

Original Research Article

Knowledge Regarding Cervical Cancer and Human Papilloma Virus Vaccine among Medical Students: A Cross-Sectional Study

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Abstract: Cervical cancer caused by Human Papilloma Virus (HPV) is ranked as the second most common cancer among women worldwide and is a major cause of female mortality. Two vaccines against HPV have been approved and recommended for use in India. However, the availability of the vaccines is hardly known and utilised, even among the medical community. To assess the knowledge and attitude and acceptance of cervical cancer and human papilloma virus vaccine among medical students. In this cross-sectional study, 150 medical students of age group > 18 years were included. A self-administered, validated questionnaire for knowledge of symptoms, screening, risk factors for cervical cancer and HPV vaccine and also the acceptability of HPV vaccine was assessed over duration from December 2022 to March 2023 in a tertiary care teaching hospital, Anantapur, India. The data obtained was analysed with descriptive statistics by using Microsoft excel 2019. The results show 98.4% of students were aware that cervical cancer is caused by HPV, but only 84.7% knew that HPV vaccine was available. About 72% felt the need to get vaccinated in future; 97.3% of students knew that pap smear was used to screen for cervical cancer, but only 63.3% opted to screen themselves or family members in future as they believed that they were not at risk. In the present study, although the knowledge was satisfactory, a gap was found between the knowledge and attitude regarding cervical cancer and HPV vaccine and there is a need for creating awareness among health care professionals.

Keywords: Cervical cancer, human papillomavirus, HPV vaccine, screening.

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INTRODUCTION

Cervical cancer (CC) is an abnormal growth of cells arising from the cervix and having the ability to invade and spread to other parts of the body [1]. Current estimates indicate that every year 527,624 women are diagnosed with cervical cancer and 311,365 die from the disease in the world [2]. In India, annually, about 1,32,000 new cancer cases and 80,000 deaths occur and the prevalence of HPV type 16 was found to be very high [3]. Cervical cancer is the fourth most frequent cancer among women in the World, second most common cause of mortality and morbidity among women of reproductive age group in India [4] and accounts for 26.1- 43.8% of all cancers in Indian women [5]. CC is caused by the human papilloma virus (HPV); HPV-16 and HPV-18 are predominantly responsible for 70%–80% of the total cases [3]. Screening with Pap test or VIA (Visual Inspection with

Acetic Acid) or effective HPV-DNA detection procedures can be employed to easily detect the precursors of cervical cancer at an early stage and treat them efficiently. Screening women for cervical cancer is crucial as most of them do not often experience symptoms until the disease has advanced [6]. Though screening modalities have been in place for more than fifty years, in India the disease burden has not reduced as expected. For this reason, another preventive measure through vaccination has now been advocated. Two types of HPV vaccines have been developed and clinically evaluated for prophylactic vaccination. Gardasil (Merck and Co., USA) and Cervarix (GlaxoSmithKline, Belgium) have been approved in several countries like USA, Australia and in the European Union. These have been licensed in India for use in females (primary vaccination at 10-12 years, catch-up up to 26 years) [7]. Serum Institute of India launched the first made-in-India HPV vaccine

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CERVAVAC a quadrivalent vaccine under the partnership of DBT and BIRAC with the Bill and Melinda Gates Foundation and is expected to be available later this year 2023. The HPV vaccine must be given to both young boys and girls, chances of getting this cancer are more among women. If the vaccine is given to girls before sexual exposure between 9 – 14 years, it is more than 99% effective in preventing cervical cancer [8]. For the public to be aware, it is essential that the health care providers as well as medical students should have a sound knowledge first. In a few years these students will be practicing doctors and can play a pivotal role in spreading awareness among a wide range of population. With this in mind, we conducted a survey among the medical students to know their knowledge, attitude of cervical cancer and acceptance of HPV vaccine in Government Medical College, Anantapur.

MATERIALS AND METHODS

A descriptive cross-sectional questionnaire-based study was conducted among the third and final year medical students of both genders of Government

Medical College, Anantapur from December 2022 to March 2023 after obtaining permission from the Institutional Ethical Committee. A convenient sample of 150 undergraduate medical students who were willing to participate (studying in 3rd and 4th MBBS) and aged above 18 years were included in the study. The students who were not willing to participate in the study are excluded. The subjects were explained about the nature of the study. After obtaining written informed consent, a self-administered, predesigned, pretested, validated questionnaire for knowledge of symptoms, screening, risk factors for cervical cancer and HPV vaccine and also the acceptability of HPV vaccine was distributed to medical students during college hours in the classroom. The participants were instructed not to discuss the answers among themselves. The data obtained was analysed with descriptive statistics, frequencies and percentages were calculated for each item in the questionnaire by using Microsoft excel 2019.

