Comparative Study of Demographic Profile of Cancer Cervix Patients Attending IOG in the Year S 2009- 2010 and 2014-2015.

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Abstract

Background

Cervical Cancer is an important cause of morbidity and mortality in women worldwide. In developing countries where healthcare resources are limited, the second frequent cause of cancer death in women is cancer cervix. With appropriate diagnosis, treatment and follow-up, Cervical Cancer can be prevented and cured at low cost with the available screening for asymptomatic women. Therefore socio-demographic risk quantification of cancer cervix has taken prime importance in evolution of programmes in public health for cancer cervix control.

AIM

This study compares the socio-demographic profile of patients with carcinoma cervix attending IOG in the current period 2014-15 with that of 5 years ago i.e.2009-10

Materials and Methods

It is a retrospective case control study conducted at Institute of Obstetrics & Gynaecology Egmore, Chennai 8. The duration of study was one year and six months This is a record based comparative and descriptive study conducted in IOG. The data source is from IOG audit. The sociodemographic profile of carcinoma cervix patients who were treated in IOG in the current study period 2014-2015 will be compared with that of 5 years ago 2009-2010.The detailed history will be recorded in the proforma.

Place of Study

Institute of Obstetrics & Gynaecology Egmore, Chennai 8.

Results

In this study, the number of cancer cervix detected patients increased to 81%in the current period when compared to the previous period .In the age group of less than 35 years in 2009-2010 the detection is 31.7% whereas in 2014-2015 it is 68.3%. This shows early detection of cases in the present period .Subsequently the detection in other age group is also increasing than the previous period .Eventhough age distribution between two periods are not statistically significant as evidenced by chi square of 2.658 and p value of 0.617 ,the distribution of number of cases between two periods are uniformly increasing.

Conclusion

With the changes in the socio-economic profile, different screening strategies, and easy accessibility of screening services and with increased awareness

among women including women from rural areas with adequate literacy rate, there is an elevation of cancer cervix detection in the early. stage itself in the current period when compared to the previous period. With early detection, patients could be treated effectively and the morbidity and mortality could be decreased.
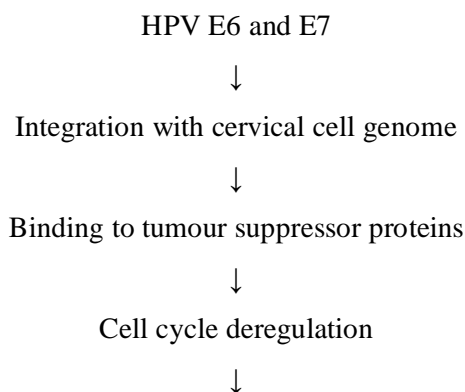
Introduction

Cervical Cancer is an important cause of morbidity and mortality in women worldwide. In developing countries where healthcare resources are limited, the second frequent cause of cancer death in women is cancer cervix.

With appropriate diagnosis, treatment and follow-up, Cervical Cancer can be prevented and cured at low cost with the available screening for asymptomatic women.

The age distribution of the patients is bimodal with high incidence at 35 to 39 years and 60 to 64 years of age.

Carcinoma of the cervix is a multifactorial disease and main causative agent is Human Papilloma Virus. It is determined to be the main agent in the development of squamous and adenocarcinoma of the cervix. Of the 14 high risk HPV subtypes: 16 & 18 are found in 62 % of cervical cancer. The mechanism is through the interaction of the viral E6 and E7 proteins with tumour suppressor genes p53 and Rb. Inhibition of p53 prevents cell cycle arrests and cellular apoptosis, inhibition of Rb disrupts transcription factor E2f resulting in unrepleted cellular proliferation.

