

SOCIODEMOGRAPHIC RISK FACTORS FOR CERVICAL CANCER IN JAMMU REGION OF JAND K STATE OF INDIA FIRST EVER REPORT FROM JAMMU

ROOPALI FOTRA^{a1}, SHASHI GUPTA^b AND SUBASH GUPTA^c

^aPh.D., Institute of Human Genetics/ Department of Zoology, University of Jammu, India

^bM.D., HOD Dept. of Gynecology and Obstetrics, SMGS Hospital/Govt. Medical College, Jammu, India

^cPh.D., Human Genetic Research cum Counseling Centre, Govt. Medical College/University of Jammu, India

ABSTRACT

The objective of the study was to evaluate the women's knowledge and its association with the socioeconomic – demographic profile of the women of Jammu region. Majority (37%) of the females belonged to the age group 51-60. Most of the married women (58.2%) were married at the age of 21-25 (46.4%). The incidence was high in Hindu population (61.8%). Most of the women (54.3%) were found to have first issue at the age of 18-23. Incidence of the disease was found to higher (49.1%) in women above Para 4. 55% of the females belonged to the rural area. The gynecological symptoms reported by the females included pain lower abdomen (25.1%), post menopausal bleeding (25%) and vaginal discharge (15.6%). Educational status was also taken into consideration in which the major proportion (40.7%) of the females had undergone primary education. This data provides that the women of Jammu have limited knowledge about the susceptibility of cervical cancer and therefore there is an urgent need to upgrade the health standard of women of Jammu region. Prevention efforts should be focused on improving the social awareness, enforcing education strategies to reduce risk factors.

KEYWORDS: Cervical Cancer, Risk Factors, Symptoms, Awareness, Jammu

Cancer is perhaps the most progressive and devastating disease posing a threat of mortality to the entire world despite significant advances in medical technology for its diagnosis and treatment. It is estimated that by year 2020 there will be almost 20 million new cases. Worryingly, it is not only in the number of new cases that will increase but also the proportion of new cases from the developing countries like India will also rise to around 70%. The magnitude of the problem of cancer in the Indian sub-continent is alarming^[1].

Recently a report says that there are estimated 1.32 lakhs new cases and 74,000 deaths annually in India^[2]. The number of cervical cancer deaths in women in India is projected to increase to 79,000 by the year 2010. Particularly, in Southern India, carcinoma of the uterine cervix is the most common form of cancer in females^[3]. According to the WHO report 2010, cervical cancer is the single largest killer of middle aged women in India, although one third of the world cervical cancer burden is endured in Nepal and Sri Lanka^[4,5].

A risk factor is something that increases your chances of developing a disease or condition. The predominant risk factor for cervical cancer is the persistent infection with a high risk oncogenic potential type of human papilloma virus (types 16, 18, 31, 33, 35, 42, 55, 58). Malignant transformation by human

papilloma virus type is influenced by several factors such as HPV infection, co-infection with multiple oncogenic virus types and heavy viral load. Epidemiological studies have identified a number of other risk factors such as sexual intercourse at an early age, multiple sex partners, multiparity, longer duration of oral contraceptive usage, tobacco smoking, low socioeconomic status, micro nutrient deficiency and a diet deficient vegetables and fruits that contribute to the development of cervical cancer^[6,7,8].

MATERIALS AND METHODS

The present study was conducted with the aim of finding the prevalence of cervical cancer and to assess the knowledge about cervical cancer risk factors amongst females of Jammu region. This is a cross sectional hospital based study conducted in the unscreened population of Jammu region. All of them were examined clinically. The findings of history and clinical examination were recorded on the Proforma. A total of 852 women participated in this study. A detailed questionnaire was designed to discuss about the knowledge of risk factors associated with cervix cancer such as sexual behavioral patterns, marital status, reproductive histories, educational level, contraceptive practices, area distribution, genital hygiene, symptoms of reproductive tract complications. The authors described

the purpose and process of the survey to the youth, gave instructions for completing the questionnaire and emphasized the confidentiality and anonymity of the responses.

RESULTS

A total of 852 females were taken up during the present study (Table 1). Majority of the females were found to be in age group 51-60 (37%). Majority of the married women (58.2%) were married at the age of 21-25 (46.4). the incidence of the disease was found to highest in Hindu women (61.8%) as compared to Muslim women (26.2%). Most of the women (54.3%) were found to have first issue at the age of 18-23. Incidence of the disease was found to higher (49.1%) in women above Para 4. 55% of the females belonged to the rural area where as 45% of the women were found to be from the urban background. The gynecological symptoms reported by the females included pain lower abdomen (25.1%), post menopausal bleeding (25%) and vaginal discharge (15.6%). Educational status was also taken into consideration in which the major proportion (40.7%) of the females had undergone primary education.

