

International Journal of Clinical Obstetrics and Gynaecology

ISSN (P): 2522-6614
ISSN (E): 2522-6622
© Gynaecology Journal
www.gynaecologyjournal.com
2018; 2(3): 10-12
Received: 03-03-2018
Accepted: 04-04-2018

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Utility of Pap smear in detection of cervix cancer in females: A clinical study

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Abstract

Background: Cancer of uterine cervix is a leading cause of mortality and morbidity among women worldwide. The present study was conducted to determine the efficacy of Pap smear in detection of cancer cervix.

Materials & Methods: The present study was conducted in the department of Gynecology & Obstetrics on 510 females of age ranged 18-70 years. After a vaginal examination, 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. The smears were stained with Papanicolaou stain (PAP stain) and slides were examined under light microscope following 2001 Bethesda system.

Results: Age group 18- 30 years had 102 patients, 31-40 years had 132, 41-50 years had 120, 51-60 years had 84 and 61-70 years had 72. The difference was significant ($P < 0.01$). In age group 18- 30 years, maximum patients showed unsatisfactory results (25) followed by normal (20), HSIL (16), inflammatory (15), atrophy (12). In age group 31-40 years, maximum patients showed unsatisfactory results (30) followed by inflammatory (27), normal (25), atrophy (14). In age group 41-50 years, maximum patients had inflammatory (23), followed by normal (22) and unsatisfactory results (15). In age group 51-60 years, maximum patients had HSIL (16) followed by normal (15), inflammatory (12) and ASCUS (12). In age group, maximum patients had HSIL (14) and ASCUS (13). The difference was significant ($P < 0.05$).

Conclusion: Pap smears appear efficient in screening for early detection of premalignant and malignant lesions of cervix. Early intervention should be employed to prevent developing lesions of cervix in females.

Keywords: Papanicolaou, Stain, Squamocolumnar

Introduction

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 ^[1].

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. 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 ^[2].

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. 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]. The present study was conducted to determine the efficacy of Pap smear in detection of cervix cancer.

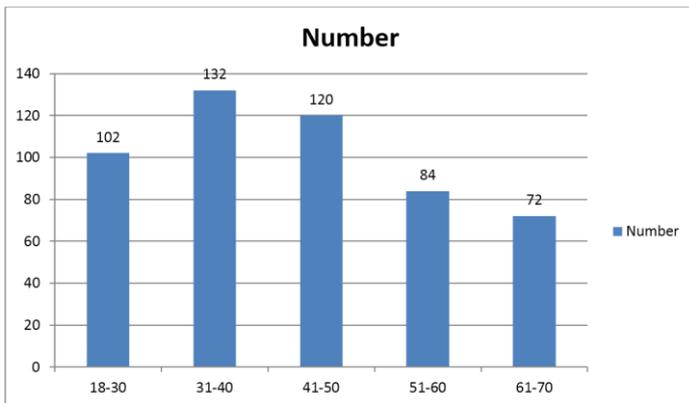
Materials & Methods

The present study was conducted in the department of Gynecology & Obstetrics. It comprised of 510 females of age ranged 18-70 years. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study. General information such as name, age etc. was recorded.

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The women after a vaginal examination, 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. Twosmears were prepared for each case. The glassslides were then fixed immediately by immersing them into the coplin jar containing 95% ethylalcohol and sent to the pathological laboratory. During the examination disposable speculums were used. Thesmears 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



Graph I: Age wise distribution of patients

Graph I shows that age group 18- 30 years had 102 patients, 31-40 years had 132, 41-50 years had 120, 51-60 years had 84 and 61-70 years had 72. The difference was significant (P- 0.01).

