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Assessment of knowledge about cervical cancer among final year medical students in Himachal Pradesh, India: Impact of cancer education

Dr. Purnima Thakur [1], Dr. Ratti Ram Negi[*] [2], Dr. Priyanka Thakur [3]
Dr. Navpreet Singh[4], Dr. Vishal Verma [5], Dr. Vikas Thakur [6]
[1, 3] Assistant Professor, [2,4] Associate Professor, [5] Senior Resident, [6] Junior Resident
[1, 2, 3] Department of Radiotherapy, [4,6]Department of Community Medicine, [5]Department of orthopedics
[1, 2, 3,4Sri] Lal Bahadur Shastri Government Medical College, Ner Chowk, Mandi, Himachal Pradesh, India
[5]Indira Gandhi medical college, Shimla, [6]MMMCH, Kumarhatti, Solan, Himachal Pradesh, India

***Corresponding Author:**

Dr. Ratti Ram Negi
Department of Radiotherapy,
Sri Lal Bahadur Shastri Government Medical College, Ner Chowk, Mandi, Himachal Pradesh, India

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ABSTRACT

Background - Medical students, the future doctors will serve the public with health care and play a significant role in making public aware regarding this disease. The present study addresses the knowledge and attitude of the medical students about cancer cervix and its preventive and treatment methods of a hilly State in Western Himalayan region. This is the first study of its kind in the State.

Methods- The cross-sectional observational study was conducted in three prominent medical colleges of the region. A pre-tested, structured and self-administered questionnaire was used for data collection. Descriptive analysis was done and represented through frequency, percentages and mean.

Results- The overall knowledge of symptoms and risk factors was above 80%. 70% population knew about prevention, early detection and treatment modalities available and signs and various screening methods available were known by more than 60% students. Though half of the study population knew about types of vaccines available, but knowledge regarding appropriate age of vaccination and cancer staging was not adequate. Knowledge regarding screening methods, vaccination available, staging methods and modalities used for treatment of cancer cervix are significantly better in those who attended the workshop on cervical cancer.

Conclusions- Cervical cancer is a prominent and commonest disease in females of rural India. Knowledge and appropriate training of health care personnels is the key to implement screening programmes effectively and for early detection of this dreaded but curable disease.

Keywords: Awareness, Cervical cancer, Knowledge, Screening, Vaccination.

INTRODUCTION

Cervical cancer ranks second in incidence and mortality behind breast cancer in lower human development index settings, with an estimate 5,70,000 cases and 3,11,000 deaths in 2018 worldwide. This disease ranks as fourth most frequently diagnosed cancer and the fourth leading cause of cancer deaths in women. [1]

In Himachal Pradesh cervical cancer ranks as number one female cancer as per annual reports of regional cancer centre Himachal Pradesh for the last ten years resulting in a major health problem. [2] As cervical cancer is curable when detected early, knowledge of early signs and symptoms and screening methods available is very important for early diagnosis and treatment. Lack of knowledge will result in advanced stage presentation with less chances of cure even with extensive treatment modalities. [3]

Primary prevention of cervical cancer is possible by reducing the incidence of cervical cancer by controlling the cause as well as risk factors. Prevention of high risk HPV infection by two novel prophylactic vaccines and secondary prevention

strategies like cytology based pap smear are the preventive strategies in practice. These are not feasible in low income countries because of limited health care infrastructure, [4] but health care professionals must be aware of these strategies, especially those which can be utilized in their settings.

It is important for medical students to have adequate amount of knowledge and awareness about cervical cancer. Numbers of studies have been done to asses knowledge and awareness of this disease in health care professionals, in different parts of the world. [2,5,6,7,8] Such studies need to be done in our region as cervical cancer is the most common malignancy in females in developing countries like ours and due to lack of awareness, patients present in locally advanced stage.

Present study was done to assess the knowledge and awareness of cervical cancer in medical students of Himachal Pradesh as no such analysis is available for our region till date.