HPV E6 and E7

↓

Integration with cervical cell genome

↓

Binding to tumour suppressor proteins

↓

Cell cycle deregulation

↓

Uncontrolled cellular proliferation

↓

Intraepithelial neoplasia and cancer

However epidemiological studies have analysed many other risk factors like younger age at first intercourse (less than 16 years), multiple sexual partners, race, increased parity, environmental factors, genetic predisposition, cigarette smoking, low socioeconomic status and chronic immune suppression, micronutrient deficiency and others. Therefore socio-demographic risk quantification of cancer cervix has taken prime importance in evolution of programmes in public health for cancer cervix control.

Review of Literature

Among the risk factors human papilloma virus is an important etiological agent. It is a circular double stranded DNA virus which causes sexually transmitted infection. HPV can replicate only in stratified squamous epithelium. There are nearly about 150 related viruses in this HPV group,6 and 11 cause papilloma which are known as warts. HPV 16,18,31,33,45 are high risk types because they cause cancers of cervix, vagina, vulva in women & cancer of the penis in men.

HPV affects cellular differentiation and growth through interaction of viral E6,E7 protein with tumour suppressor genes p53 and Rb respectively. Cell cycle arrest and cellular apoptosis is caused by p53 inhibition, which normally occurs when damaged DNA is present, while inhibition of Rb disrupts transcription factor E2F and causes unregulated cellular proliferation.Other risk factors are women of young age at first intercourse and younger age at first term pregnancy. Women who are less than 16 years and who had their first term pregnancy at younger age are at two folds increased risk to develop cervical cancer at a later stage.Multiple sexual partners,

partners having multiple sexual partners, smoking, immunocompromised individuals due to conditions like HIV or due to certain medications such as immunosuppressants, those who are on oral contraceptive pills for more than 5yrs,high parity, low socioeconomic status are other risk factors.

AIM

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Inclusion Criteria

- All patients with cancer cervix with histopathological confirmation who were treated in IOG in 2009-2010 and 2014-2015.

Exclusion Criteria

- Patients whose available records are incomplete
- Patients without histopathological confirmation

Procedure

Records of all cancer cervix patients admitted in IOG in the years 2009, 2010, 2014 & 2015 were obtained from Medical Records Section, IOG and analysed.

Data Collection & Methods

The following data was collected - Age, residential area, religion, educational status, occupation, socio-economic status, marital status, age at marriage, parity, age at first issue, referral, screening method which first detected, Colposcopy confirmation, presenting symptoms, type of lesion, stage of disease, biopsy findings are collected from IOG audit and statistical analysis done.

Results and Analysis

The study analysed the outcome using various parameters. The results were subjected to statistical analysis using T test and Chi-square test. The number of cancer cervix detected patients increased was 81% in the current period when compared to previous period. Interesting factor is that the detection in less than 35 years of age in 2009-2010 period is 31.7% whereas in 2014-2015 it is 68.3%. This shows the early detection of cases in the current period has increased. Subsequently the detection in other age goups is also increasing than the previous period. Eventhough age distribution between two periods is not statistically significant as evidenced by chi square value of 2.658 and p value of 0.617, the distribution of number of cases between two periods is uniformly increasing and this shows the number of detected cases between two periods. We can see elevation in cancer cervix detected cases.

Table : 1   Residence * group

Crosstab				
Residence		Group		Total
		2009-2010	2014-2015	
RURAL	Count	211	535	746
	% within group	53.8%	75.2%	67.6%
URBAN	Count	181	176	357
	% within group	46.2%	24.8%	32.4%
Total	Count	392	711	1103
	% within group	100.0%	100.0%	100.0%

There exists a statistical significance between two periods with respect to residence as evidenced by chi square value of 52.960 and p value of 0.000.This is

mainly due to awareness created by various Government programmes, and advertisements by media persons among rural folks. This is evidenced from the above table where 75.2% detected cases in 2014-2015 than previous period 2009-2010 of 53.8%. This clearly shows cancer detection is more in rural areas.

