



Trend in Incidence of Cervical Cancer in a National Tertiary Cancer Hospital of Nepal, 2012-2017

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ABSTRACT

Introduction: Cervical cancer is the first common cancer and a leading cause of mortality among Nepalese women. The trend of cervical cancer can be useful for effective planning and policymaking to reduce the burden of the disease. This study aims to determine the incidence of cervical cancer and assess its trend in over 6 years in a national tertiary cancer hospital.

Methods: This was a descriptive study with secondary data analysis of new cervical cancer that were registered from 2012 to 2017 in the registry of B.P. Koirala Memorial Cancer Hospital, Chitwan, Nepal. Descriptive statistics along with the trend of cervical cancer were analyzed.

Results: A total of 3,254 cervical cancer cases were registered during 2012 to 2017. It contributed to 11.7% of total cancer and 21.2% of total female cancer cases. The trend of cervical cancer was relatively constant with highest of 605 cases in the year 2016 and lowest of 459 in the year 2014. The most common age group was 45-59 years (44.6%) followed by 60-74 years (29.4%) and 30-44 years (21.1%).

Conclusions: The trend of cervical cancer is relatively constant over the study period. Organized awareness activities, HPV vaccination, and screening programs are recommended to prevent and control the burden of cervical cancer in the country.

Keywords: Cervical Cancer, Trend, Nepal.

Introduction

Globally, cervical cancer ranks as the fourth most frequently diagnosed cancer in women after breast, colorectal, and lung cancers.¹ It is also the fourth leading cause of cancer death in women.¹ In 2018, the GLOBOCAN estimates that there were 569,847 new cases of cervical cancer with age-standardized rate of 13.1 per 100,000 and there were an estimated 311,365 deaths from cervical cancer worldwide accounting for 9.5% of all female cancer deaths.¹ Cervical cancer is the most common cancer and leading cause of death among Nepalese women.^{2,3} According to the 2018 WHO report, the age-adjusted incidence rate of cervical cancer in Nepal is 21.5 per 100,000 population with 2,942 new cases and 1,928 deaths.⁴ Although, cervical cancer screening has been

a part of public screening program in Nepal, very few women receive screening services.⁵⁻⁸ Most patients in Nepal present at advanced stage of the disease.⁹ The prognosis of cervical cancer depends upon the stage at which the patient presents. The natural history of cervical cancer follows a prolonged period of a pre-malignant condition, which can take more than 10 years to progress to invasive cancer.¹⁰ Hence, this gives ample opportunity for cancer screening and hence making it preventable. This study will help the public health professionals, clinicians and policy makers on successful planning to combat cervical cancer. This study was conducted to determine the incidence of cervical cancer in B.P. Koirala Memorial Cancer Hospital (BPKMCH) and assess trend in incidence of cervical cancer over a period of six years (2012–2017).

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Methods

This was a retrospective observational study carried out based on existing secondary data, obtained from the medical record database of BPKMCH. This study included new cervical cancer cases registered from 2012 to 2017. The data was retrieved in excel 2013 and analyzed in Statistical Package for Social Sciences (SPSS) version 17. The proportions of cervical cancer in relation to all female cancers and overall cancer were determined. The trend of incidence of cervical cancer and year were demonstrated by line diagrams. Subgroup analysis was also performed according to

the age of the patients. Permission to use the data for this study was taken from the Research Committee of BPKMCH.

Results

A total of 27,908 new cancer cases were registered during 2012 to 2017. Out of which, 15,353 (55%) cases were females. A total of 3,254 cases were of cervical cancer. Cervical cancer contributed 11.7% of total cancer cases (range 10.4% to 12.9%) and 21.2% of total female cancer cases (range 18.6% to 23.4%) (Table1).

