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Original research article

Role of colposcopy and Pap smear in cervical carcinoma screening

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ABSTRACT

Background: Cervical cancer poses a significant risk to the health of women, but it can be avoided via the performance of appropriate screening procedures. Since the turn of the last century, the Papanicolaou test, sometimes known as the Pap smear, has been widely used as part of the clinical screening process for cervical cytology. The number of women being diagnosed with cervical cancer has dropped by half as a direct result of cervical cytology screening.

Keywords: Colposcopy, dysplasia, cervical cancer

Introduction

Even with rapid consideration and understanding on prevention, screening, early diagnosis, and treatment, cancer of the cervix continues to be a serious worry for cause of death in developing nations among middle-aged women. This is especially true in countries where the rate of literacy is low. Since its inception in the 1940s and subsequent recognition in the 1960s as the gold standard of gynecologic treatment, the annual screening for cervical cytology has been an essential component of the well-woman exam for a considerable amount of time.

It is anticipated that 12,820 new cases will be identified in the United States in 2017, and it is anticipated that 4,210 people will pass away from the disease in 2017. (as per CDC). Every year, there are 1,22,844 women diagnosed with cervical cancer in India, and 67,477 women lose their lives to the disease. It is the second most common kind of cancer found in women in India (as per ICO HPV Information Centre and NICPR). Its mortality rates are directly proportional to the socioeconomic status of the population, such that the lower the socioeconomic status, the higher the mortality rate [1].

However, there has been an increase in incidence affecting successive generations as a result of changes in bin sexual behaviour, which has led to an increase in the transmission of oncogenic HPV types. This is despite the fact that screening programmes and their implications have shown a reduction in the incidence and mortality of cervical cancer. In light of this, recent developments have seen the introduction of a preventative vaccination for young girls and women against oncogenic HPV. This is in addition to screening for premalignant lesions and treating them when they are found.

Even though it has a somewhat high probability of false negative results, the Pap smear is nevertheless widely regarded as the gold standard for cervical cancer screening.

The following are some of the limitations of cytology-based screening programmes:

a) The requirement for frequent, repetitive testing carried out at relatively close intervals in order to improve sensitivity.
b) Inadequately reproduced with inadequate consensus even among specialists
c) It requires a significant amount of labour, and high-quality cytology is expensive; therefore, it is not a cost-effective choice as a screening test.

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Colposcopy was initially developed in 1925 by a German physician named Hinselmann. It is a technology that allows for the visualisation of a woman's lower genital tract using stereoscopic vision and a magnification range that can range anywhere from 4 to 40 times.
Despite the fact that the uterine cervix seems to have a normal morphological appearance, it is possible to discover precancerous and cancerous lesions with this method. Although it is widely acknowledged for high-grade cytology, its use in the management of low-grade abnormalities has been the subject of debate for a considerable amount of time. Testing for high-risk HPV, which is based on evidence from clinical trials, can typically triage women for urgent colposcopy or any additional cytological surveillance.
The cytology and colposcopy studies work in conjunction with one another to provide a comprehensive diagnostic and treatment plan for cervical malignancies detected at an early stage. Testing for HPV might be explored in the future as well, despite the fact that it is prohibitively expensive for poor socioeconomic groups of people in India [2].

Materials and Methods
The Obstetrics and Gynecology Department was responsible for carrying out this particular study.

Material
Ladies who attended the gynaecological outpatient department (OPD) as well as those who were admitted to the gynaecology ward served as subjects for the study. These women had to meet the inclusion and exclusion criteria in order to participate.

Sample Size
It is determined by using a confidence level of 95%. With a relative error of twenty percent and a sample size of one hundred women being mandatory, around fifty percent of women had atypical symptoms and had diseased cervixes.

Criteria for Acceptance

a) Have an age between 18 and 65 years old.
b) The patient has presented with complaints of a copious amount of white discharge, post-coital bleeding, inter-menstrual bleeding, and postmenopausal haemorrhage.
c) On the basis of the speculum, a clinical diagnosis of cervical erosion or polyp, condyloma, vaginitis, cervicitis, and an unhealthy cervix, among other conditions.

Criteria for Patient Exclusion

a) Patients Who Show Signs of Bleeding on the Per Speculum.
b) Patients who have been clinically diagnosed with invasive carcinoma, which is characterised by ulceration, visible growth, or cervix that has been eaten away.
c) The patient does not wish to provide their consent.

Method One hundred women who met the inclusion criteria were analysed. First, a detailed history was gathered from each participant, then a comprehensive physical examination was performed, including per vaginal and per speculum examinations. After that, they are need to get a Pap test as part of the screening process. First, the cervix was examined under adequate lighting, and then an excess of cervical mucus was wiped away using a cotton wool tipped applicator that had been drenched in saline. The area was then treated with 3-5% acetic acid, after which it was observed with a colposcope and changes were recorded using the free hand drawing method.
Punch biopsies should be performed on any and all suspicious lesions, and the tissue should

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be sent for histopathological analysis. The Reid and Scalzi colposcopic index was used to grade each and every lesion. After that, a statistical analysis was performed on the data shown above.

