

Comparative Study of Risk Factors for Cancer Cervix among Women of Reproductive Age Women in Rural and Urban Area.

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ABSTRACT

Background: Awareness of risk factors is not at the desired levels among the women in the age group of 15-49 years. The level of awareness regarding identification of risk factors, symptoms of disease, the importance of early treatment which are important for control and prevention of disease. The present study is conducted in urban and rural areas in and around Kurnool district with the intention to know the level of awareness present and to measure the prevalence of risk factors for occurrence of cervical cancer. **Methods:** A total of 1400 women (700 urban and 700 rural women) in the reproductive age group of 15 – 49 years were interviewed at their residence. Interview done by investigator, during interview study pattern was explained to study population, later the data was collected. **Results:** Prevalence of two or more life time sexual partners was found to be high (4.2%) among rural women compared to urban women (1.33%). Prevalence of poor genital hygiene was 37.42% in rural women as compared to 8.28% in urban women. Prevalence of RTI among women of rural area was 34.57% and in urban area was 12.58%. History of husband having STI was more in rural areas (18%) when compared to urban area (14%). Status of screening by Pap smear was significantly high in urban (5.14%) than in rural (1.72%) population. **Conclusion:** Health care worker should be trained to identify and prevent risk factors causing cancer cervix in both urban and rural areas.

Keywords: Rural area, Risk factors, Urban area.

INTRODUCTION

Cancer cervix is the second most common cancer among women worldwide. Variations in incidence and mortality of the disease is existing among countries North America, Western Europe and some countries in the Eastern Mediterranean have the lowest rates and Latin America, Sub-Saharan Africa, South East Asia have the highest rate.

The proverb “prevention is always better than cure” is absolutely valid for the disease of carcinoma of cervix, which was a well-known disease in India and Egypt before the birth of the Christ.^[1]

A Risk factor is anything that changes chance of getting a disease such as cancer. Different cancers have different risk factors. They can be observable or identifiable prior to the event they predict. Combination of the risk factors may be purely additive or synergistic.^[2]

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Risk group approach was developed and promoted by WHO to identify precisely the risk groups or target groups that are in the reproductive age groups (15-49 years).

One out of five women in the world suffering from this disease belongs to India. Approximately 85% of women who die of cervical cancer belong to developing countries.

The prevalence rate of cervical cancer is 23.1 per 1,00,000 cases according to cancer registry.^[3] Cervical cancer is high in the state of Andhra Pradesh with an age adjusted rate of 10.3 per 10,000 women which accounts 25-50% of total cancers.

Risk factors for carcinoma cervix are coitus before the age of 18 years, multiple sexual partners, having first baby before the age of 20 years, multiparity with poor birth spacing, poor personal hygiene, sexually transmitted diseases of women.^[4]

Awareness of risk factors is not at the desired levels among the women in the age group of 15-49 years. The level of awareness regarding identification of risk factors, symptoms of disease, the importance of early treatment which are important for control and prevention of disease.

The present study is conducted in urban and rural areas in and around Kurnool district with the intention

to know the level of awareness present and to measure the prevalence of risk factors for occurrence of cervical cancer among women in the reproductive age group.

MATERIALS AND METHODS

A randomized prospective study was undertaken in urban and rural areas in and around Viswabharati Medical College at Kurnool during a year 2015. Study was conducted at Department of Community Medicine, approved by institutional ethics committee. A total of 1400 women (700 urban and 700 rural women) in the reproductive age group of 15 – 49 years were interviewed at their residence. The households were selected by a systematic random sampling method. Every third house hold was selected.

A proforma was designed, pretested at urban and rural areas at Kurnool and later the actual study was started after making necessary corrections.

The Interview was conducted by the investigator after taking informed consent from all study subjects after explaining the purpose and general objectives of the study, keeping in view their level of understanding.

Women who had undergone hysterectomy and those who were very sick were not included in this study.

Prestructured proforma for doing this study includes age, sex, oral contraceptives, multiple sexual partners, menarche, sexually transmitted disease, reproductive tract infections, multiparity, age at marriage/consummation, age at first pregnancy, pregnancy interval, genital hygiene, family history, menstrual periods and status of cancer screening.

Sample size estimation^[5]

Prevalence of smoking was 13 percent which is the least among all the risk factors. Hence this was considered to calculate the sample size. The formula for estimation of sample size is $4PQ/L2$. According to this sample size estimated was 669. Sample size required was 700 in each area (Urban and rural area).