RESULTS

Table 1: knowledge regarding cervical cancer

Knowledge regarding cervical cancer	yes	no	Don't know
Cervical cancer can be prevented	146 (97.3%)	3 (2%)	1 (0.7%)
Can cervical cancer lead to mortality?	143 (95.3%)	3 (2%)	4 (2.7%)
Can cervical cancer be associated with infection?	145 (96.7%)	1 (0.6%)	4 (2.7%)
Have your friends or relatives suffered from it?	5(3.3%)	135 (90%)	10 (6.7%)
Do you think this disease could affect you or family members in future?	62 (41.4%)	30 (20%)	58 (38.6%)
Cervical cancer is caused by virus	147 (98%)	1 (0.7%)	2 (1.3%)

A total of 150 medical students of aged between 19-24 years were surveyed for this study. Out

of 150 participants, 66 (44%) were boys and 84 (56%) were girls, with a mean age of 21.2±0.9 years.

Table 2: knowledge regarding risk factors of cervical cancer

Knowledge regarding risk factors of cervical cancer	yes	no	Don't know
Early marriage	123 (82%)	14 (9.3%)	13 (8.7%)
Genetic factors	139 (92.6%)	6 (4%)	5 (3.3%)
Human papilloma virus	148 (98.4%)	0 (0%)	2 (1.3%)
Human immunodeficiency virus	86 (57.3%)	41 (27.3%)	23 (15.4%)
Multiple sexual partners	139(92.6%)	7 (4.7%)	4 (2.7%)
Condom use	8 (5.3%)	121(80.7%)	21 (14%)
Drugs/psychoactive substance	69 (46%)	38 (25.3%)	43 (28.4%)

Table 3: knowledge about primary prevention

Knowledge about primary prevention	yes	no	Don't know
Is there any vaccine for cervical cancer?	127 (84.7%)	5 (3.3%)	18 (12%)
Have you ever heard of CERVAVAC?	80 (53.3%)	63 (42%)	7 (4.7%)
Is vaccine available in India?	90 (60%)	7 (4.7%)	53 (35.3%)
Does it guarantee 100% protection from cervical cancer?	15 (10%)	66 (44%)	69 (46%)
Correct age group for vaccine is 10–30 years	75 (50%)	13 (8.7%)	62 (41.3%)
Can it be given to boys?	36 (24%)	67 (44.7%)	47 (31.3%)
Can it be given to sexually active girls?	133 (88.6%)	4 (2.7%)	13 (8.7%)

Knowledge about primary prevention	yes	no	Don't know
Is Screening required for HPV vaccination	97 (64.6%)	30 (20%)	23 (15.4%)
Can it be given to women already having HPV infection?	34 (22.7%)	50 (33.3%)	66 (44%)
Post- vaccination, can one have multiple sexual partners?	12 (8%)	108 (72%)	30 (20%)
Is screening required for already vaccinated women?	121 (80.6%)	7 (4.7%)	22 (14.7%)
Have you/family members ever been vaccinated?	9 (6%)	130 (86.7%)	11 (7.3%)
Would you like to get vaccinated?	108 (72%)	26 (17.3%)	16 (10.7%)

Table 4: knowledge on symptoms of cervical cancer

Knowledge on symptoms of cervical cancer	yes	no	Don't know
Asymptomatic	71 (47.3%)	47 (31.3%)	32 (21.4%)
Dysmenorrhea	129 (86%)	8 (5.3%)	13 (8.7%)
Menorrhagia/postcoital bleed/metrorrhagia	130 (86.7%)	5 (3.3%)	15 (10%)
Smelly vaginal discharge	126 (84%)	13 (8.7%)	11 (7.3%)
Blood-stained mucus	106 (70.7%)	14 (9.3%)	30 (20%)
Itching in genital areas	125 (83.3%)	9 (6%)	16 (10.7%)
High fever	91 (60.6%)	16 (10.7%)	43 (28.7%)

Table 5: knowledge on secondary prevention of cervical cancer

Knowledge on secondary prevention of cervical cancer	yes	no	Don't know
Are you aware about pap smear?	146 (97.3%)	4 (2.7%)	0 (0%)
Is it 100% effective in diagnosing cervical cancer?	79 (52.7%)	52 (34.7%)	19 (12.6%)
Is it painful or time-consuming?	50 (33.3%)	88 (58.7%)	12 (8%)
Would you or female family members undergo this test in future?	95 (63.3%)	17 (11.3%)	38 (25.4%)
Can test cause serious complications	4 (2.7%)	110 (73.3%)	36 (24%)

Table 1 revealed the knowledge about cervical cancer, only 97.3% felt that cervical cancer could be prevented; 95.3% of students were aware that cervical cancer could lead to death. About 96.7% of students knew that cervical cancer was associated with infection. Five students had history of friends or family members suffering from this disease and 41.4% students felt that this disease could affect them or family members in future. Most of the students knew that the disease had a viral aetiology. Most of the students had knowledge about the risk factors for cervical cancer as seen in Table 2, wherein cervical cancer is seen more with early age at first intercourse, genetic aetiology and is strongly associated with HPV and multiple sexual partners. However, 57.3% felt that human immunodeficiency virus (HIV) infection did not have any role to play in the aetiology of cervical cancer; 46% felt that drugs and psychoactive substances were a risk factor for cervical cancer, whereas 28.4% were unable to comment in this regard.