Table: 2   Education * group

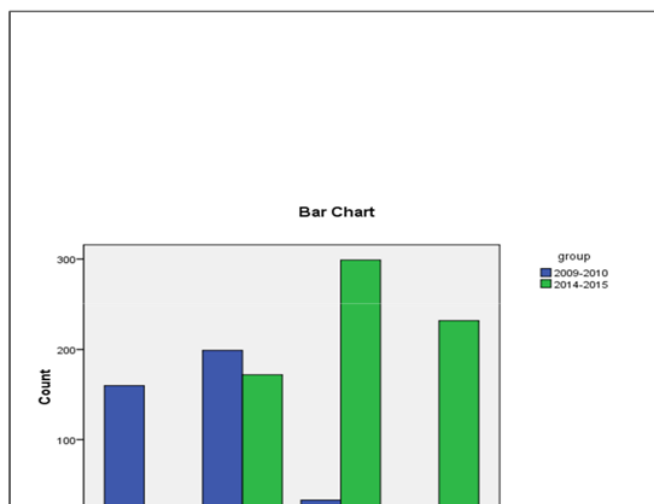| Crosstab				
Education		Group		Total
		2009-2010	2014-2015	
ILLITERATE	Count	91	40	131
	% within group	23.2%	5.6%	11.9%
PRIMARY	Count	278	639	917
	% within group	70.9%	89.9%	83.1%
SECONDARY	Count	23	32	55
	% within group	5.9%	4.5%	5.0%
Total	Count	392	711	1103
	% within group	100.0%	100.0%	100.0%

There exist a statistical significance among two groups with respect to education as evidenced by chi square value of 77.684 and p value of 0.000 between two periods. Illiterate population in the present period has been reduced when compared five years ago as per educational statistics. We also infer that cancer detected cases were prevalent more in the literate group and also among rural population by the awareness program by health providers in the current period.

Table: 3   Age at marriage (years) * group

Crosstab				
Age of marriage (years)		Group		Total
		2009-2010	2014-2015	
<16 YEARS	Count	160	8	168
	% within group	40.8%	1.1%	15.2%
16-18 YEARS	Count	199	172	371
	% within group	50.8%	24.2%	33.6%
19-21 YEARS	Count	33	299	332
	% within group	8.4%	42.1%	30.1%
>21 YEARS	Count	0	232	232
	% within group	.0%	32.6%	21.0%
Total	Count	392	711	1103
	% within group	100.0%	100.0%	100.0%

There exists a statistical significance between two periods with respect to age of marriage as evidenced by chi square value of 537.292 and p value of 0.000. The table iferred that there is steep decrease of early marriages in the current period when compared to previous period. As literacy rate and awareness of child marriage problems are increasing, early onset of marriage has been reduced in the current period.

Diagram: 2

Table: 4 Parity statuses

Crosstab				
Parity status		Group		Total
		2009-2010	2014-2015	
upto 5	Count	288	658	946
	% within group	73.5%	92.5%	85.8%
>5	Count	104	53	157
	% within group	26.5%	7.5%	14.2%
Total	Count	392	711	1103
	% within group	100.0%	100.0%	100.0%

There exists a statistical significance among two periods with respect to parity status as evidenced by chi square value of 75.323 and p value of 0.000. Here in the present period parity upto 5 are 92.5% than previous period of 73%. This clearly shows cancer cervix detection is elevated in high parity women.

Table: 5 Age at Ist issue * group

Crosstab				
Age at Ist issue		**Group**		**Total**
		2009-2010	**2014-2015**	
UPTO 17 YEARS	Count	121	0	121
	% within group	30.9%	.0%	11.0%
>17 YEARS	Count	271	711	982
	% within group	69.1%	100.0%	89.0%
Total	Count	392	711	1103
	% within group	100.0%	100.0%	100.0%

There exists statistical significance between age at first issue among the two periods as evidenced by chi square value of 246.509 and p value of 0.000. In the present period not a single case was detected whereas 30.9% cases were detected in previous period.

Table : 6   Screening method which first detected * group.