Table 1: Distribution of total, female and cervical cancer in a National Tertiary Cancer Hospital of Nepal during 2012-2017

Site	2012	2013	2014	2015	2016	2017	Total
Total cancer cases both (n)	4674	4307	4399	4581	4775	5172	27908
Total female cancer (n)	2550	2376	2472	2532	2609	2814	15353
Cervical cancer (n)	545	557	459	544	605	544	3254
% cervical cancer of total cancer	11.7	12.9	10.4	11.9	12.7	10.5	11.7
% cervical cancer of female cancer	21.4	23.4	18.6	21.5	23.2	19.3	21.2

The trend of total cancer, female cancer and cervical cancer are illustrated in figure 1. There was decrease in the incidence of total cancer and female cancer cases in 2013. Unlike this trend, there was slightly increase in cervical cases in 2013. There was an increase in the trend of incidence of total cancer and female cancer

from 2013 to 2017. However, the trend of cervical cancer varied with the consecutive year. It decreased in the year 2014 and increased in the year 2015 and 2016 and decrease in the year 2017. To sum up the incidence of cervical cancer remained somewhat unchanged during 2012 to 2017 (Figure 1).

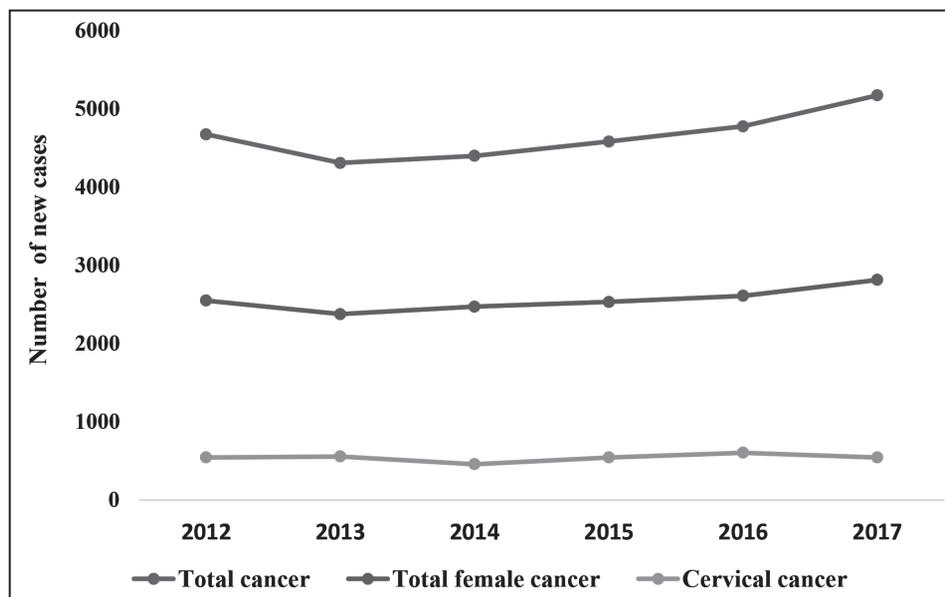


Figure 1: The trend of cervical cancers along with total cancer and female cancer in a National Tertiary Cancer Hospital of Nepal during 2012-2017

Cervical cancer was most common in the age group 45-59 years (44.6%), 60-74 years (29.4%) followed by 30-44 years (21.1%). This finding was valid with respect to each year (Table 2).



Table 2: Distribution of cervical cancers by age in a National Tertiary Cancer Hospital of Nepal during 2012-2017

Year	0-14 years		15-29 years		30-44 years		45-59 years		60-74 years		≥75 years	
	n	%	n	%	n	%	n	%	n	%	n	%
2012	0	0.0	10	1.8	118	21.7	252	46.2	155	28.4	10	1.8
2013	0	0.0	11	2.0	114	20.5	247	44.3	171	30.7	14	2.5
2014	3	0.7	8	1.7	89	19.4	206	44.9	132	28.8	21	4.6
2015	0	0.0	3	0.6	136	25.0	247	45.4	145	26.7	13	2.4
2016	1	0.2	11	1.8	122	20.2	265	43.8	185	30.6	21	3.5
2017	3	0.6	12	2.2	106	19.5	233	42.8	168	30.9	22	4.0
Total	7	0.2	55	1.7	685	21.1	1450	44.6	956	29.4	101	3.1

