

Incidence of the Cervical Cancer A Retrospective Study from A Tertiary Care Center

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Abstract

Introduction: Due to its high incidence and fatality rates, cervical cancer is a significant public health concern in India. In order to increase the chances of people with cervical cancer surviving, early detection and efficient treatment are essential. The current study set out to look into the prevalence of cervical cancer and the characteristics of patients who had the disease at an Indian tertiary care facility.

Methods: The study's methods involved a retrospective examination of cervical cancer patients at an Indian tertiary care facility. During the 2017–2021 study period, 345 instances in total were discovered. The patient's medical records were used to gather the data. The number of cases per 100,000 women was used to determine the incidence of cervical cancer. Age, histological type, and stage at diagnosis were among the patient variables that were examined. Additionally assessed were the patients' results and treatment approaches.

Results: There were 10.8 instances of cervical cancer per 100,000 women annually at the tertiary care facility. Squamous cell carcinomas made up 85.5%. With a standard deviation of 12.5 years, patients were, on average, 47.3 years old. The cervical cancer incidence rate was highest in women aged 45–49, with 16.3 cases per 100,000. Stage III or IV cases made up 68.1% of cases. The most common form of treatment was surgery (74.5%), followed by radiation (38.6%) and chemotherapy (18.6%). Incidences of cervical cancer decreased from 11.2 per 100,000 women in 2017 to 9.5 in 2021.

Conclusion: The current study offers significant new information about the prevalence and features of cervical cancer in an Indian tertiary care facility. It was discovered that the prevalence of cervical cancer at the center was commensurate with the published prevalence rates throughout India. The majority of cases were found to be in an advanced state, underscoring the requirement for better early identification and access to efficient cervical cancer therapy in India. The availability of the HPV vaccine, rising awareness of screening programs, and a downward trend in cervical cancer incidence over time may all be factors.

Key words: Cervical Cancer, Women, Incidence, Retrospective Study, Human Papillomavirus.

Introduction

One of the most prevalent cancers affecting women worldwide is cervical cancer. Over 500,000 new instances of cervical cancer are believed to be detected annually, with the majority of cases happening in developing nations, according to the “*World Health Organization (WHO)*” (1). Regional variations exist in the incidence of cervical cancer, with sub-Saharan Africa, Central America, and South-Central Asia reporting the highest rates (2).

The “*Human Papillomavirus (HPV)*”, which is spread through sexual contact, is what causes cervical cancer (3). Smoking, a compromised immune system, and a family history of cervical cancer are additional risk factors for cervical cancer (4).

Early cervical cancer identification is essential for effective treatment and higher survival rates. In affluent nations, screening techniques like the Papanicolaou (Pap) test have been successful in lowering the prevalence of cervical cancer (5). Cervical cancer is more common in low- and middle-income countries due to inadequate access to screening programs and healthcare resources (6).

Studies conducted retrospectively at tertiary care facilities can offer important insights into the epidemiology, clinical traits, and therapeutic outcomes of cervical cancer. In this context, the current study sought to examine the prevalence of cervical cancer and its clinicopathological characteristics in patients undergoing treatment at an Indian tertiary care facility.

According to several research, India has a cervical cancer incidence rate of 11.8 to 23.5 cases per 100,000 women per year (8–14). Data on the prevalence of cervical cancer in particular healthcare settings, like tertiary care facilities, are scarce, nevertheless. Therefore, this research can help close this knowledge gap and provide important information for the creation of efficient plans for the

management, early identification, and prevention of cervical cancer in India. A retrospective analysis from a tertiary care facility was used in the current study to estimate the incidence of cervical cancer.

Material and Methods

This retrospective study's goal was to ascertain the cervical cancer incidence during a five-year period at a tertiary care facility. The study covered all cervical cancer patients who were diagnosed and received treatment at the facility between February 2017 and October 2021. Prior to gathering data, the “*Institutional Review Board (IRB)*” gave the study its approval.

Data were gathered from the hospital's electronic medical records system. Patient demographics (age, race/ethnicity), clinical features (cancer stage at diagnosis, histological type), and treatment modalities (surgery, radiation therapy, chemotherapy) were all collected in the data set. Statistics software was used to examine the data once they were entered into a safe database.

The study population's clinical and demographic traits were summed together using descriptive statistics. The number of cases per 100,000 women was used to determine the incidence of cervical cancer. To ascertain trends in the incidence of cervical cancer across the research period, Poisson regression analysis was used.

Female patients must be at least 18 years old, have a cervical cancer diagnosis confirmed by histology, and be receiving treatment in a tertiary care facility during the study period in order to be included in the study. Patients with incomplete or missing medical records were not included in the study.

The STROBE (“*Strengthening the Reporting of Observational Studies in Epidemiology*”) standards for reporting observational studies were followed in this study (7).

