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Original Research Article

A Hospital-Based Assessment of the Effectiveness and Feasibility of Conventional Smear Preparation in Cervical Cancer Screening

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Abstract

Aim: To assess the effectiveness and feasibility of conventional smear preparation in cervical cancer screening.

Methodology: For eight months, a retrospective record review was performed for a total of 500 women. Pap cervical smear sample was collected by trained personnel for performing conventional smear preparation direct to slide method. Samples were processed and stained within 24 hours of receiving and the slides were reported by the pathologist following the latest Bethesda system of reporting (TBS 2014). Data on age, marital status of the patient, reproductive history and their current gynaecological symptoms (if any), date of Pap smear performed and the result were retrieved from the pre-filled proforma. After screening, all screened women collected their reports and were directed to the Department of Obstetrics and Gynaecology to ensure that those with abnormal cytology were subjected to further necessary evaluations and treated appropriately.

Results: It was observed that among women with abnormal cytology (18.4%), majority of the cytology presented as ASC-US with 46.74% (43/92), LSIL 7.61% (7/92), ASC-H 22.83% (21/92), 19.56% (18/92) were High grade squamous intraepithelial lesion (HSIL), while 2.17% (2/92) were Squamous cell carcinoma and adenocarcinoma stood at 1.09% (1/92). The chief complaints among women with abnormal cytology were pain in the lower abdomen (33.7%) and white discharge (28.26%). Among women with abnormal cytology, the mean age was 40 years.

Conclusion: From this study, it can be concluded that conventional smear preparation can be a better preparation in cervical cancer screening. Furthermore studies are required.

Keywords: Conventional Smear Preparation, Cervical Cancers, Smears.

Introduction

Cancer of the cervix uteri is the fourth most common cancer among women worldwide, with an estimated 604,000 new cases and 342,000 deaths worldwide. The majority of cases are squamous cell carcinoma followed by adenocarcinomas [1]. The leading cause of cancer among women in Nagaland was cervical cancer with 16.4% [2]. The burden of cervical cancer falls on the women who lack access to health services, mainly in low and middle income countries [3] and awareness about cervical cancer screening has now become the immediate need in

resource-limited countries. For women in India, cervical cancer is the second most common cancer. Cervical cancer is also the second most common cause of cancer deaths when both genders are combined [4].

"Cervical cancer can have devastating effects with a very high human, social, and economic cost, affecting women in their prime. But this disease should not be a death sentence, even in poor countries," explains Dr. Rengaswamy Sankaranarayanan, a lead investigator for an IARC research project with a focus on cervical cancer screening in rural India. "Low-tech and inexpensive screening tools exist and could significantly reduce the burden of cervical cancer deaths right now in less developed countries" [5].

Cervical screening has been shown to reduce the incidence of cervical cancer, but only in the setting of well organised, high quality programmes. In the United Kingdom the NHS cervical screening programme has been estimated to prevent around 80% of deaths from cervical cancer [6]. Liquid based cytology represents the first major change in preparation method for cervical screening samples for over 50 years. Instead of cells being smeared onto a glass slide, they are washed into a vial of liquid and filtered, and a random sample is presented in a thin layer on a glass slide. These slides can then either be screened by skilled staff or subjected to partially automated imaging. The process is being widely used in the United States, many European countries, and elsewhere [7].

Frequently performed cytology screening programs have led to a decline in cervical cancer incidence and mortality in developed countries. In contrast, cervical cancer remains largely uncontrolled in high-risk developing countries because of ineffective or no screening program [8]. So this study was done to assess the effectiveness and feasibility of conventional smear preparation in cervical cancer screening.

Methodology

For eight months a retrospective record review was performed for a total of 500 women who were referred from Department of Obstetrics and Gynaecology at Anugrah Narayan Magadh Medical College and Hospital (ANMMCH), Gaya, Bihar for Pap cervical smear to the Department of Pathology. Pap cervical smear sample was collected by trained personnel following the manufacturer's protocol for performing conventional smear preparation direct to slide method.