Discussion

This study shows the trend of incidence of cervical cancer in the largest cancer hospital of Nepal. The incidence of cervical cancer has remained relatively constant over the period of last six years. In this study, cervical cancer was found to be common in the old age. Increasing age is an important risk factor of cervical cancer.¹¹ Also, women in Nepal present at late stage though cervical cancer is early detectable and curable disease.⁹ Early age at first sexual intercourse, early pregnancy, multiple childbirths, poor genital hygiene, use of oral contraceptives and multiple sexual partners are other risk factors in the development of cervical cancer.^{11,12} Human Papilloma Virus (HPV) has been associated with cervical cancer.^{13,14} However, data on the burden of HPV infection in Nepal are scarce. Few studies in rural Nepal (Kavre and Jumla) have shown that there is a high prevalence of HPV infection among women with broad range of high risk types.^{15,16} Therefore, there is a need for more studies to map out the HPV infection load in the female population of Nepal. HPV vaccination has been introduced in Nepal only as a pilot program in a few districts.¹⁷ But still HPV vaccine is not available and has not been included in the national immunization program. HPV vaccination program is a cost-effective intervention to reduce the long-term future burden of cervical cancer.^{18,19} The WHO currently recommends two doses of vaccinations against HPV of girls aged 9 to 13 years.¹⁰ Considering high prevalence of high-risk HPV infections in few studies, it is an urgent need of the nation to introduce HPV vaccine as a national immunization program as soon as possible.

Implementation of well-planned and sustained screening programs are also important to prevent cervical cancer among women. The WHO recommends the screening of women for cervical cancer through visual inspection with acetic acid (VIA), Papanicolaou (Pap smear) test every 3 to 5

years, or HPV testing every 5 years along with timely treatment of precancerous lesions.^{20,21} The VIA testing has been recommended in low-resource settings like ours having an added advantage of screen-and-treat strategy at the same time.²⁰ It was found to be safe, feasible and well accepted by the general population in Nepal.²²

Though cervical cancer is one of the important public health programs, awareness among the general population is still low.^{5,7} A study done in the capital of Nepal, Kathmandu showed that 43% have knowledge about cervical cancer screening and only 10.5% of women had reported having a Pap smear test.⁶ In rural mid-western Nepal, the awareness is much lower with 87% having inadequate knowledge and 86% women not having any cervical screening test²³. This clearly showed the low level of awareness regarding cervical cancer and poor screening practices in Nepalese women. Moreover, efforts should also be made to improve the access of patients to cervical cancer care. Awareness campaigns on cervical cancer and screening should be launched effectively nationwide through mass, media, IEC materials, etc.

The major limitation of this study is that it considered only one hospital to show the trend of cervical cancer. However, BPKMCH is the largest and national cancer institute in Nepal, where the majority of the cases from all over the country are diagnosed and treated², and hence the finding can be valuable to highlight the incidence of cervical cancer at national level.

Conclusion

The incidence of cervical cancer in BPKMCH is relatively constant during the study period. Awareness programs along with the effective implementation of well-organized and sustained screening activities and vaccination against HPV are recommended for early diagnosis, control, and prevention of cervical cancer.

Acknowledgment

The authors would like to acknowledge the record section for providing the data and BPKMCH management committee.