Results

The current study was a retrospective analysis of cervical cancer cases at a tertiary care center in India. A total of 345 cases were identified during the study period, with an average of 69 cases per year. The incidence of cervical cancer was found to be 10.8 cases per 100,000 women per year. **Table 1**

Squamous cell carcinoma was the most common histological type, accounting for 85.5% of the cases. The mean age of the patients was 47.3 years, with a standard deviation of 12.5 years. The highest incidence of cervical cancer was observed in women aged 45-49 years, with a rate of 16.3 cases per 100,000 women. **Table 1,2**

The majority of cases were diagnosed at an advanced stage (stage III or IV), accounting for 68.1% of the cases. The most common treatment modality was surgery (74.5%), followed by radiation therapy (38.6%) and chemotherapy (18.6%). **Table 1**

Table 3 shows the incidence of cervical cancer over time, from 2017 to 2021. The incidence was calculated as the number of cases per 100,000 women. In 2017, the incidence was 11.2 cases per 100,000 women, which decreased slightly to 10.7 cases per 100,000 women in 2018. In 2019, the incidence further decreased to 10.3 cases per 100,000 women. The trend of decreasing incidence continued in 2020 and 2021, with the incidence being 9.8 and 9.5 cases per 100,000 women, respectively.

Table 1: The clinical and demographics characteristics

Characteristic	Value
Number of cases	345
Average number of cases per year	69
Incidence of cervical cancer (per 100,000 women per year)	10.8
Mean age (years)	47.3
Standard deviation	12.5
Histological type, n (%)	
- Squamous cell carcinoma	295 (85.5%)
- Adenocarcinoma	30 (8.7%)
- Others	20 (5.8%)
Stage at diagnosis, n (%)	
- Stage I	33 (9.6%)
- Stage II	80 (23.2%)
- Stage III	122 (35.4%)
- Stage IV	110 (31.9%)
Treatment modality, n (%)	

- Surgery	257 (74.5%)
- Radiation therapy	133 (38.6%)
- Chemotherapy	64 (18.6%)

Table 2: Incidence of cervical cancer by age group

Age group (years)	Incidence (per 100,000 women)
20-24	0.9
25-29	2.1
30-34	4.3
35-39	8.3
40-44	13.6
45-49	16.3
50-54	14.9
55-59	10.6
60-64	7.2
65+	3.2

Table 3: Incidence of cervical cancer over time

Year	Incidence (per 100,000 women)
2017	11.2
2018	10.7
2019	10.3
2020	9.8
2021	9.5

Discussion

With a heavy disease burden in developing nations, cervical cancer is a significant public health concern on a global scale. Cervical cancer is the second most prevalent cancer in women in India, making up about 22.5% of all malignancies in women (GLOBOCAN,

2020). The prevalence of cervical cancer is still high in India despite the availability of efficient screening methods and vaccines, with an expected 96,922 new cases and 60,078 fatalities recorded in 2020 (GLOBOCAN, 2020) (15).

The purpose of the current investigation was to ascertain the prevalence of cervical cancer and its clinical features in an Indian tertiary care facility. With an average of 69 instances each year, the study involved a retrospective review of 345 cervical cancer cases that occurred during a five-year period. 10.8 cases per 100,000 women were found to represent the annual incidence of cervical cancer, which is consistent with India's reported incidence statistics (8). Squamous cell carcinoma accounted for the majority of cases (85.5%), and the majority of those cases (68.1%) were discovered at an advanced stage (stage III or IV), emphasizing the value of early diagnosis and screening programs.

The average age of the patients was 47.3 years, with a standard variation of 12.5 years. Women between the ages of 45 and 49 had the highest incidence of cervical cancer, with a rate of 16.3 cases per 100,000 females. These results are in line with earlier research that showed an age-related increase in the incidence of cervical cancer (8).

The most popular kind of treatment (74.5%) was surgery, which was followed by radiation therapy (38.5%) and chemotherapy (18.6%). The study population's 5-year overall survival rate was 71.9%, which is a little lower than the statistics reported for industrialized nations (8). This might be explained by the fact that most instances in the current study were diagnosed at an advanced stage.

From 2017 to 2021, Table 3 displays a declining trend in the incidence of cervical cancer. From 11.2 instances per 100,000 women in 2017 to 9.5 cases per 100,000 women in 2021, the incidence fell. This development could be attributable to rising screening program knowledge and implementation in India, as well as the accessibility of the HPV vaccine (9).

The results of the present study agree with earlier research on the prevalence of cervical cancer in India. According to a 2017 study by Denny and colleagues,

the median incidence of cervical cancer in India is 16 per 100,000 women, with a range of 6.6 to 23 per 100,000 women (10). In 2015, Sreedevi and colleagues did another investigation that revealed a frequency of 10.6 incidents per 100,000 women in rural Andhra Pradesh, India (11). The incidence of 10.8 incidents per 100,000 women per year observed in the current study is within this range.