Interview done by investigator, during interview study pattern was explained to study population, later the data was collected. Local health care workers helped during this study. Health education was imparted to them at the end of the interview.

Data checking and cleaning was done at the end of every field day. Data was checked for completeness and consistency. After transcribing and cleaning, the data was entered using the MS Excel 2003 version and descriptive analyses were completed using Epi-info 2007.

RESULTS

More than 83% (2/3) of population belongs to the age group of 15-29 years in rural areas and 76.29% in urban area. Divorcee and widow were more in rural areas compared to urban areas. Prevalence of family history of cancer was slightly more in urban areas (8.85%) than in rural area (6.25%). Habit of smoking was more in rural areas (14%) compared to urban area (2.28). Passive smoking was high (30.5%) in rural population than urban (16.8%) population.

Mean age at Menarche of rural women was $13.03\text{yrs}\pm 2.79$ whereas in urban women it was $12.56\text{yrs}\pm 1.42$. Prevalence of irregular cycles seems to be high (5.72%) among urban than the rural (2.42%) women. Mean age at marriage in rural area and urban area was $18.03\text{yrs}\pm 3.6$ and $19.14\text{yrs}\pm 6.4$ respectively. 74% women were married before they attained the age of 19 year in rural areas and only 46% women married before 19 years in urban areas. Prevalence of multiparity was 21.15% among urban population compared to 19.16% in rural population. Prevalence of two or more life time sexual partners was found to be high (4.2%) among rural women compared to urban women (1.33%). Prevalence of spacing between children was observed to be high in rural area (18.28%) compared to urban area (10.58%).

Prevalence of poor genital hygiene was 37.42% in rural women as compared to 8.28% in urban women. Prevalence of RTI among women of rural area was 34.57% and in urban area was 12.58%. History of husband having STI was more in rural areas (18%) when compared to urban area (14%). Status of screening by Pap smear was significantly high in urban (5.14%) than in rural (1.72%) population [Table 1].

Table 1: Comparison of various risk factors in rural and urban area.

Risk Factors	Rural		Urban		Chi Square value	P value	Significance
	No.	%	No.	%			
Age in years							
15-19	118	16.8	186	26.5	-	-	-
20-24	246	35.1	200	28.5			
25-29	230	32.8	146	20.8			
30-34	50	7.1	102	14.5			
35-39	34	4.8	36	5.1			
40-44	16	2.2	18	2.5			
45-49	6	0.8	12	1.7			
Marital status							
Married	666	95.1	544	77.7	-	-	-
Unmarried	14	2	148	21.1			
Divorcee	8	1.14	2	0.28			

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Widow	12	1.72	6	0.87			
Family history of cancer							
Yes	44	6.28	62	8.8	3.48	>0.05	NS
No	656	93.7	632	91.1			
Habit of smoking							
Present	98	14	16	2.2	64.21	<0.05	SS
Absent	602	86	684	97.7			
Passive smoking							
Present	214	30.5	118	16.8	36.39	<0.001	SS
Absent	486	69.4	582	83.1			
Menstrual cycles							
Regular	692	98.5	660	94.2	22.09	<0.005	SS
Irregular	8	2.4	40	5.7			
Age at first pregnancy							
≤16 years	76	10.85	38	54.20	-	-	-
17-19 years	306	43.71	236	33.71			
≤20 years	274	39.16	230	32.85			
Non Pregnant	44	6.28	196	28.02			
Number of Children							
0	170	24.2	296	42.2	-	-	-
1	94	13.4	12	16			
2	302	43.1	144	20.5			
3	108	15.4	88	12.5			
≥4	26	3.7	60	8.5			
No. of life time partners							
1	670	95.7	690	98.5	1.66	>0.05	NS
2	20	2.8	6	0.8			
3 or more	10	1.4	4	0.5			
Spacing between children (≥3 years)							
Yes	128	18.2	74	10.5	16.87	<0.05	SS
No	572	81.7	626	89.4			
Prolonged intake of contraceptives							
Yes	36	4.8	54	7.7	3.85	>0.05	NS
No	664	95.1	646	92.2			
Poor genital hygiene							
Yes	262	37.4	58	8.2	19.49	<0.05	SS
No	438	62.5	642	91.7			
Reproductive tract infections							
Yes	242	34.5	88	12.5	94.2	<0.05	SS
No	458	65.4	612	87.4			
Husband having STI							
Present	126	18	98	14	4.17	<0.05	SS
Absent	574	82	602	86			
Pap Smear							
Yes	12	1.7	36	5.1	12.43	<0.05	SS
No	688	98.2	664	94.8			

Among both rural and urban population, use of permanent methods for contraception was high but comparatively it was much more in rural (89.57%) than the urban women (64.28%). Use of contraceptive pills and intrauterine devices was also high among urban women [Figure 1].