Crosstab				
Screening method which first detected		**Group**		
		2009-2010	**2014-2015**	**Total**
PER SPECULUM	Count	164	41	205
	% within group	41.8%	5.8%	18.6%
PAPSMEAR	Count	228	485	713
	% within group	58.2%	68.2%	64.6%
VIAVILI	Count	0	185	185
	% within group	.0%	26.0%	16.8%
Total	Count	392	711	1103
	% within group	100.0%	100.0%	100.0%

There exists a statistical significance among two periods with respect to screening methods which first detected as evidenced by chi square value of 282.834 and p value of 0.000. Per speculum method alone as screening is having a low sensitivity compared to other screening methods. In present period only 5.8% patients were screened by per speculum alone. This clearly shows present period detection will be more accurate than the previous period with other screening methods.

Table :7				
COLPOSCOPIC CONFIRMATION		**Group**		**Total**
		2009-2010	**2014-2015**	
NO	Count	392	0	392
	% within group	100.0%	.0%	35.5%
YES	Count	0	711	711
	% within group	.0%	100.0%	64.5%
Total	Count	392	711	1103
	% within group	100.0%	100.0%	100.0%

There exist a statistical significance with respect to colposcopic confirmation between two periods as evidenced by Chi square value of 1103.000 and p value of 0.000

Table : 8   Stage of Cancer CervixI * group

Crosstab				
Stage of Cancer Cervix I		**Group**		**Total**
		2009-2010	**2014-2015**	
1A	Count	1	5	6
	% within group	.3%	.7%	.5%
1B	Count	9	26	35
	% within group	2.3%	3.7%	3.2%
2A	Count	14	48	62
	% within group	3.6%	6.8%	5.6%
2B	Count	150	255	405
	% within group	38.3%	35.9%	36.7%
3A	Count	13	7	20
	% within group	3.3%	1.0%	1.8%
3B	Count	182	274	456
	% within group	46.4%	38.5%	41.3%
4A	Count	10	60	70
	% within group	2.6%	8.4%	6.3%
4B	Count	13	36	49
	% within group	3.3%	5.1%	4.4%
Total	Count	392	711	1103
	% within group	100.0%	100.0%	100.0%

There is a statistical significance between two groups with respect to different stages as evidenced by chi square value of 34.271 and p value of 0.000. The early detection of early stage cancers of the present period is 11.2% greater than the previous period of 6%.

Table - 9: BIOPSY REPORT Squamous cell Carcinoma.

Crosstab					
		group			
Squamous cell Carcinoma		2009-2010	2014-2015	Total	
WD	Count	36	18	54	
	% within group	9.2%	2.5%	4.9%	
PD	Count	281	208	489	
	% within group	71.7%	29.3%	44.3%	
MD	Count	75	485	560	
	% within group	19.1%	68.2%	50.8%	
Total	Count	392	711	1103	
	% within group	100.0%	100.0%	100.0%	

There exists a statistical significance between the two periods with respect to moderately differentiated squamous cell carcinoma and poorly differentiated squamous cell carcinoma as evidenced by chi square value of 245.339 and p value of 0.000. Moderately differentiated Carcinoma were 68.2% in 2014-2015 compared to previous period of 19.1% in 2009-2010. Poorly differentiated carcinoma has been reduced to 29.3% when compared to previous period of 71.7% .

Discussion

This study compares the socio-demographic profile of cancer cervix patients attending IOG in the current period 2014-2015 with that of five years ago 2009-2010.

The pre-cancerous period of cancer cervix is generally 10 to 15 years. Hence it provides considerable window of opportunities to detect and treat it completely. In the routine checkup of all women if regular screening is made a part, then the onset of cancer can be detected and combated effectively.

HPV is the main causative agent of cancer cervix. HPV falls into two groups

1. Low risk HPV-HPV types 6,11 cause genital warts and do not cause cancer. It causes only skin warts (condylomata accuminata) in and around the genital areas, anus and throat and mouth.

