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Original Research Article

A Study Assessing Association between Pap smear and Cervical Biopsy in A Woman with Unhealthy Cervix

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Abstract

Aim: The aim of the present study was to assess the Pap Smear and Cervical Biopsy in a woman with unhealthy cervix attending tertiary care centre.

Material & methods: This study included 200 married women aged 20-65 years attending Department of Obstetrics and Gynaecology, SKMCH, Muzaffarpur, Bihar, India over the duration of 18 months.

Results: In this study, 42% women belong to age group 31-40 years. 31% women belong to 41-50 years of age. 16% women belong to 20-30 years of age, 11% women belong to 51-60 years of age. In this study 40% women were para 3, 30% women were para 4, 16% women were para 5, 5% women were para 2, 3% women were para 6 and 2% women were primipara. In this study population, white discharge was the most common chief complaint (49%), followed by lower abdominal pain in 24%, low back ache in 12%, postcoital bleeding in 9% and postmenopausal bleeding seen in 6%. In this study, association of Pap smear with histopathology was found to be statistically significant (p value <0.001).

Conclusion: PAP smear can be used as screening test for detecting premalignant lesions of cervix. Cervix biopsy has got better specificity than Pap smear, so all symptomatic women should be subjected to cervix biopsy to detect carcinoma at early stage.

Keywords: Cervical carcinoma, Colposcopy guided biopsy, PAP smear

Introduction

Cancer of cervix is one of the most common gynaecological malignancies in women and significant cause of mortality in women all over the world. [1] Unhealthy cervix is a group of cervical lesions, mostly chronic, which include chronic cervicitis, endocervicitis, cervical erosions lacerations, polyps and leukoplakia. These lesions can harbor premalignant lesions even when pap smear is negative. [2] Cervical cancer screening is an important part of preventive health care of women. Attempts are being made to improve efficacy of screening to decrease morbidity and mortality due to cancer cervix. The cervical screening algorithm recommends treatment of infection and repeat pao smear after 4 to 6 months. [3] The main reason for false negativity of cytology was due to sampling errors, samples are suboptimal and are inadequate for interpretation. [4]

Rural Indian women undergo early marriage, multiple childbirth, poor nutrition status and they lack awareness about contraception, availability of screening programmes and therefore are prone to acquire carcinoma cervix. [5] Tobacco use, the number of sexual partners, and a family history of cervical cancer have all been identified as important risk factors. [6] Cervical cancer is a malignancy that has got a long latent period to transform into invasive carcinoma, so if women undergo screening at an early stage of disease, invasive lesion of cervix can be prevented. [7] More than 80% of women with cervical carcinoma present with advanced stage of disease, due to their lack of health education, awareness of screening programs and lack of accessibility to medical services. [8]

Most common cause of cervical carcinoma is human papillomavirus (HPV). Subtypes HPV-16 and HPV18 are involved in almost 99% of invasive lesion of carcinoma cervix. [9] Cervical dysplasia, also called cervical intraepithelial neoplasia (CIN), frequently arises in a place of metaplasia in the transformation zone in the progressing squamocolumnar junction. Cervical dysplasia is a precursor of cervical cancer, but it's a treatable illness. Carcinoma cervix is a disease that can be prevented through early detection (because it has a very long pre-invasive stage) along with access to

screening tests. [10] Early cervical epithelial changes can be identified by a Pap smear test, which is the primary screening test is a simple, cheap and noninvasive method used for screening of carcinoma cervix, with specificity of 94% and sensitivity of 72% used for detection of precancerous cervical intraepithelial neoplasia and the early stage of invasive cervical cancer. [11]

Because of the high false-negative rate of pap smear, premalignant lesion of the cervix can be missed in women with inflammatory pap smear findings. The Papanicolaou (Pap) smear is an Easy, secure, non-invasive, and effective way for the detection of precancerous, cancerous, and non-cancerous changes in the cervix. [12] Target biopsies can be performed on abnormal locations, and lesions can be treated while retaining fertility. [13]

Hence the aim was to study of Pap Smear and Cervical Biopsy in a woman with unhealthy cervix attending tertiary care centre.

Material & Methods

This study included 200 married women aged 20-65 years attending Department of Obstetrics and Gynaecology, SKMCH, Muzaffarpur, Bihar, India over the duration of 18 months. Inclusion criteria

- Married women between ages of 20-65 year's
- Women with symptoms like vaginal discharge, postcoital bleeding, post-menopausal bleeding, persistent leucorrhoea.

Exclusion Criteria

- Unmarried women
- Pregnant women
- Women with frank lesion and active infection
- Women below age of 20 years and women above 65.

Methodology

A total 100 patients satisfying inclusion criteria was included in the study of age group 20-65 years. An Informed written consent shall be taken from all the subjects. Detailed history regarding age, age at marriage, age at first pregnancy, parity, menstrual history, presenting symptoms was asked. Through speculum examination, PAP smear was taken. Using colposcopy, colposcopy guided biopsy was taken. Staining was done with universal stain for cytological preparations. Papanicolaou stain is Harris haematoxylin the optimum nuclear stain and combination of OG6 and EA 50. Bethesda classification will be used for reporting. Colposcopy on a rolling stand was used with a focal length of 300 nm. It is a microscope which consist of the binocular head with eye piece the main objective, microscope tilt, and illuminating system with built in filters. Green filter serves to enhance the fine details of vascular pattern of the target epithelium. The light source on colposcope is halogen. Colposcopic signs were scored under Reid colposcopic index in following categories:

- Sharpness of margin
- Epithelial colour
- Vascular pattern
- Iodine staining.