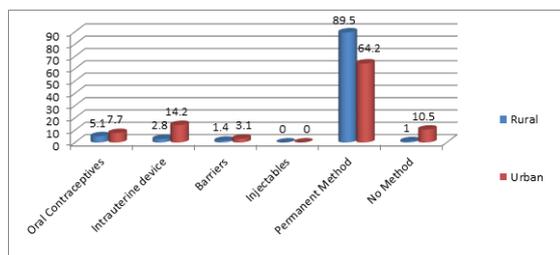


Figure 1: Distribution of study population as per use of spacing methods

Risk scoring was calculated for the prediction of cancer cervix by four risk factors: poor genital hygiene, smoking, reproductive tract infections and

multiparity. High risk subjects were more in rural area compared to urban areas [Figure 2].

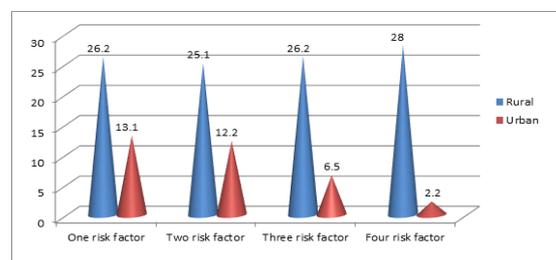


Figure 2: Distribution of study population according to risk factors

DISCUSSION

Lack of uniform policies and programmes in organizing cervical cancer control activities led this disease to be a major cause of death among Indian women. The traditional image of cancer is one of fear and pain over the years, this image has

changed because of availability of advanced treatment. Many cancers are curable provided the risk factors are detected early and prevented effectively.

Risk factors like high parity, early age at marriage, poor educational status, poor genital hygiene, multiple sexual partners were reported from Bombay, Assam, Calcutta, Pune, Patna and Trivandrum indicating that the problem of cervical cancer exists in all parts of the country.^[6] The virus was once supposed to produce only vegetant warts but is now acknowledged as responsible for much wider sub clinical lesions. Factors that can reduce the risk of cancer cervix are diet, vitamin E, folic acid.^[7]

Nanda kumar A et al,^[8] found that cancer cervix is the second most common cancer among women in India constituting between one sixth to one half of all female cancers.

In this study more than 83% (2/3) of population belongs to the age group of 15-29 years in rural areas and 76.29% in urban area. This group is vulnerable to unsafe sexual exposure, STI or RTI and unsafe abortion in turn leads to cancer cervix risk.^[9] Dutta PK et al,^[10] conducted a case control study and found that estimated relative risk for developing cancer cervix among women married before 17 years of age was found to be 7.9 as compared to women who were married after the age of 17 years. Mukherjee BN et al,^[11] revealed that early age of marriage was found to be the single predictor of the disease status. B Jorge T et al^[12] was most pronounced in the squamous cell carcinoma where the incidence was reduced by 48% from age at first birth < 21 years to age at first birth 27+ years.

In the present study prevalence of family history of cancer in urban area was 8.85% and rural area was 6.25%. Desai Monali et al,^[13] in her study noticed family history of cancer was 9.8%.

In a study done by Krishnan A et al,^[14] prevalence of smoking was 13% which corresponds to present study, where prevalence of 14% in rural area. Smoking acts as a cofactor which advances HPV infected cervical cells towards a cancer condition by reducing the antioxidants in the serum which provide protection.^[15] In a study done by Peter M Layde,^[16] passive smokers had three fold increased risk of cervical cancer. Women passively exposed to smoke for 3 hours or more per day were more at risk. In lower socio-economic class rural men have a habit of beedi smoking so the risk of passive smoking were more in rural women compared to urban.^[16]

Mean age at pregnancy in both rural and urban area was 19 years. Desai Monali et al,^[13] noticed age at first child birth below 18 years was 39%. Women who were less than 17 years when they had their first full pregnancy are almost twice more likely to get cervical cancer later in life. This may be

attributed to early sexual activities, hormonal changes during pregnancy, trauma during sexual course and long period of married life which are all co factors for HPV infection.

