original article

PREVALENCE OF HUMAN PAPILLOMA VIRUS INFECTION IN FEMALES ATTENDING A TERTIARY CARE CENTER.

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Abstract

Introduction: Cervical cancer remains worldwide and the fourth most common cancer among women, around 528,000 new cases and 266,000 deaths are reported each year.

Aim: To find the prevalence of HPV in females and to study the pattern of pap smear of these patients.

Results: Prevalence of HPV in this study was 30.4%.This study showed 10 normal smear (8%), 80 inflammatory smear (52.6%), 5 atrophic smear (4%), 9 squamous metaplasia (7.2%), 6 ASCUS (4.8%),12 LSIL (9.6%),2 HSIL (1.6%),1keratinizing squamous cell carcinoma (0.8%)

Conclusion: If HPV testing is used as a screening method we can prevent the progression to higher cervical lesions and carcinoma cervix.

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Introduction

Cervical cancer remains worldwide and the fourth most common cancer among women, around 528,000 new cases and 266,000 deaths are reported each year[1]. Carcinoma cervix is a major health problem faced by the women in India. Approximately 120,000 women develop this disease[2] According to ICMR, the incidence of cervical carcinoma in India is 20-35 /100,000 women between age group 35 to 64 years in comparison with developed countries, it is 1 to 8/100,000 women[3]. In the past decade, it has been shown that Human Papilloma Virus (HPV) plays an important role in the development of carcinoma cervix[4] .HPV belongs to a family Papilloma viridae and has more than 100 known genotypes .Out of these 100 genotypes, 40 genotypes cause genital infections. These are categorized into high risk and low risk type. Among high risk types, HPV 16 and HPV 18 are the most common. Most infections are benign and resolve with time. Only persistent infections progress to cervical intraepithelial neoplasia and cervical cancer[4,5.]

Because of this association, it has been suggested that high risk HPV detection can be used to identify women at risk for subsequent development of carcinoma cervix. there are various methods of cervical screening. Conventional pap smear has many limitations. Liquid based cytology has emerged as a new cervical technique to screen for cervical abnormalities. It also has an added advantage that residual material can be used for HPV DNA testing[6].

Aims And Objectives

To find the prevalence of HPV in females attending Out patient department (OPD) in our department.
To study the pattern of pap smear of these patients.

Material And Methods

This is a prospective study which was conducted in the department of Obstretics and Gynaecology for a period of one year from 2018 to 2019. Women between 20 to 70 years who were sexually active were included in this study. Menstruating women, pregnant females and unmarried females were excluded from the study.The study included 125 women who were randomly selected attending OPD in our department. Those who fulfilled

the inclusion criteria were counseled regarding the procedure. After informed consent, history taking and general physical examination, patient was put in lithotomy position. Unlubricated Coscos self retaining speculum was introduced into vagina and cervix was visualized.

Samples were collected using a broom sampling device from the cervix.Sample was transferred into a container of fixative solution.The vial was then shaken and transferred to the pathologist. Cytological smear was processed and interpreted according to revised Bethesda Classification 2001.Residual material was used for HPV testing. In our study HPV DNA detection was done by Polymerase chain reaction.

Observations

Out of 125 women enrolled for the study,38 women came out to be HPV positive. So the prevalence of HPV in our study was 30.4%.

According to revised Bethesda system classification2001,our study showed 10 normal smear (8%), 80 inflammatory smear (52.6%), 5 atrophic smear (4%), 9 squamous metaplasia (7.2%), 6 ASCUS (4.8%),12 LSIL (9.6%),2 HSIL (1.6%), 1 keratinizing squamous cell carcinoma (0.8%)as shown in table 1.

Table 1-Showing different types of lesions

S.No.	Lesions	No. of cases	Percentage
1	Normal	10	8%
2	Inflammatory	80	64%
3	Atrophic	5	4%
4	Squamous metaplasia	9	7.2%
5	ASCUS	6	4.80%
6	LSIL	12	9.6%
7	HSIL	2	1.6%
8	Keratinizing squamous Cell carcinoma	1	0.8%

Maximum number of patients were in the 30 to 40 years of age group. Highest percentage of HPV positive cases were seen in age group of 50 to 60 years (table 2).It showed an increasing trend of HPV positivity with increasing age except for 60 to 70 years age group.

Table 2 showed that prevalence of HPV increases with increasing age till 60 years .

Table 2-HPV DNA test done in different age groups

S.No.	Age in years	No. of cases in Which HPV test was done	Cases in which HPV is positive	%age of positive cases
1	20-30	17	4	23.52%
2	30-40	45	13	28.88%
3	40-50	35	11	31.42%
4	50-60	19	7	36.84%
5	60-70	9	3	33.33%
	Total	125		

P value=0.93 .Non significant

When we looked at the age at marriage of the patients,we observed that 80 patients were married before the age of 25 years and in this group,30 0ut of 80 patients were positive for HPV which came out to be 37.50%. Females married after 25years of age were 45 in number and in this group 8 patients were HPV positive which is around 17.77%(table 3).

