

Examining the Results of Cervical Pap Smears at a Hospital Specializing in Advanced Medical Treatment

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Abstract

Aim: The objective of the present investigation is the study of cervical pap smears in a tertiary care hospital.

Methods and Material: This research was carried out at the Department of Pathology, Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, and 50 women participants with cervical cancer disease were included. The duration of the study was one year. Local ideas and culture were incorporated. Confidentiality was assured. They were given thorough explanations in their native tongue about the purpose and aim of the survey.

Result: There were 50 women subjects analyzed out of which the age range of 30-39 years had the highest percentage of cases (38%). The oldest case involved a 79-year-old man. A minimum of 4% of instances involved people under the age of 70-79.

Conclusion: This test is an effective analytical tool for discerning cervical cancer. The results obtained from this study demonstrate that the pap test is exceedingly sensitive, specific, and accurate in detecting pre-cancerous changes in the cervix. Therefore, it is recommended that all women above the age of 20 should be routinely screened for cervical cancer with a pap test.

Keywords: Cervical Cancer, HPV, pap smear test.

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Introduction

Cancer that begins in the cervix's cells is called cervical cancer. The cervix is the uterus's bottom, a thin end that is called a vulva. The vagina & uterus are secured along the cervix. Customarily, cervical cancer expands over time. The cervical tissue undergoes transformations described as abnormally, wherein the atypical cells raise in the tissue before cancer in the cervix. If that left unnoticeable, the atypical lymphocytes may gradually develop into cancerous cells, thicken in the cervical tissue and proliferate in the

surrounding tissues [1]. Human Papilloma Virus septicaemia is the core reason for cervical cancer [2]. The International Agency for Research on Cancer has classified 12 HPV of the 200 varieties that have been found as oncogenic, including HPV-16 being the reason for almost 50% & human papillomavirus-18 superintend for 10%, correspondingly, of cases of the cancerous cervix [3]. In comparison to a person who is not infected, the chance of developing cancer is increased by four hundred thirty-five & two hundred forty-

eight times, respectively, by contamination with either of these two strains of HPV [4]. Although less common, several subtypes of cervical cancer have been discovered such as HPV-31, -33, & -45 [5]. Several behavioral (lifestyles and sexual factors) and infectious variables can indeed be cervical cancer risk variables [6]. The likelihood of cervical cancer rises with the age of the first sexual encounter. The risk is elevated by early experience of sex or vicinity to sexual maturity [7].

A pap test also called a pap smear, is a common analytical procedure cast-off to investigate abnormal or pre-cancerous cells on the cervix. During the procedure, a health care provider collects cells from the cervix using an instrument spatula. The cells are then sent to a lab and scrutinized under a microscope, to look for any abnormalities that could indicate the presence of cancer. A pap test is a necessary tool for the antecedent monitoring of cervical cancer and is recommended for all women over the age of 21 [8].

A pap test is a vital part of cervical cancer screening and can discern abnormal cells in the cervix before they become cancerous [9]. The benefits of a pap test include early detection, which can lead to better treatment outcomes and a greater chance of survival [10]. Pap tests can also detect other issues such as infection and inflammation of the cervix, which can be treated quickly and effectively if caught early. Additionally, the pap test is a reliable and cost-effective way to detect cervical cancer, as it can detect precancerous abnormalities before they become cancerous. Ultimately, a pap test is the best way to ensure early detection and successful treatment of cervical cancer [11].

Materials and Methods

This study was held at the Department of Pathology, Lord Buddha Koshi Medical College and Hospital, Saharsa, Bihar, for

one year, and 50 subjects with cervical cancer were included. Local ideas and culture were incorporated. Confidentiality was assured. They were given thorough explanations in their native tongue about the purpose and aim of the survey. After receiving informed consent in the patient's native language, all experiments were carried out.

Cervical mucus swabs from the participants were taken as part of the methods and techniques. They were then inspected underneath a microscope. The Bethesda Systems 2016 was then used to analyze these samples and look for precancerous lesions. With a sensitivity of 96.4%, the PAP smear process evaluation was demonstrated to be a useful instrument for identifying precancerous lesions. This technique is practical for screening for cervical cancer in increased groups since it is efficient, easy, & reasonably affordable.

The study covered 50 instances in all, omitting smears that were not properly processed and stains from vaults. The pathology department received the slides, which were then evaporated and marked using Pap stain. Following that, the slides were classified using the Bethesda Classification System. The assessment was categorized as having non-neoplastic abnormalities like:

- Keratotic alteration
- Squamous metaplasia,
- Atrophy,
- Tubal metaplasia &
- Pregnancy-related changes

The report also covered reactive cellular alterations brought on by inflammation, radiation, and intrauterine devices. The status of the glandular cells following hysterectomy was also reported in the report.

Inclusion criteria/case definition

- The criteria for study participants include women aged 20-79 years, who

are willing to provide consent & complete the study procedures.

- Participants must have no prior record of cervical cancer, as well as no symptoms of cervical cancer.
- Additionally, participants must not have had a cervical PAP smear within one year.
- Patients must also not be pregnant and must not have a history of any female genital mutilation or hormone replacement therapy.