Having multiple sexual partners lead to more chances of getting sexually transmitted infections like HIV and also favour their transmission to partners. Too close pregnancies (2 years or less) increases the susceptibility for HPV infections than widely apart pregnancies.^[17]

Catherine Hoyo et al,^[18] conducted a study in Jamaica found that fourfold increase in risk of invasive cervical cancer reported in women with \geq 12 live births, in comparison to the women with one or no births.

Prevalence of oral contraceptives intake was more in urban areas (7.72%) when compared to rural (4.85%) population. Ylitelo et al,^[19] almost fourfold increase in the risk of cancer cervix among current users compared with nonusers.

In rural areas due to poverty, decreased awareness of the screening programme and inaccessibility of healthcare system, status of screening was less.^[20]

CONCLUSION

Multiparity is one of the risk factors for cancer cervix. Encourage women to adopt spacing methods and family planning methods through group discussions and counselling. Health care worker should be trained to identify and prevent risk factors causing cancer cervix in both urban and rural areas. Practice regarding genital hygiene was poor among rural population and this may be due to high literacy rate, when compared to urban population. The screening programmes have been initiated by the government; there is lack of utilization of these facilities especially in the rural areas there is need to create awareness about this.

REFERENCES

1. Nikumb V, Sawant PB, Kartikeyan S. Carcinoma of uterine cervix: A cross sectional case control study. *Cancer causes control* 1994; 30:67-73.
2. <http://en.wikipedia.org/wiki/cervical-cancer>. Surfied on 2008 Aug 18.
3. Cancer registry in India: ICMR report Dindigal.
4. Bhiswas LN, Maiti P, Subrata Sengupta. Sexual 8 risk factors for cervical cancer among rural Indian women: A case-control study. *Int epidemiological Asso.* 1997;26(3):46-50.
5. Mahajan BK. *Methods in biostatistics for medical students and research workers.* 6th ed. New Delhi: JP brothers; 1997. P. 90-93.
6. Patro BK, Nongkynrih. Review of screening and preventive strategies for cervical cancer in India. *Indian Journal of Public Health.* 2007;51(4):27-32.
7. Peter, Shields G, Viswanathan, Helzlsour. *Cancer risk assessment.* Lyon France: International agency for research on cancer. *Cancer causes control.* 1996; 7(3): 299-301..
8. Kumar NA, Anantha N, Venugopal TC. Incidence, mortality and survival in cancer of the cervix in Bangalore, India. *British Journal Cancer.* 1995; 71(6): 1438-52.

9. <http://www.papcouncil.org>-1994 to 1996. PDFS/RTIF surfed - 10-8-09.
10. Dutta PK, Upadhaya A, Dutta M, Urmil AC, Thergaonkar MP, Gnaguly SS. A case control study of cancer cervix patients attending Command Hospital, Pune. *Indian J Cancer*. 1990 ; 27(2): 101-8.
11. Mukherjee BN, Sengupta S, hudhuri S, Biswas LN, Maiti P. A case control study of reproductive risk factors associated with cervical cancer. *Int J Cancer*. 1994; 59(4): 476-482.
12. Bjorge T, Kravdal O. Reproductive variables and risk of uterine cervical cancer in Norwegian registry data. *Cancer causes control*. 1996; 7(3): 299-301.
13. Monali D, Bhardwaj D. Male factors in cancer cervix. *Jour Obstet Gynaecol Ind*. 2004; 54(6): 583-585.
14. Krishanan A, Shah B, Viveklal, shukla DK, Kapoor SK. Prevalence of risk factors for non-communicable disease in a rural area of Faridabad. District of Haryana. *J IPHA*. 2008;11 117-123.
15. Franceschi S, Rajkumar R, Mahe C, Plummer M, Snijders PJ, Arslan A et al. Papillomavirus infection in rural women in southern India. *Br J Cancer*. 2005; 92(3): 601-6.
16. Peter M Layde. J American Medical Association research report. 2007 March.
17. American cancer society/(Cancer reference information), what are the risk factors for cervical cancer? 2008 May 26.
18. Hoyo C, Newman BM, Miller WC, Fortney JA. Selective screening for cervical neoplasia – an approach for resource – poor settings. *Intl J Epidemiology*. 2000; 29: 807-812.
19. Yiltelo N, Sorensen P, Josefsson A, Frisch M, Sparen P, Ponten J et al. Smoking and oral contraceptives as a risk factors for cervical carcinoma in site. *Int J Cancer*. 1999;58(20): 4585-4586.
20. Sharma S. Vaccines against human papilloma virus and cervical cancer – an overview. *Indian Journal of Community Medicine*. 2008; 33(3):35-9.

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