Table 3-showing relation between HPV DNA test and age at marriage

Age in Years at marriage	No. of patients	HPV -VE	HPV +VE
<25	80	50	30(37.50%)
..	45	37	8(17.77%)
Total	125		

P value=0.021;highly significant

Table 4 showed that correlation of HPV infection with cervical lesions.Out of 80 inflammatory cases, only 20 were positive for HPV and that too for type 6,11. None of the cases from atrophic and squamous metaplasia were positive for HPV.Both cases of HSIL were positive for type 16,18. One case of carcinoma was there and it was positive for type 16,18. It showed that all the HSIL and squamous cell carcinoma were positive for 16,18 type.

Table 4-Showing correlation of HPV with lesions

S. No.	Lesions	Cases tested for HPV	HPV NEGATIVE	HPV POSITIVE		
				Type 6/11	Type 16/18	Total +ve
1	Normal	10	10((100%)	0	0	0
2	Inflammatory	80	60(75%)	20(25%)	0	20(25%)
3	Atrophic	5	5(100%)	0	0	0
4	Squamous metaplasia	9	9(100%)	0	0	0
5	ASCUS	6	2(33.33%)	4(66.66%)	0	4(66.66%)
6	LSIL	12	1(8.33%)	11(91.66%)	0	11(91.6%)
7	HSIL	2	0	0	2(100%)	2(100%)
8	Squamous cell carcinoma	1	0	0	1(100%)	1(100%)

P value= 0.001;highly significant

DISCUSSION

This study evaluated the prevalence of HPV infection in patients attending OPD in the department of Obstetrics and Gynaecology in Acharya Shri Chander College of Medical Sciences Jammu. Out of 125 patients ,38 were positive for HPV.So the prevalence of HPV was 30.4% which is similar when compared to some western countries like America, Italy and Canada(18.15% -39%)[7,8,9] but higher than the countries like China(6.1%-12.9%)[7,10]. This shows that there are cultural and regional differences in HPV prevalence.

When we looked on pattern of pap smear,we found that the most common smear was inflammatory (52.6%).Normal smear was found in 8% and atrophy in 4%.ASCUS was found in 4.8%, LSIL in 9.6%,HSILin 1.6% and squamous cell Carcinoma in 0.8% smears. Our results were similar to that observed by Misra et al[11].They observed the inflammatory smears in 42.20%and atrophic smears in 0.5%.LSIL were 5.60% and HSIL were 1.6%.carcinoma cervix was found in 0.8% in Misra et al [11] study.

Age was also studied in our study. We observed that maximum patients were in the age group of 30-40 years(45 patients). Maximum percentage of HPV positive cases were seen in age group of 50-60 years(36.84%), followed by age group 60-70 years (33.33%), followed by 40-50years (31.42%)which was followed by 30-40 years (28.88%). Minimum HPV positive females were in age group 20-30 years(25%). Although it showed an increasing trend of HPV positivity with age (except for 60-70 years) but it is not statistically significant. Our results were contrary to the results of Becker T.M et al.[12] and Wheeler C.M et al[13] which showed the inverse relationship between age and HPV positivity.

When we studied prevalence of HPV in relation to age at marriage we found that prevalence of HPV in patients married before 25 years was 37.50% Prevalence of HPV in patients married at and after 25 years was 17.77%. This showed that prevalence of HPV was more in females who were married before 25 years and when p value was found, it came out to be 0.021 which is significant. Our results were similar to the study of Yanru Zhang, Yueyun Wang and Shaofa Nie.[14] Early age at intercourse is a risk factor for HPV. It is to be reported that immature cervix was more likely to acquire HPV infection.[15]

We studied the correlation of HPV with cervical lesions. We have seen that out of 12 LSIL cases, 11 were positive for HPV which is around 91.66%. Total HSIL cases were 2 and both the HSIL were positive for HPV and that too for type 16/18 which means 100% HPV positive rate. Squamous cell carcinoma was only 1 case which was HPV positive. This meant 100% positive rate of HPV with carcinoma cervix. P value came out to be 0.001 which is highly significant. Our results were similar to study of Jin Zhong et al.[15] which showed the HPV positivity significantly higher in CIN 1(38.60%), CIN2(74.60%), CIN3 (87.50%) and squamous cell carcinoma(89.05%).This was very close to our study.

CONCLUSION

It was found that increasing age, early age at marriage were associated with increasing prevalence of HPV. We have seen in our study that HPV prevalence is more in cases with higher cervical lesions like LSIL, HSIL and carcinoma cervix. So if we use HPV testing as a screening method we can prevent the progression to higher cervical lesions and carcinoma cervix. Cervical Cancer screening programs in both developing and developed countries generally depend on cytological testing using conventional pap smear because of the cost factor. But it has high false negative rates and high false positive rates. So, because of limited resources and financial constraints, screening can be directed to target population.

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