Exclusion criteria's

Patients entitled to the study should qualifies the following criteria:

- Not pregnant at the time of enrolment
- Not lactating
- No allergies to any medications used during the research.
- No cervical cancer, chlamydia, or gonorrhea infections
- Has not had a pap smear test within the past 3 months.
- No current or past history of pelvic inflammatory disease
- No history of cervical or pelvic surgery within the last 11 months
- No prior record of radiation or chemotherapy in the last 5 months
- Has not had a pelvic ultrasound or any other pelvic imaging within the last 6 months.
- No current or past history of HIV
- No current or past history of pelvic organ prolapse.

Statistical Methods:

A cervical Pap smear has become a well-established analytical tool for the early detection of cervical carcinoma. As cervical cancer is the leading cause of cancer-related deaths among women in India, it is essential to understand the prevalence and types of cervical cancer in such a population. This study was carried out to set on the prevalence and types of cervical cancer in patients.

The study was held in a tertiary care hospital, and it included all female patients aged 20-79 years who were referred for Pap smear testing. A cross-sectional questionnaire-based survey was administered to the patients in order to collect demographic and clinical data.

The collected data was analyzed using descriptive and inferential statistics. Descriptive statistics were used to summarize the data and to identify the prevalence of different types of cervical cancer. Inferential statistics, such as 1-way ANOVA tests and chi-squared tests, were employed to determine the associations between the different variables.

Clinical Data

The effectiveness of the Pap smear test in identifying precancerous lesions in females was examined in clinical research. Women in the age range of 20 to 79 were involved in the study, which compared the effectiveness of HPV testing. This study was carried out to evaluate cervical cancer and to assess whether additional assistance was necessary.

Result

The authorization forms for the samples that were received provided the clinical findings and other pertinent data.

There were 50 subjects analyzed out of which the age range of 30-39 years had the highest percentage of cases (38%). The oldest case involved a 79-year-old man. A minimum of 4% of instances involved people under the age of 70-79 [refer to table 1].

The symptoms which were seen are Asymptomatic (4%), Vaginal discharge (32%), menorrhagia (8%), Postmenopausal bleeding (16%), the substance out of the vagina (14%), Burning Micturition (6%), Post-Coital Bleeding (2%). The most frequent main gripe was vaginal discharge, which was followed by lower abdominal pain and postmenopausal bleeding [refer to table 2].

Table 1: No. of cases on the report of age group

Age Group	Cases	Percentage
20-29	9	18
30-39	19	38
40-49	10	20
50-59	6	12
60-69	4	8
70-79	2	4

Table 2: No. of cases according to symptoms

Symptoms	No. of cases	Percentage
Asymptomatic	2	4
Pain lower abdomen	9	18
Vaginal Discharge	16	32
Menorrhagia	4	8
Postmenopausal Bleeding	8	16
Substance coming out of the vagina	7	14
Burning Micturition	3	6
Post- Coital Bleeding	1	2

Discussion

The 2nd most usual gynecological cancer in terms of intercontinental diagnoses is cervical cancer. Around 265,760 cervical cancer fatalities and 525,600 new cases were reported globally in 2012 [12]. According to World Health Organisation(WHO), in emerging regions, about 90% of cervical cancer fatalities materialize [13]. In several investigations, the Pap smear's sensitivity is around 70% [14].

Cancer in the cervix is a foremost reason of death among women worldwide, and a cervical pap smear is a commonly used analytical test for the untimely spotting of cervical cancer [15]. This study evaluates the accuracy and reliability of the pap smear in detecting cervical cancer. At a certain point in women's lives, 80% of women will become infected with HPV, and many of them will start to exhibit symptoms by the age of 45.4 [16]. The second most prevalent gynaecological cancer in terms of worldwide diagnoses is cervical cancer [17].

The Pap smear test is an important cancer screening method recommended by the

American Cancer Society (2012) [18]. This test is a routine procedure that should be done every three years, and an additional Pap smear with an HPV DNA test is recommended every five years [19]. The Pap smear test is a vital tool for detecting cancerous and precancerous cells in its early stages, as this can make a significant difference to the outcome of the diagnosis [20]. This test is relatively quick and painless, and it can help to reduce the possibility of developing cervical cancer and many other cancers of the reproductive system. Early detection through preventive screenings like the Pap smear can make a real difference in improving outcomes and reducing the number of deaths related to cancer [21,22].

Conclusion

A Pap smear test is an important tool for detecting cervical cancer early and providing effective treatment. This study has shown that the utilization of Pap smear tests in a tertiary hospital is high, indicating that the importance of early detection is well understood by healthcare providers. The results of the test were also found to be accurate.

These findings suggest that Pap smear tests are a reliable and effective way of detecting cervical cancer in a tertiary hospital setting. Moreover, they point to the need for continued focus on early detection and prevention efforts, such as the provision of vaccinations, which can drastically reduce the burden of this disease.