2. High risk HPV-There are many high risk HPVs but 16 and 18 are main causative agent for most HPV caused cancers.

Additional risk factors include

Early age at first intercourse, Young age at term pregnancy, Multiple sexual partner, Partners having multiple sexual partners, Smoking which causes increased likelihood of persistence of HPV in the body, Immuno compromised women –those women who are infected with HIV or AIDS, or those on medications which suppresses the immune system or organ transplant recipients are at increased risk of genital HPV infection, High parity, Low socio-economic status, Women on oral contraceptive pills for more than five year period are associated with a higher incidence of cancer cervix because the pills produce favourable environments for the virus.

Even though there is no statistical significance with respect to age between two periods as evidenced by chi square value of 2.658 and p value of 0.617,the distribution of number of cases between two periods are uniformly increasing . Interesting factor is that in women less than 35 years the detection in 2009-2010 is 31.7% whereas in 2014-2015 it is 68.3% showing the early detection in the current period.

In our study there is a statistical significance with respect to residence between two periods as evidenced by chi square value of 52.960 and p value of 0.000.Awareness campaigns and programmes are organized by the, Government which sensitises the entire community on all aspects of cancer cervix even among rural population . The risks factors of cancer cervix, the need for early detection and availability of free screening centres and services by the Government are the key messages of awareness campaigns. This is primary prevention. This is evidenced by the fact that the

number of cases detected were 75.2% in 2014-2015 when compared to 53.8% in 2009 - 2010. The study of cancer incidents and education in rural population has shown that the risks are inversely proportional to increased levels of education. The reproductive factors, cancer detection, sexual behaviour, demographic and biological factors including nutrition, smoking are also influenced by education. Therefore there are sufficient evidence to say that role of education is vital. In our study there is statistical significance with respect to education between two periods as evidenced by chi square value of 77.684 and p value of 0.000.We infer that cancer detected cases were prevalent more in the present period.

There is no statistical significance between two periods with respect to religion as evidenced by chi square value of 2.254 and p value of 0.324. Economic status of the women were assessed by the occupation and family income. In our study occupation or family income is not determining statistical significance among two periods as evidenced by chi square of

0.029 and p value of 0.865. There is no statistical significance with respect to socioeconomic status between two periods as evidenced by chi square value of 0.486 and p value of 0.784.

Sauvaget et al [7] 2011 A study made in rural West India showed that widows and women who are separated are at high risk of HPV infection. Specimens from cervix were taken and questionnaires regarding their lifestyle and their reproductive factors were given to 27,192 married women aged 30to 59 years residing in Maharastra State ,India .The results were that 10.3% prevalence of HPV infection were among middle aged women.The conclusion of the study was low socio economic status and groups like widows and separated women are at higher risk.

Kaker et al [8] 2008 reported that there is an increased risk for diagnosis at late stage among widows and divorced women compared to women who are married. The reasons may be these women never try to seek medical advice due to lack of financial, family and social supports. In our study there is under reporting of cases mainly from widows and separated women in both periods and therefore it is statistically insignificant as evidenced by chi square value of 0.180 and p value of 0.671. Biswas et al [9] 1997 there was a case control study conducted in a hospital in eastern part of Indian rural women which confirmed the close association between young age at first intercourse and incidence of cancer cervix.

In our study there exist a statistical significance with respect to high parity between two periods as evidenced by chi square value of 75.323 and p value of 0.000.Cancer detection was elevated in high parity women.

Women with persistent infection with HPV is an important cause of progression to invasive carcinoma of the cervix. Assessment regarding HPV infection was not made and therefore cannot be considered in our analysis.

Smoking is rare in our population, but passive smoking or smoking history of women's husband were not taken because such information are not routinely collected in our analysis.

Conclusion

With the changes in the socio-economic profile, different screening strategies, easy accessibility of screening services and with increased awareness among women including women from rural areas with adequate literacy rate, there is an elevation of cancer cervix detection in the early. stage itself in the current period

when compared to the previous period. With early detection, patients could be treated effectively and the morbidity and mortality could be decreased.

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