Knowledge about Primary Prevention

A total of 84.7% students knew the existence of cervical cancer vaccine, 53.3% heard of the vaccine CERVAVAC, whereas 60% knew that it was available in India; 44% students were aware that it does not give 100% protection from cervical cancer and 46% were not sure about the efficacy of the vaccine. Only 50% of the students know that vaccine was given in 10 to 30 years age group and they were not sure about the

number of doses and route of administration of vaccine to be taken; 44.7% felt that boys need not take the vaccine, whereas 31.3% had no idea whether boys could take the vaccine (Table 3). A total of 88.6% students were aware that it could be given to a sexually active girl, but there was a misconception that screening for HPV was mandatory prior to vaccination (64.6%) and that it could not be given to those already having HPV infection (33.3%). Majority of students knew that it was not safe to have multiple sexual partners after full course of vaccine and that vaccinated women also have to undergo screening for cervical cancer. Unfortunately, 86.7% of students were not vaccinated against cervical cancer and 72% felt the need to get vaccinated in future.

Knowledge about Secondary Prevention

Majority of students knew the symptoms related to cervical cancer like postcoital bleed, menstrual disturbances, smelly or blood-stained vaginal discharge, fever, itching in genital regions as seen in Table 4. However, 47.3% of students felt that cervical cancer may not be present in asymptomatic people. Table 5 shows that majority of students (97.3%) knew that pap smear was used for screening of cervical cancer. Only 58.7% felt that it was not painful or time-consuming and did not cause serious complications (73.3%); 52.7% thought that it was 100% effective in screening for cervical cancer. When it came to undergoing the test themselves or their female family

members, opinion was divided, with only 63.3% opting to go for it.

DISCUSSION

Cervical cancer although preventable is a deadly disease. Healthcare providers in hospitals are front-line personnel in the prevention, screening, adherence, and early detection of pre-invasive cervical cancer lesions. The aim of our study was to assess the awareness and knowledge of cervical cancer and HPV vaccine among medical students. In this study which was conducted among 150 medical students, 66 were males and 84 were females which was similar to a study conducted by Aparna Narayana Gollu, *et al.*, (2021) [9] in Bangalore among medical students. According to our study 97.3% of study subjects were aware that cancer cervix is preventable, 98% were aware that HPV virus causes cervical cancer. To compare, in a study by Radhika M. *et al.*, (2018) [10] in Yenepoya Medical College, Mangalore among medical students, 76% of study subjects were aware that cancer cervix is preventable, 80% were able to identify HPV infection as the cause for cervical cancer. This shows that there is a huge difference in the knowledge regarding causative agent between the two studies with more students being aware in the present study. In the current study, 84.7% were aware that HPV vaccine is available. A study conducted by Alsous MM, Ali A *et al.*, (2021) [11] at Jordan among medical students showed that only 40.5% knew about the availability of HPV vaccine. In the present study, only 50% of the students knew the correct age of HPV vaccination and only 72% students showed willingness for HPV vaccination. In a study conducted by J. Singh and S.S. Baliga *et al.*, (2021) [12] among medical students in Belagavi, India, 48.8% knew the correct age for vaccination which is similar to our study and contrary to the present study 85.5% showed willingness for HPV vaccination. Regarding risk factors for cervical cancer, 92.6% students could correctly identify early marriage, genetic factors, multiple sexual partners and infections as risk factors for cervical cancer which was similar to a study conducted by Rathod S, Samal SK, Samal S, Ghose S. *et al.*, (2017) [13] among medical students in Puducherry, India (93.6%). Pap smear as screening method for cervical cancer was known by 90.1% participants in a study conducted by Maharajan *et al.*, [14] in Malaysia among 305 medical students. In our study, 97.3% of the participants have shown this knowledge.

Limitations

The limitation of our study was that the study population represents only a small fraction of the medical community. So, the results obtained from this cannot be generalized to the whole medical community. Inclusion of other students from different courses like

dental, nursing, physiotherapy etc. will increase the impact of this study in future.

CONCLUSION

The present study is an initiative to find out the level of awareness about one of the currently most discussed topic of cervical cancer vaccine among the future healthcare providers. Although the knowledge about the cervical cancer and HPV vaccine was good among the students, majority of them were not vaccinated against cervical cancer and didn't feel the need to get vaccinated in future. Hence the existing gap between the knowledge and attitude of the students can be overcome by various educational programmes. In fact, all health workers need to be educated about how to help and motivate patients to understand the advantages of HPV vaccination, cervical cancer screening and also limitations of this cervical cancer prevention strategy.

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