MATERIAL AND METHODS

This cross-sectional observational study was conducted among undergraduate medical students of the three medical colleges in Himachal Pradesh, a hilly state in northern part of India. The medical colleges included in the study were Indira Gandhi Medical College (IGMC) Shimla, Dr. Rajendra Prasad Government Medical College (Dr. RPGMC) Tanda and Maharishi Markendeshwar Medical College (MMMC) Solan. The study was conducted over three months period from November 2018 to January 2019. All the final year undergraduate students were included in the study. Those who were absent on day of the data collection and not willing to participate in study were excluded.

A pre-tested, structured and self-administered questionnaire was used for data collection. Student's personal data was not collected except for the age. The questionnaire consisted of two parts. First part had questions on knowledge about cervical cancers such as risk factors, symptoms, signs, staging, and source of knowledge. Second part had questions to assess the attitude of students towards cervical cancer screening methods, diagnosis and treatment. In addition, questions regarding type of vaccines available against HPV and age of vaccination were also asked to determine their awareness regarding the same. Questions were close ended with one or multiple correct responses.

A total of 400 questionnaires were distributed to these students after briefing about nature of the study and its purpose. Out of 400 questionnaires, 390 were received back, out of which 28 were incomplete and so, excluded. Thus, the study population comprised of 362 students. Age group of the study population was 23 to 28 years.

STATISTICAL ANALYSIS

The data was entered into Microsoft Excel 2007 and analyzed using Statistical Package for Social Sciences (SPSS) version 17. Descriptive analysis was done and represented through frequency, percentages and mean (standard deviation). For calculating score for knowledge, each correct and incorrect answer was given a score of 1 and 0, respectively. Total scores obtained by each student were categorized as 0-25% (poor knowledge), 26-50% (moderate knowledge), 51-75% (good knowledge) and 76-100% (very good knowledge). The unpaired t test was used as test of significance, taking level of significance as $p < 0.05$.

The informed consent of the participants was taken prior to data collection. The confidentiality of data obtained was assured.

RESULTS

The response rate of the study was 90.5 %. Mean age of the study group was 25 years. Almost all the students (99.2%) students had heard about cervical cancer. Majority of students (93.0%) had gained this knowledge during the training period from their teaching institute or medical personnel followed by media (55.2%). Majority of students reported age (93.9%), followed by HPV infection (90.3%), high risk sexual behavior (89.5%) and poor genital hygiene (84.0%) as the risk/causative factors for developing cancer cervix. Nearly three-fourth of students (72.9%) correctly mentioned the commonest site for cancer cervix.

Maximum students (89.2%) reported that screening is important in cancer cervix and should be started in community due to reasons including it is a public health problem (87.3%) and recognized pre-cancerous stage can be treated early (85.9%). Responses to selected questions on knowledge of

Volume 2, Issue 4; July-August 2019; Page No.01-09

screening and preventive methods are presented in Table 1. When asked about the ways to prevent cancer cervix, nine out of ten students mentioned screening (92.3%) followed by population awareness (88.7%). Majority of students (79.3%) mentioned that screening should be started at the age of 21 years, and nearly 60.0% were aware regarding the frequency of screening. Most of the students (89.8%) believed that Pap test should be promoted as a tool for screening. Less that half of them mentioned about VIA (44.8%) and VILI (41.4%) as methods of screening. Regarding vaccination against cervical cancer, majority of students (87.0%) were aware that vaccination is done against virus, but only 40% could correctly identify the HPV types responsible for developing cancer cervix.

Knowledge regarding methods of early detection, diagnosis and staging process of cancer cervix is shown in table 2. Majority of the students understood the role of tissue biopsy (83.1%) and imaging modalities (nearly 70.0%) for the diagnosis of cancer cervix. Nearly three-fourth of students (72.4%) knew about FIGO staging and less than half (48.3%) knew about TNM staging for cancer cervix. More than 80% of students were aware of the treatment modalities for cancer cervix, but few knew about brachytherapy (48.1%).

Table 3 shows the attitude of students on cancer cervix. Majority of them (84.8%) believed that cancer cervix is curable if detected early. Almost all of them (89.5%) believed to visit an allopathic doctor immediately upon discovering signs and symptoms pertaining to the disease, and none offer to advise alternative traditional medicine. Maximum (87%) believed that medical profession is important for early detection and prevention of this disease. However, less than half of students ever cared for cancer cervix patients (43.1%), and ever practiced, shared or recommended patients for early detection (42.3%). Sixty two percent students ever talked about this disease and its prevention with patients, family or friends. This shows the difference in knowledge and attitude. Though having good knowledge regarding cancer cervix, they do not apply it to even educate their family and friends.