Each category was given three points. Scores Diagnosis 0-2 CIN 1 3-4 CIN 1 –CIN 2 5-8 CIN2-CIN3

Statistical Analysis

Data was entered into Microsoft excel and SPSS (Statistical package for social science) version 23.0 was used for descriptive statistics. Categorical data was analysed using percentage. Inferential statistics was analysed using Chi-square test. The probability value of<0.05 was considered as statistically significant.

Results

Table 1: Demographic data

Age in years	**N%**
20-30	32 (16)
31-40	84 (42)
41-50	62 (31)
51-60	22 (11)
Gravida	
Para 1	8 (4)
Para 2	10 (5)
Para 3	80 (40)
Para 4	60 (30)
Para 5	32 (16)
Para 6	6 (3)
Primipara	4 (2)

In this study, 42% women belong to age group 31-40 years. 31% women belong to 41-50 years of age. 16% women belong to 20-30 years of age, 11% women belong to 51-60 years of age. In this study 40% women were para 3, 30% women were para 4, 16% women were para 5, 5% women were para 2, 3% women were para 6 and 2% women were primipara.

Table 2: Chief complaint

Chief complaint	N%
White discharge	98 (49)
Lower abdominal pain	48 (24)
Lower backache	24 (12)
Post coital bleeding	18 (9)
Post menopausal bleeding	6 (6)

In this study population, white discharge was the most common chief complaint (49%), followed by lower abdominal pain in 24%, low back ache in 12%, postcoital bleeding in 9% and postmenopausal bleeding seen in 6%.

Table 3: Comparison of Pap smear with percentage of histopathology results

Pap smear	Histopathology										Chi square p-value
	Chronic cervicitis		Chronic endo papillary cervicitis		CIN I		CIN II		SCC		
	No.	%	No.	%	No.	%	No.	%	No.	%	
Negative for intraepithelial malignancy	98	49	4	10	0	0%	0	0%	0	0%	<0.001
Inflammatory smear	92	47	36	90	20	66.8%	4	33.3%	0	0%	
Bacterial vaginosis	4	2	0	0%	0	0%	0	0%	0	0%	
LSIL	4	2	0	0%	8	26.8%	4	33.3%	0	0%	
HSIL	0	0%	0	0%	2	6.8%	4	33.3%	4	100%	

In this study, association of Pap smear with histopathology was found to be statistically significant (p value <0.001).

Discussion

Cancer of cervix ranks as the third common malignancy in females worldwide. [14] In developing countries like India, carcinoma cervix is the second commonest malignancy affecting females. India accounts for 18% of the global burden of carcinoma cervix. [15] In India, every year 1,26,000 new cases are identified and 67,477 deaths occur due to cervical carcinoma. [16] Cervical carcinoma affects women of age 15-44 years and disease peaks at 55-66 years. On average, Indian women have a 2.5% risk of developing carcinoma cervix. [17] It was estimated worldwide that every 5th woman, who suffer from cervical cancer belongs to India. [18] According to WHO, 80% of death from carcinoma cervix is from developing countries. In India, carcinoma cervix plays a major role in mortality and morbidity of patient. [19] In developing countries like India, more than 70% of the population lives in rural areas. Rural Indian women undergo early marriage, multiple childbirth, poor nutrition status and they lack awareness about contraception, availability of screening programmes and therefore are prone to acquire carcinoma cervix. [20]

In this study, 42% women belong to age group 31-40 years. 31% women belong to 41-50 years of age. 16% women belong to 20-30 years of age, 11% women belong to 51-60 years of age. In the studies done by Vincent et al [17] and Sathiyakala et al [21], 26.5% women and 20% women belonged to the same age group, respectively. Unhealthy cervix is a group of cervical lesions, mostly chronic which includes chronic cervicitis, endocervicitis, cervical erosions, lacerations polyps and leukoplakia. These conditions can harbor pre malign lesions. When a gynecologist encounters any of these conditions, it is necessary to evaluate them in most purposeful manner to rule out any premalignant lesion. Frequently repeated cytology screening programs have led to a large decline in cervical cancer incidence and mortality in developed countries. Cytology based screening programs have achieved very limited success in developing countries like ours due to lack of trained personnel, laboratory facilities, equipment's, high cost of services and poor follow-up. It has become necessary to find out

alternative screening procedure to cytology which has high sensitivity and specificity.

In this study 40% women were para 3, 30% women were para 4, 16% women were para 5, 5% women were para 2, 3% women were para 6 and 2% women were primipara. In this study population, white discharge was the most common chief complaint (49%), followed by lower abdominal pain in 24%, low back ache in 12%, postcoital bleeding in 9% and postmenopausal bleeding seen in 6% which was similar to the study by Kalyankar et al [14] and Garg et al. [15] In this study, association of Pap smear with histopathology was found to be statistically significant (p value <0.001). These differences may be due to differences in study population, observer errors, and also due to the fact that in this study, most of the women belonged to low socio economic class and hence, are more prone to infection and develop carcinoma cervix. Sachan et al, found that 48.8% of women had normal smear, 42.6% had inflammatory smear, 5.09% had LSIL and 0.48% had HSIL. [22]

Conclusion

Pap smear can be used as screening test for detecting premalignant lesions of cervix. Colposcopy guided cervix biopsy has got better specificity than Pap smear, so all symptomatic women should be subjected to colposcopy guided cervix biopsy to detect carcinoma at early stage.

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