Table II: Pathology of cervix

Age group	18-30	31-40	41-50	51-60	61-70	P value
Unsatisfactory	25	30	15	10	8	0.01
Normal	20	25	22	15	7	
Inflammatory	15	27	23	12	10	
Radiation changes	0	0	1	0	0	
Atrophy	12	14	13	8	9	
ASCUS	5	12	10	12	13	
LSIL	7	10	12	11	10	
HSIL	16	12	8	16	14	
SCC	2	2	1	0	1	
Total	102	132	120	84	72	

Table II shows that in age group 18- 30 years, maximum patients showed unsatisfactory results (25) followed by normal (20), HSIL (16), inflammatory (15), atrophy (12). In age group 31-40 years, maximum patients showed unsatisfactory results (30) followed by inflammatory (27), normal (25), atrophy (14). In age group 41-50 years, maximum patients had inflammatory (23), followed by normal (22) and unsatisfactory results (15). In age group 51-60 years, maximum patients had HSIL (16) followed by normal (15), inflammatory (12) and ASCUS (12). In age group 61-70 years, maximum patients had HSIL (14) and ASCUS (13). The difference was significant (P<0.05).

Discussion

There is worldwide consensus that cervical carcinoma can be avoided by means of early diagnosis and treatment of precursor

lesions. The cervical vaginalcytological smear, known as the Papanicolaou smear, has been advocated as an efficient instrument for screening programs. 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-gradeintraepithelial lesion, and cancer [4].

In present study, age group 18- 30 years had 102 patients, 31-40 years had 132, 41-50 years had 120, 51-60 years had 84 and 61-70 years had 72. This is in agreement with Remzi *et al.* [5] Patel [6] conducted the exploratory, retrospective and descriptive study of cytological and histopathological examinations of young (12-24 years) and elderly (aged 64 and over) women. There was low occurrence of cytological atypia in the elderly female population, but there were occasional high-gradelesions in the indigenous youth.

In present study, maximum patients were seen in age group 31-40 followed by 41-50 years and 18- 30 years. We found that maximum patients showed unsatisfactory results normal and inflammatory. 66 patients showed HSIL and 50 patients were of LSIL. In a study by Saha *et al.* [7], 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 Papsmea screening before. Maximum number of patients was in 4th decade. Of the 287 smears, 96.16% were adequate. Normal smear were 27.18%, inflammatory 58.54%, whereas epithelial cell abnormalities were seen in9.05% 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 cellcarcinoma.

In a study by Ghait *et al.* [8], more women tested positive by VIA than on the Pap smear (6.9% vs. 4.2%). There were 35 women with histologic cervical intraepithelial neoplasia grade 1 (CIN1); of these, 15 were detected by Pap and 20 by VIA. A diagnosis of CIN 2 or 3 was confirmed in a total of 13 cases. Pap detected 5 of the cases and VIA 11 of the cases. The positive predictive value for detection of CIN 2+ was 8.3% for VIA and 6.3% for Pap. 2.3% of patients with a positive VIA were lost to follow-up before colposcopy that was true for 26.3% of the women with a positive Pap smear.

Neila *et al.* [9], conducted a study to analyze the occurrence of atypia in the cytology examinations of young women under the age of 25 years and of elderly women aged over 64 years. There was low occurrence of cytological atypia in the elderly female population, but there were occasional high-gradelesions in the indigenous youth.

Roy *et al.* [10] conducted a study in which total of 335 students completed the questionnaire and all reported that they were aware of cervical cancer. The awareness was mostly through brochures, posters and other printed material. Regarding cervical cancer risk, 94% attributed cervical cancer to smoking and 89.9% to early sexual debut. The majority of students (98.2%) were aware of cervical cancer screening. Papanicolaou (Pap) smear was the most popular screening test reported by 47.8% of the respondents as compared to Human Papilloma Virus testing (HPV) reported by 31.6% of the respondents. The overall Pap smear screening rate was 92 of 335 students. Those who perceived themselves to be at risk of contracting cervical cancer (60.6%), where 1.8 times more likely to go for Pap smear than those who perceived to be safe.

Conclusion

Pap smears appears efficient in screening for early detection of premalignant and malignant lesions of cervix. Early intervention should be employed to prevent developing lesions of cervix in females.

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