References

1. 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;68: 394–424. doi:10.3322/caac.21492
2. National Cancer Registry Program. Hospital based cancer registry 10 years consolidated report (2003-2012). Chitwan, Nepal; 2015.
3. National Cancer Registry Program. Report of hospital based cancer registry 2015 [Internet]. Bharatpur, Chitwan, Nepal; 2017. Available: www.bpkmch.org.np
4. GLOBOCAN. The global cancer observatory: Nepal factsheet. In: International Agency for Research on Cancer, World Health Organization [Internet]. 2018 [cited 1 Jul 2019]. Available: <http://gco.iarc.fr/today/data/factsheets/populations/524-nepal-fact-sheets.pdf>
5. Ranjit A, Gupta S, Shrestha R, Kushner AL, Nwomeh BC, Groen RS. Awareness and prevalence of cervical cancer screening among women in Nepal. *Int J Gynecol Obstet.* 2016;134: 37–40.
6. Shrestha J, Saha R, Tripathi N. Knowledge, attitude and practice regarding cervical cancer screening amongst women visiting tertiary centre in Kathmandu, Nepal. *Nepal J Med Sci.* 2013;2: 85–90.
7. Pandey RA, Karmacharya E. Cervical cancer screening behavior and associated factors among women of Ugrachandi Nala, Kavre, Nepal. *Eur J Med Res.* 2017;22: 32.
8. Gyawali B, Keeling J, van Teijlingen E, Dhakal L, Aro A, others. Cervical cancer screening in Nepal: ethical considerations. *Medicolegal Bioeth.* 2015;5: 1.
9. Gyenwali D, Pariyar J, Onta SR. Factors associated with late diagnosis of cervical cancer in Nepal. *Asian Pacific J Cancer Prev.* 2013;14: 4373–4377.
10. World Health Organization. Comprehensive cervical cancer control: a guide to essential practice. World Health Organization; 2006.
11. Sreedevi A, Javed R, Dinesh A. Epidemiology of cervical cancer with special focus on India. *Int J Womens Health.* 2015;7: 405.
12. Louie KS, De Sanjose S, Diaz M, Castellsague X, Herrero R, Meijer CJ, et al. Early age at first sexual intercourse and early pregnancy are risk factors for cervical cancer in developing countries. *Br J Cancer.* 2009;100: 1191.
13. Crosbie EJ, Einstein MH, Franceschi S, Kitchener HC. Human papillomavirus and cervical cancer. *Lancet.* 2013;382: 889–899.
14. Bosch FX, Manos MM, Muñoz N, Sherman M, Jansen AM, Peto J, et al. Prevalence of Human Papillomavirus in Cervical Cancer: a Worldwide Perspective. *JNCI J Natl Cancer Inst.* 1995;87: 796–802. doi:10.1093/jnci/87.11.796
15. Thapa N, Maharjan M, Shrestha G, Maharjan N, Petrini MA, Zuo N, et al. Prevalence and type-specific distribution of human papillomavirus infection among women in mid-western rural, Nepal-A population-based study. *BMC Infect Dis.* 2018;18: 338.
16. Shakya S, Syversen U, Åsvold BO, Bofin AM, Aune G, Nordbø SA, et al. Prevalence of human papillomavirus infection among women in rural Nepal. *Acta Obstet Gynecol Scand.* 2017;96: 29–38.
17. Singh Y, Shah A, Singh M, Verma S, Shrestha BM, Vaidya P, et al. Human papilloma virus vaccination in Nepal: an initial experience. *Asian Pac J Cancer Prev.* 2010;11: 615–617.
18. Brotherton JML, Gertig DM. Primary prophylactic human papillomavirus vaccination programs: future perspective on global impact. *Expert Rev Anti Infect Ther.* 2011;9: 627–639.
19. Armstrong EP. Prophylaxis of cervical cancer and related cervical disease: a review of the cost-effectiveness of vaccination against oncogenic HPV types. *J Manag care Pharm.* 2010;16: 217–230.
20. World Health Organization. Cervical cancer screening in developing countries: report of a WHO consultation. World Health Organization; 2002.
21. World Health Organization. WHO guidelines for screening and treatment of precancerous lesions for cervical cancer prevention. World Health Organization; 2013.
22. Thapa N, Maharjan M, Shrestha G, Maharjan N, Lindell D, Zuo N, et al. Accuracy of Visual Tests for Primary Cervical Cancer Screening in Rural Nepal. *J Nepal Med Assoc.* 2018;56.
23. Thapa N, Maharjan M, Petrini MA, Shah R, Shah S, Maharjan N, et al. Knowledge, attitude, practice and barriers of cervical cancer screening among women living in mid-western rural, Nepal. *J Gynecol Oncol.* 2018;29.