For summarizing results, the overall questionnaire was converted into ten questions as shown in table 4. The students had maximum knowledge about symptoms (81.3%) and risk factors (81.9%) of cancer cervix, and least about staging (48.2%) and appropriate age of vaccination (33.9%).

Knowledge levels of the study population were categorized as shown in table 5. It was seen that nearly half of the students had very good knowledge (48.3%) followed by good knowledge (42.3%). Only 06 students had poor knowledge about this disease.

Only 93 (25.7%) students had attended specific workshop on cancer cervix screening and prevention. On comparison of knowledge between those who ever attended training on cancer cervix and those who did not (table 5), it was found that the former had significantly higher knowledge regarding screening methods (p=0.00), type of vaccination available (p=0.02), staging (p=0.00) and treatment modalities (p=0.01) for cancer cervix.

DISCUSSION

Considering the high burden of cervical cancer in the Western Himalayan belt, this descriptive study is aimed at assessing the knowledge, attitude and practice amongst the medical students of this region. To our knowledge, this is the only study in the State that has explored the knowledge regarding cervical cancer among medical students. It is fruitful to study the understanding of this rapidly growing disease in the medical students as they are the future primary healthcare providers and may play a major role in spreading knowledge and awareness regarding this dreaded but curable disease. Moreover, they are important tools for screening and diagnosing the disease at an early stage.

Many studies have been conducted in the past among health workers, nurses and medical students. [2,5,6,8] According to a similar study conducted on awareness of cervical cancer in health workers in the same region, half of the population had moderate overall knowledge about cervical cancers, but the knowledge about risk factors and screening eligibility and screening interval was inadequate. [2] However, it was found that in present study, the awareness levels were very good among medical students. It could be due to the in-depth knowledge gained during their undergraduate course.

Being medical students, almost all appear to have gained their knowledge during their training from their respective medical institute, and half of them

Volume 2, Issue 4; July-August 2019; Page No.01-09

also received information from media. The role of media and information received through them is very important for the prevention, as they can target majority of population, independently of their visit to health care services. [9] A study designed to examine differences in the knowledge level pertaining to the cervical cancer and HPV vaccine among medical students, midwives and women as patients in primary health care, found that the students showed the highest level of knowledge about the cervical cancer. [9]

Almost all recommended visiting doctor immediately on developing any symptoms of this disease. None recommended alternate form of treatment. This reflects the difference in attitude of a medical professional and general public as the education and medical training alters the attitude.

Knowledge of cervical cancer and its risk factors was very good in our study. Being medical students, they are expected to have good knowledge of this disease. In contrast to a study [10] by on female university students in South Africa, where only 43 % students had heard about cervical cancer, 99.2% students in our region had heard about this disease. Another study by Hasenyager et al [11] shows poor knowledge of risk factors among undergraduate students in a university in USA. As compared to nurses in India,[12] medical students had better knowledge of risk factors of cervical cancer. It was seen that the knowledge regarding signs of cervical cancer was lacking. Being final year medical students, they would soon be examining patients independently in near future. It is expected of them to identify patients at an early stage. Thus, the knowledge of signs becomes important for medical students and these should be adequately trained to identify disease at an earlier stage.

Our results compare well to a study [13] done on health care providers at three government hospitals in Ethopia where almost all recognized cervical cancer as a preventable disease (85%), with a detectable precancerous stage (87%) and understood the role of cervical cancer screening in detecting precancerous lesions (91%).

In a survey by Syed Faizan Ali [8] done to assess the knowledge and awareness regarding cancer cervix in interns and nurses of Karachi, Pakistan, only 26% of the study population was aware of one or more risk factors. Thirty seven percent recognized Pap smear as a screening test. In total only 37 out of 400 respondents were aware of the HPV vaccine. In present study, it was found that most of the students had knowledge about risk factors (81.9%), Pap test as screening test (93.4%) and types of vaccines available (56.2%).