Samples were processed and stained within 24 hours of receiving and the slides were reported by the pathologist following the latest Bethesda system of reporting (TBS 2014). Data on age, marital status of the patient, reproductive history and their current gynaecological symptoms (if any), date of Pap smear performed and the result were retrieved from the pre-filled proforma. After screening, all screened women collected their reports and were directed to the Department of Obstetrics and Gynaecology to ensure that those with abnormal cytology were subjected to further necessary evaluations and treated appropriately.

Results

All samples (n=500) received in the pathology department were processed for cytological investigation. It was observed that 18.4% (92/500) had abnormal results. The abnormal cervical cytology was classified according to the Bethesda System (TBS-2014). It was observed that among women with abnormal cytology (18.4%), majority of the cytology presented as ASC-US with 46.74% (43/92), LSIL 7.61% (7/92), ASC-H 22.83% (21/92), 19.56% (18/92) were High grade squamous intraepithelial lesion (HSIL), while 2.17% (2/92) were Squamous cell carcinoma and adenocarcinoma stood at 1.09% (1/92). The abnormal smears were however not

subjected to HPV testing due to unavailability of resources.

Table 1: Abnormal cytology classification (n =92)

Cytology category	Abnormal (n=92) (%)
ASC-US	43 (46.74%)
LSIL	7 (77.61%)
ASC-H	21 (22.83%)
HSIL	18 (19.56%)
Malignant	3 (3.26%)

The chief complaints among women with abnormal cytology were pain in the lower abdomen (33.7%) and white discharge (28.26%). Among women with abnormal cytology, the mean age was 40 years. However, there was no significant correlation between chief complaints and cytology category.

Table 2: Common complaints among screened positives (n=92)

Complaints	Abnormal n (%)
White discharge	26 (28.26%)
Pain lower abdomen	31 (33.7%)
Postmenopausal bleeding	17 (18.48%)
Menorrhagia	4 (4.35%)
Prolapse	3 (3.26%)
Spotting	6 (6.52%)
Irregular periods	5 (5.43%)

Discussion

Cervical cancer is one of the preventable cancers and when diagnosed early is one of the most successfully treatable forms of cancer [9]. For screening, triaging and management of cases, the federation recommends exercising the most optimum approach according to resource availability and comprehensive follow-up and treatment [10]. In the Seventy-third World Health Assembly, a resolution was made for the global strategy to eliminate cervical cancer as a public burden by accelerating interventions and prioritizing vaccination and screening for the period 2020- 2030 [11].

WHO recommends different models for Cervical cancer screening with 'HPV only' as more widely accepted in high income countries and 'PAP triaging with HPV' more suited for lower income regions with specific 2030 targets. HPV testing in this region is still not routinely done due to lack of testing facilities and high cost which is one of the main problem in following national and international recommendations. Strong association is linked between high-risk Human papillomavirus (Hr-HPV) infection and cervical cancer. HPV cervical infection results in cervical morphological lesions ranging from normalcy (cytologically normal women) to different stages of precancerous lesions (CIN-1, CIN-2, CIN-3/CIS) and invasive cervical cancer [12, 13].

In the present study, it was observed that among women with abnormal cytology (18.4%), majority of the cytology presented as ASC-US with 46.74% (43/92), LSIL 7.61% (7/92), ASC-H 22.83% (21/92), 19.56% (18/92) were High grade squamous intraepithelial lesion (HSIL), while 2.17% (2/92) were Squamous cell carcinoma and adenocarcinoma stood at 1.09% (1/92). Similar study done in Maharashtra of two-

year period on 680 samples showed SIL of 10.88% [14]. One study in a hospital based setup in Madhya Pradesh compared the results in urban and rural areas. They found out that there was higher percentage of SIL in rural 10.5% as compared to 4.5% SIL in urban [15]. Another hospital based cervical screening done over 1 year with sample size of 1650 showed 5.57% SIL [16]. When compared with a study done over 35 years in a hospital based cytological screening in Lucknow revealed a proportion of 7.2% SIL in 36,484 samples which was comparable to our study [17,18].

Conclusion

From this study, it can be concluded that conventional smear preparation can be a better preparation in cervical cancer screening. Furthermore studies are required. The result from this retrospective analysis was to address the disease burden through representative data, highlight the need of effective screening programme and availability of HPV testing for uniformity of management and treatment according to the national recommendations.

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