160	200	360

Table III shows that 88%diagnosed on Pap smears correlated on histopathology findings.

DISCUSSION

Cancer of uterine cervix is a leading cause of mortality and morbidity among women worldwide. In developing countries, it is the most common gynecological cancer and one of the leading causes of cancer death among women. This scenario is due to lack of awareness and poor uptake of cervical cancer screening services especially in low- income countries.[6]Cervical cancer is a malignant disease of the cervix usually occurring in the 5th or 6th decade of life at a mean age of 54 years. The disease has a pre-malignant stage which usually occurs in younger women under the age of 40.[7] Deaths resulting from cervical cancer are tragic as this type of cancer develops slowly and has a detectable precursor condition, known as carcinoma, which is treatable and can be prevented through screening.[8]According to the 2001 Bethesda classification, the smears are characterized as negative, atypical squamous cells (ASC), atypical glandular cells(AGC), low-grade intraepithelial lesion, high-grade intraepithelial lesion, and cancer.[9]

In present study, age group 18- 30 years had 68 patients, 31-40 years had 112, 41-50 years had 120 and 51-60 years had 60 patients. Bindroo et al[10]correlated the Pap smear diagnosis with histopathology and to know the accuracy of Pap smears, so as to assess the efficacy of Pap smears in diagnosing cervical lesions. 250 Pap smears for which histopathological diagnosis was done. Out of 250 Pap smears, maximum patients (32%) belonged to the age group of 41-50 years and were multipara. Maximum cases were reported as NILM (59%) followed by ASCUS (16%), LSIL (15%), HSIL (7%), squamous cell carcinoma (1.6%) and 0.8% cases of adenocarcinoma were diagnosed. On histopathology, 41.2% cases were diagnosed as chronic cervicitis, 27.2% cases as chronic cervicitis with squamous metaplasia, CIN I (22.4%),CIN II (4.0%),CIN III (2.8%), squamous cell carcinoma (1.6%) and 0.8% cases of adenocarcinoma. Overall sensitivity, specificity, positive predictive value, negative predictive value and diagnostic accuracy was 75.24%, 97.98%, 96.20%, 85.38% and 88.8%.

We found that maximum number of cases 160 were categorized as negative for intraepithelial lesion or malignancy (NILM). Atypical squamous cells of undetermined significance(ASCUS) seen in 54 followed by followed by low grade squamous intraepithelial lesion (LSIL) in 50 and high grade squamous intraepithelial lesion (HSIL) in 30, squamous cell carcinoma 4 and cases of adenocarcinoma 2.Saha et al[11]conducted a study in which a total of 287 married women were included in the study. Knowledge about Pap smear testing was determined through printed questionnaires. Pap smear screening was performed on every woman. 92% women of our study group had never heard or undergone Pap smear screening before. Maximum number of patients was in 4th decade. Of the 287 smears, 96.16% were adequate. Normal smear was 27.18%, inflammatory 58.54%, whereas epithelial cell abnormalities were seen in 9.05% of cases. The 26 abnormal cases comprised of 5.92% cases with ASCUS, 1.74% cases of LSIL, 0.35% cases of HSIL, 1.04% cases of squamous cell carcinoma.

We observed that 88%diagnosed on Pap smears correlated on histopathology findings. Goel et al[12]evaluated the entire spectrum of types and frequencies of cervical cytological abnormalities on PAP smear according to Bethesda system and to correlate cytology with histopathology wherever possible. A total of 3360 cases of pap smears were received. Most women were in the age range of 30-40 years. White per vaginal discharge was the most common complaint, occurring in 20.23% of the women. White discharge was the most

commonly noted per speculum abnormal finding (16.76% cases). 90% cases were negative for intraepithelial lesion or malignancy (NILM), 4% showed epithelial cell abnormalities (ECA) and 6% were inadequate. In NILM category, inflammatory/reactive changes were commonest. Bacterial vaginosis was commonest infective etiology. In ECA category, Atypical squamous cells of undetermined significance was most common followed by low-grade squamous intraepithelial lesion. Overall ECA was common in 31-50 years age group. In the present study overall sensitivity was 87.5%, specificity 98.9%, positive predictive value 94.9%, negative predictive value 97.1%, diagnostic accuracy 96.7%.

The shortcoming of the study is small sample size.

CONCLUSION
Authors found that Pap smears found to be effective in screening for early detection of premalignant and malignant lesions of cervix.

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