Knowledge regarding screening was upto 90 % in our study. This is similar to that reported by Hasenyager [11] amongst female university students in the USA Present study shows that more than 90% were aware of Pap smear test. Health workers of the same region also had similar level of awareness regarding pap smear test [2]. However, it was lower than as reported by Singh E [14] where almost all (96%) respondents had heard about the Pap smear test.

In our study, though more than 80 % knew about the cervical biopsy, only half of the subjects could identify VIL and VIA as various other diagnostic modalities for cervical cancer, whereas health workers of the same region had more knowledge on these parameters of diagnosis. [2] In contrast, only 7% respondents knew about VIA in a study done on nursing staff in a tertiary institution of rural India by E Singh et al. [14]

It was observed, that the knowledge regarding certain parameters of cancer cervix prevention, diagnosis and treatment improved significantly by attending workshop on specific disease. Doctors and health care providers play a pivotal role in developing awareness, confidence and compliance in women. Therefore, this population should be targeted first by providing adequate education and sensitization. It is the need of the hour for effective implementation of cervical cancer screening programmes.

In a similar study done in India by Swarnapriya et al [15] , it was reflected that the knowledge and uptake of HPV vaccination among medical and paramedical students in India was poor. Only 44.9% of the participants displayed good knowledge regarding HPV vaccination. Their finding corroborate with the findings of our study where only 40.0% had sufficient knowledge regarding HPV vaccination, 42.5 % had no idea of the correct age of vaccination. Also, in a study done on medical students in southwest China,[16] fewer than 50.0% agreed that cervical cancer could be prevented by HPV vaccines, while 80.0% thought cervical cancer could be

Volume 2, Issue 4; July-August 2019; Page No.01-09

prevented by screening. Studies of students' knowledge of the HPV have shown that the students know about HPV, but their knowledge of possible consequences of the HPV infection is insufficient. [17,18]

Inadequate information was the most cited barrier to receiving or recommending HPV vaccination and cervical cancer screening. In a study by Xiong-Fei Pan et al, [16] students with improved knowledge were positive predictors for both HPV vaccines and screening.

These students are the future doctors and will serve community shortly. People will seek advice regarding vaccination from these doctors. Therefore, knowledge regarding vaccination should be emphasized upon during the training period.

As HPV testing and vaccination become available in Public sector in India, uptake is likely to be strongly influenced by information received from these health care personnels. [2] Therefore, targeted health education intervention may result in improvement in quality of healthcare services and also their intention to recommend the vaccine in future. [15]

This study is limited by the fact, that there is possibility of contamination of information as the questionnaire was not distributed simultaneously in all the three colleges and the process was completed over a period of three months. Also, in the present study, the nature and details of workshop was not asked from those who attended the training on cervical cancer.

Prevention demands education, the education that awakens and makes the community capable of overcoming ignorance and social taboos and go for prevention, screening and early detection of this preventable and curable disease.

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Volume 2, Issue 4; July-August 2019; Page No.01-09

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Table 1: Knowledge of screening and preventive methods in cancer cervix

	Frequency	**Percent**
Method which should be promoted for Cervical cancer screening		
HPV DNA test	245	67.7
Pap test	325	89.8
VIA	162	44.8
VILI	150	41.4
Screening should be started and done (how often)		
Age at 21 years	287	79.3
3 years after the onset of sexual activity	204	56.4
Yearly	216	59.7
After 30 years 2 to 3 Yearly	217	59.9
Monthly	*134*	*37.0*
Ways to prevent Cervix cancer		
Circumcision of male partner	155	42.8
Finding Cervix cancer early	319	88.1
Vaccination	281	77.6
Population awareness	321	88.7
Screening	334	92.3

Volume 2, Issue 4; July-August 2019; Page No.01-09

Protective factors (Barrier contraceptives, Vit. A, C & E)	265	73.2
Vaccination of cervical cancer is done against		
Virus	315	87.0
Bacteria	*76*	*21.0*
Fungus	*62*	*17.1*
Type of vaccination available at present		
Bivalent	234	64.6
Quadrivalent	173	47.8
Age of vaccination (in years) as per ACOG		
9 to 26	123	34.0
15 to 45	71	19.6
11 to 35	14	03.9
Don't know	154	42.5

Table 2: Knowledge of methods of early detection, diagnosis and staging process of cancer cervix