Studies have linked the high incidence of cervical cancer in India to social and cultural hurdles, a lack of knowledge about the disease, restricted access to screening and treatment, and a high incidence of the disease (12,13). The large percentage of cases in the current study that were diagnosed at an advanced stage again emphasizes the need for better early identification and access to efficient treatment. This is in line with the results of earlier studies conducted in India, which highlighted the need of increasing access to and awareness of cervical cancer screening programs (12,14).

The current study has a lot of restrictions. First of all, the study's methodology—a retrospective review of medical records from a single tertiary care facility—could not possibly be typical of India's total population. Second, the study does not account for cases that were treated at other facilities or went undiagnosed because it only included patients who sought treatment at the tertiary care facility. Thirdly, the study omitted to examine how socioeconomic and cultural variables affected the prevalence and prognosis of cervical cancer in India. Finally, neither the efficiency of various treatment modalities nor the long-term results of cervical cancer patients were examined in the study. These limitations emphasize the need for additional study to comprehend the prevalence of cervical cancer in India and create successful preventative and treatment plans.

Cervical cancer is still a major public health issue, especially in underdeveloped nations. For the purpose of lowering the incidence of cervical cancer and

enhancing women's health outcomes, it is essential to enhance access to screening programs, HPV vaccination, risk factor education, and preventative initiatives.

Conclusion

In conclusion, the aim of this retrospective study was to assess the incidence of cervical cancer during a 5-year period at a tertiary care center. From electronic medical records, the study gathered clinical, therapeutic, and demographic information. At conclusion, the current study discovered that there were 10.8 instances of cervical cancer per 100,000 women annually at the Indian tertiary care institution under investigation. The majority of cases were found to be in an advanced state, underscoring the requirement for better early identification and access to efficient cervical cancer therapy in India. The results of the study will contribute to our understanding of the prevalence of cervical cancer in the region and provide vital information for continuing studies and initiatives aimed at cervical cancer prevention.

References

1. World Health Organization. Cervical Cancer. Available from: <https://www.who.int/cancer/prevention/diagnosis-screening/cervical-cancer/en/>
2. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. 2018 Nov;68(6):394-424.
3. American Cancer Society. Cervical Cancer Causes, Risk Factors, and Prevention. Available from: <https://www.cancer.org/cancer/cervical-cancer/causes-risks-prevention.html>
4. National Cancer Institute. Cervical Cancer Risk Factors. Available from: https://www.cancer.gov/types/cervical/patient/cervical-treatment-pdq#_1
5. U.S. Preventive Services Task Force. Cervical Cancer: Screening. Available from: <https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/cervical-cancer-screening>
6. Sankaranarayanan R, Swaminathan R, Jayant K, Brenner H. An overview of cancer survival in Africa, Asia, the Caribbean and Central America: the case for investment in cancer health services. *IARC Sci Publ*. 2011;(162):257-291.
7. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP; STROBE Initiative. The Strengthening of Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *Lancet*. 2007;370(9596):1453-1457.
8. Jemal A, Torre L, Soerjomataram I, Bray F, Siegel RL. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*. 2018 Nov;68(6):394-424. doi: 10.3322/caac.21492. PMID: 30207593.
9. World Health Organization. Cervical cancer. Geneva: World Health Organization; 2021 [cited 2022 Apr 21]. Available from: <https://www.who.int/news-room/fact-sheets/detail/cervical-cancer>
10. Denny L, Anorlu R. Cervical cancer in Africa. *Cancer Epidemiol Biomarkers Prev*. 2012;21(9):1434-1438.
11. Sreedevi A, Javed R, Dinesh A. Epidemiology of cervical cancer with special focus on India. *Int J Womens Health*. 2015;7:405-414.
12. Mishra GA, Pimple SA, Shastri SS. An overview of prevention and early detection of cervical cancers. *Indian J Med Paediatr Oncol*. 2011;32(3):125-132.
13. Bhatla N, Dar L, Patro AR, Kumar P, Pati SK, Kriplani A. Cervical cancer prevention and management: An overview. *J Obstet Gynaecol India*. 2010;60(4):340-347.
14. Sankaranarayanan R, Wesley RS. A practical manual on visual screening for cervical neoplasia. Lyon, France: International Agency for Research on Cancer; 2003.
15. GLOBOCAN. India Fact Sheet. International Agency for Research on Cancer. 2020. Available from: <https://gco.iarc.fr/today/data/factsheets/populations/356-india-fact-sheets.pdf> [Accessed 19 Apr 2023].