Results

Table 1

in years	ber of patients	
20-30	17	00
31-40	55	00
41-50	17	00
51-60	11	00
Total	100	00

Table 2: Distribution of cases in relation to religion

gion	ber of patients	entage
ndu	89	9.00
slim	11	1.00
tal	100	00.00

Table 3: Distribution of cases in relation to socio-economic status

o-economic status	ber of patients	
Lower	18	00
Lower-Middle	24	00
Upper-Lower	58	00
Total	100	00

Table 4: Correlation between benign, premalignant and malignant lesions in relation to age at 1st coitus

at 1st coitus classification	ears	ears	l
Benign	2	8	
Premalignant	7	9	
Malignant	0	4	
	9	1	

*Chi square 6.393, value 0.031.

Discussion

Even though it has a low sensitivity, the cytological diagnosis is nevertheless an essential screening test; nonetheless, it must be repeated frequently. The current investigation was carried out with the purpose of determining the diagnostic accuracy of colposcopy in the early detection of dysplasia. According to the findings of a study carried out by Wati S. *et al*., the incidence of dysplastic smears was highest in the age range of 35-40 years old. Whereas the 30-49 year age range was used in the research conducted by Ancutua Boicea *et al*., and the mean age of the participants in the research conducted by Arya SB *et al*. was 36.3 years old. According to the research carried out by Vijay Manohar Bhagat and colleagues [3] the average age of patients who had intraepithelial lesions was 37.54 years.

The age group that was examined in this study is similar to the age group that was examined

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in these studies.

In the current study, the mean age group was 39.05 years, and the patients all belonged to the 31-40 year age group. One possible explanation for this is that early marriages and early family completion led patients to seek medical attention as soon as they had the opportunity.

In the current study, the distribution of patients according to their religion showed that 89% of them belonged to the Hindu religion, which constitutes the majority and 11% to the Muslim religion, which constitutes the minority. It is comparable to a study conducted by Cerqueira EM *et al*., in which 25 premalignant lesions were found among Hindus but only one among Muslims. According to a study that was conducted by Vijay Manohar Bhagat *et al*. [4] the prevalence of cervical neoplasia among Hindus was 13.73 percent, while the prevalence among Muslims was 13.25 percent.

As a result of the fact that the majority of patients who attended the hospital were Hindus, the Hindu faith makes up the majority in this study.

The socioeconomic level of a person played a significant part in the epidemiology behind the development of dysplasia. In the current investigation, individuals with upper-lower socioeconomic position account for 58% of the sample, individuals with lower-middle socioeconomic status account for 24% and individuals with lower socioeconomic status account for 18%. The majority of cases that were identified as having CIN (62.06%) belonged to the upper-lower class. Additionally, upper-lower class lesions make up 65.38% of all premalignant lesions. They do not stand in comparison to the work done by Saha *et al*. and EL Moss *et al*. [5].

In the study that was done by Saha R *et al*., all of the participants belonged to some sort of socioeconomic level, while in the study that was done by El Moss *et al*., 85% of the participants belonged to a middle socioeconomic class. Inadequate personal hygiene, substandard living conditions, unstable marriages, and a young age at the time of one's first sexual encounter are some of the risk factors connected with cervical cancer.

The majority of patients in this study were adults older than 18 years. The majority of people with CIN (61.53%) were younger than 18 years old at their first coitus. Premalignant lesions were found in 65.38% of patients who had their first coitus before the age of 18 and in 34.61% of patients who had their first coitus after the age of 18. This contradicts the findings of a study by Maziam AM *et al*., in which 44% of participants were younger than 19 years old when they had their first coitus, but 50% of participants were between the ages of 20 and 29.

Early sexual activity was observed in the CIN patients who participated in the study. This could be because of the culture of early weddings that is common in Rajasthan. Histology and cytology were compared on the basis of benign, premalignant, and malignant lesions, and it was discovered that one hundred percent of the patients with benign lesions on histopathology also had benign lesions on cytology. Cytology had an accuracy of 81.5%, a sensitivity of 72.86% and a specificity of 26.67% for detecting benign conditions. Cytology showed a detection rate of premalignant lesions that was 81% accurate, with a sensitivity of 19.23% and a specificity of 95.94%. On the other hand, it exhibited a specificity of 100% and an accuracy of 96% for detecting malignant lesions.

There is a substantial association in regard to the sensitivity, specificity, and positive predictive value (p 0.001) in detecting benign lesions when comparing various diagnostic markers between colposcopy and cytology [6]. This was determined by comparing the two diagnostic methods.

When it comes to diagnosing premalignant lesions, a substantial association exists between the sensitivity, specificity and negative predictive value (p 0.001).

In the detection of malignant lesions, the sensitivity and diagnostic accuracies have not yet reached the level of statistical significance. Colposcopy, on the other hand, is superior to cytology in terms of its ability to detect premalignant lesions [7, 8]. This is due to the fact that the results of colposcopy may be interpreted.

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Conclusion

1) A Pap smear and a colposcopy are recommended for screening in women who have abnormal white discharge and symptoms.
2) Colposcopically guided biopsies of aberrant areas aid in the early diagnosis of cervical intraepithelial neoplasia (CIN).
3) When it comes to identifying dysplasias, CIN and invasive malignancies, colposcopy has a sensitivity of 100%, a specificity of 74.28% and an accuracy of 82%.
4) When it came to the diagnosis of dysplasias, CIN and invasive malignancies, the Pap smear had a low sensitivity of 26.67%, a high specificity of 100% and an accuracy of 78%.
5) All inflammatory smears should be looked with suspicion and then a colposcopy should be performed to detect any early abnormalities that could lead to dysplasia.
6) When it came to the early diagnosis of dysplasias, colposcopy was superior to the Pap smear in terms of specificity, sensitivity, and accuracy.

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