	Frequency	**Percent**
Method for early detection of Ca Cervix		
Screening	335	92.5
Local examination	297	82.0
HPV DNA test	290	80.1
Pap test	338	93.4
VIA	188	51.9
VILI	175	48.3
Method of diagnosis		
Physical & EUA	249	68.8
Pathological examination of cervical tissue Biopsy	301	83.1
USG	255	70.4
CT/MRI	258	71.3
Cervical cancer staging		
FIGO	262	72.4
TNM	175	48.3
Others	*74*	*20.4*
Methods of treatment		
Surgery	316	87.3

Volume 2, Issue 4; July-August 2019; Page No.01-09

Radiotherapy	303	83.7
Chemotherapy	312	86.2
Chemo radiotherapy	291	80.4
Brachytherapy	174	48.1

Table 3: Attitudes to cervical cancer and place of treatment

	Frequency	**Percent**
Ca Cervix is a serious disease	**346**	**95.6**
Ca Cervix is curable	**307**	**84.8**
Time period to see doctor if you discover sign and symptoms		
Immediately	324	89.5
Within one month	*16*	*04.4*
1-3 months	*02*	*00.6*
Not bother at all	*00*	*00.0*
Don't know	*20*	*05.5*
Believe that your occupation is important for early detection and prevention of Ca Cervix	316	87.3

Table 4: Correct responses to questions on knowledge about cancer cervix

Sr no.	**Questions**	**Correct response (n)**	**Percentage (%)**
1	Symptoms of cancer cervix	**2355**	**81.3**
2	Signs of cancer cervix	**978**	**67.5**
3	Risk factors for cancer cervix	**3853**	**81.9**
4	Ways to prevent cancer cervix	**1675**	**77.1**
5	Methods to promote cancer cervix screening	**882**	**60.9**
6	Types of vaccines available to prevent cancer cervix	**407**	**56.2**
7	Appropriate age of vaccination for cancer cervix	**123**	**33.9**
8	Methods of early detection of cancer cervix	**1623**	**74.7**
9	Knowledge regarding cancer cervix staging	**524**	**48.2**
10	Methods of treatment of cancer cervix	**1396**	**77.1**

Each question has multiple correct responses.

Table 5: Knowledge levels of students

Level of knowledge	**Frequency**	**Percentage**

Volume 2, Issue 4; July-August 2019; Page No.01-09

Poor	06	01.7
Moderate	28	07.7
Good	153	42.3
Very good	175	48.3

Table 6: Comparison of knowledge score between those who ever attended training on cancer cervix and those who did not

Knowledge related Variables	**Ever attended a training on Ca Cervix screening & prevention**				**p**
	Yes (N=93)		**No (N=269)**		
	Mean	**SD**	**Mean**	**SD**	
Symptoms of Ca Cervix	6.60	1.95	6.47	2.15	0.61
Cardinal Signs of Ca Cervix	2.83	1.46	2.66	1.48	0.34
Risk factors and Etiology of Ca Cervix	11.04	2.83	10.51	2.72	0.10
Ca Cervix screening is important	0.86	0.35	0.90	0.29	0.25
Reason for importance of Ca Cervix screening	4.05	1.34	3.94	1.32	0.48
Method which should be promoted for Ca Cervix Screening	3.11	1.21	2.20	1.32	0.00*
Screening should be started and done (how often)	3.10	1.33	2.79	1.36	0.06
Ways to prevent Ca Cervix	4.88	1.58	4.54	1.43	0.06
Vaccination of Ca Cervix is done against	1.52	0.90	1.83	1.08	0.01*
Type of Vaccination available at present	1.30	0.86	1.06	0.85	0.02*
Age of vaccination	0.32	0.47	0.35	0.48	0.69
Method of early detection of Ca Cervix	4.61	1.79	4.44	1.46	0.35
Method of Diagnosis	3.09	1.26	2.88	1.23	0.18
Staging of Ca Cervix	1.67	0.76	1.37	0.87	0.00*
Treatment for Ca Cervix	4.17	1.31	3.75	1.41	0.01*

*Significant. Unpaired t-test was applied.

Volume 2, Issue 4; July-August 2019; Page No.01-09