References

1. Cohen PA, Jhingran A, Oaknin A, Denny L. Cervical cancer. *The Lancet*. 2019 Jan 12;393(10167):169-82.
2. Furumoto H, Irahara M. Human papilloma virus (HPV) and cervical cancer. *Journal of Medical Investigation*. 2002 Aug 1;49(3/4):124-33.
3. Creasman WT. Preinvasive disease of the cervix. *Clinical Gynecologic Oncology*. Philadelphia. 2007 Jan 1:1-5.
4. Basu P, Banerjee D, Singh P, Bhattacharya C, Biswas J. Efficacy and safety of human papillomavirus vaccine for primary prevention of cervical cancer: A review of evidence from phase III trials and national programs. *South Asian journal of cancer*. 2013 Oct;2(04):187-92.
5. Rodriguez-Carunchio L, Soveral I, Steenbergen RD, Torné A, Martinez S, Fusté P, Pahisa J, Marimon L, Ordí J, Del Pino M. HPV-negative carcinoma of the uterine cervix: a distinct type of cervical cancer with poor prognosis. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2015 Jan;122(1):119-27.
6. Ribeiro AA, Costa MC, Alves RR, Villa LL, Saddi VA, Carneiro MA, Zeferino LC, Rabelo-Santos SH. HPV infection and cervical neoplasia: associated risk factors. *Infectious agents and cancer*. 2015 Dec; 10:1-7.
7. Ruiz AM, Ruiz JE, Gavilanes AV, Eriksson T, Lehtinen M, Pérez G, Sings HL, James MK, Haupt RM, FUTURE I and II Study Group. Proximity of first sexual intercourse to menarche and risk of high-grade cervical disease. *The Journal of infectious diseases*. 2012 Dec 15;206(12):1887-96.
8. Hawkins NA, Cooper CP, Saraiya M, Gelb CA, Polonec L. Why the Pap test? Awareness and use of the Pap test among women in the United States. *Journal of Women's Health*. 2011 Apr 1;20(4):511-5.
9. Koss LG. The Papanicolaou test for cervical cancer detection: a triumph and a tragedy. *Jama*. 1989 Feb 3;261(5):737-43.
10. Walter LC, Covinsky KE. Cancer screening in elderly patients: a framework for individualized decision making. *Jama*. 2001 Jun 6;285(21):2750-6.
11. Kessler TA. Cervical cancer: prevention and early detection. In *Seminars in oncology nursing*. WB Saunders. 2017 May 1;33(2):172-183.
12. Parkin DM, Bray F. The burden of HPV-related cancers. *Vaccine*. 2006 Aug 21;24:S11-25.
13. World Health Organization. WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention. World Health Organization; 2021.
14. Cronjé HS. Screening for cervical cancer in the developing world. *Best practice & research Clinical obstetrics & gynaecology*. 2005 Aug 1;19(4):517-29.
15. Arbyn M, Weiderpass E, Bruni L, de Sanjosé S, Saraiya M, Ferlay J, Bray F. Estimates of incidence and mortality of cervical cancer in 2018: a worldwide analysis. *The Lancet Global Health*. 2020 Feb 1;8(2):e191-203.
16. Brabin L, Roberts SA, Farzaneh F, Kitchener HC. Future acceptance of adolescent human papillomavirus vaccination: a survey of parental attitudes. *Vaccine*. 2006 Apr 12;24(16):3087-94.

17. Petignat P, Roy M. Diagnosis and management of cervical cancer. *Bmj*. 2007 Oct 11;335(7623):765-8.
18. Smith RA, Cokkinides V, Brawley OW. Cancer screening in the United States, 2012: a review of current American Cancer Society guidelines and current issues in cancer screening. *CA: a cancer journal for clinicians*. 2012 Mar;62(2):129-42.
19. Petry KU, Menton S, Menton M, van Loenen-Frosch F, de Carvalho Gomes H, Holz B, Schopp B, Garbrecht-Buettner S, Davies P, Boehmer G, van den Akker E. Inclusion of HPV testing in routine cervical cancer screening for women above 29 years in Germany: results for 8466 patients. *British journal of cancer*. 2003 May;88(10):1570-7.
20. Hussain E, Mahanta LB, Das CR, Talukdar RK. A comprehensive study on the multi-class cervical cancer diagnostic prediction on pap smear images using a fusion-based decision from ensemble deep convolutional neural network. *Tissue and Cell*. 2020 Aug 1; 65:101347.
21. Mishra GA, Pimple SA, Shastri SS. An overview of prevention and early detection of cervical cancers. *Indian Journal of Medical and Paediatric Oncology*. 2011 Jul;32(03):125-32.
22. Lechheb Khadija, Berdi Fadoua, Ennafah Wafaa, & Lamsaouru Jamal. Analyse Des Risques a Priori En Unite De Retrocession Au Sein De L'unité De Gestion Des Produits a Statuts Particuliers a L'hmmv De Rabat: Processus De Dispensation. *Journal of Medical Research and Health Sciences*. 2022; 5(10): 2307–2316.