Table 1: Results showing the significant risk factors associated with cervical carcinoma

| Category factor | No. of patients (n= 852) | Percentage % |
|---------------------------|-----------------------------|-----------------|
| Age (in years) | | |
| Below 40 | 127 | 14.9 |
| 41-50 | 219 | 25.7 |
| 51-60 | 315 | 37 |
| 61-70 | 117 | 13.73 |
| 71-80 | 74 | 8.68 |
| Religion | | |
| Hindu | 527 | 61.8 |
| Muslim | 224 | 26.2 |
| Christian | 61 | 7.1 |
| Sikh | 40 | 4.69 |
| Marital status | | |
| Unmarried | 56 | 6.52 |
| Married | 496 | 58.21 |
| Divorced | 93 | 10.9 |
| Widowed | 207 | 24.29 |
| Age at marriage | | |
| Below 15 | 109 | 12.79 |
| 16-20 | 217 | 25.46 |
| 21-25 | 396 | 46.47 |
| 26-30 | 76 | 8.92 |
| 31-35 | 54 | 6.33 |
| Age at first issue | | |
| Below 17 | 118 | 13.84 |
| 18-23 | 463 | 54.34 |
| 24-28 | 189 | 22.18 |

| | | |
|---------------------------|-----|-------|
| 29-33 | 79 | 9.27 |
| 34-38 | 3 | 0.35 |
| Parity status | | |
| 0-3 | 343 | 40.25 |
| 4-6 | 419 | 49.17 |
| >7 | 90 | 10.56 |
| Area distribution | | |
| Rural | 468 | 55.0 |
| Urban | 384 | 45.0 |
| Education status | | |
| No schooling | 283 | 33.2 |
| Primary schooling | 347 | 40.7 |
| High school | 112 | 13.1 |
| > High school | 110 | 12.9 |
| Clinical history | | |
| Vaginal discharge | 133 | 15.6 |
| Post menopausal bleeding | 213 | 25 |
| Abnormal vaginal bleeding | 107 | 12.5 |
| Pain lower abdomen | 214 | 25.1 |
| Post coital bleeding | 82 | 9.62 |
| Blood stained discharge | 103 | 12 |

DISCUSSION

Cervical cancer is an important cause of morbidity and mortality among females worldwide, more so in developing countries. It is considered to be an ideal gynecological malignancy for screening as it meets both test and disease criteria for screening.

Carcinoma of the cervix is both a preventable and a curable disease. The disease is preventable because the pre invasive stage can be detected by screening method using the Papanicolaou cytological testing (Pap smear) which is simple, cost- effective and a useful test for identifying females at the risk of developing cervical cancer. It is curable because it can be cured if diagnosed at early stage before its progression to invasive carcinoma [9]. The incidence and mortality from this disease is very high in the developing countries. In the developed countries, 80% cases are curable because of early detection while in the developing countries, 80% of cases are incurable at the time of detection [10]. Human Papilloma virus is recognized as one of the leading causes and is associated with 90% of the cases. However, other risk factors (e.g. age at first sexual contact, multiparity, number of sexual partners, genetic predisposition, diet

and environment) are also associated with cervical cancer [11].

Carcinoma of the cervix although life threatening and one of the leading causes of female death has not been intensively subjected to cytogenetic study in J&K state. Available data on the prevalence of cervical cancer amongst the females of J&K state shows that the disease affects about 11% females of the state [12]. The main aim of the study was to study the prevalence, association of the risk factors and current knowledge of these factors being possessed by the female population of Jammu region.

Yasmeen et al., 2011 had also conducted a community based screening of cervical cancer with the aim of finding the prevalence of cervical cancer and other reproductive morbidities in the Muslim women and that was the first community based data was represented for cervical cancer from the J&K state.

The relationship of the age of the females with the development of CaCx has been studied by [14,15,16,17,18,19,20,21,22,23]. Although cancer of the cervix can develop in women of all ages, it usually develops in women aged 35-55 years, with the peak age for the incidence varying with populations [24].

Studies on cervical cancer have shown a positive correlation between cervical cancer and marriage. According to Varghese (2004), carcinoma of the cervix is predominantly a disease of married women especially occurring in those who marry at an early age and have long active sexual life. Cancer of the cervix is rare among unmarried women and almost absent in celibate nuns. Kessler (1977) has found that women married to men whose previous wives had cervical cancer have significantly elevated levels of the cervical cancer. Early age at first intercourse was consistently found to be a risk factor in most of the epidemiological studies of cervical cancer [26,27,28,29]. Coppelson & Reid, 1967 and Coppelson & Reid, 1970 proposed a hypothesis to explain the importance of early coitus in cervical cancer.

The recognition of the key etiological role of HPV infection as the carcinogenic agent has promoted a reconsideration of the role of age at coitus. Numerous epidemiological studies have indicated a casual relationship between HPV infection and cervical neoplasia [32,33,34,35,36,37]. HPV-16 and HPV-18 play a major role in the etiology of cervical cancer. The association of

HPV with cervical cancer has provided the background and the scientific justification for improving the screening programs for reducing the incidence of cervical cancer [38].

Since cervical cancer is generally regarded as a sexually transmissible condition, therefore sexual behavior has also been associated with the cervical cancer. Several studies indicated that the sexual behavior of a woman's partner is more important predictor of cervical cancer risk than her own behavior. The epidemiology of cervical cancer is still unclear. However, it is generally accepted that intercourse and child bearing are in some way associated with the occurrence of cervical cancer. Other factors such as early coitus, frequency of coitus, multiple marriages, number of sexual partners and cervicitis are related to intercourse marriage and child bearing.

In the present study, out of 58.2% females were married and majority (46.4%) of the female population was married at the age of 21-25. The present findings were in accordance with the observations made by Varghese *et al.*, 1999 & Misra *et al.*, 2009, Yasmeen et al., 2011, Ushadevi et al., 2012.

Young age at first issue has also been regarded as one of the major risk factors in the progression of cervical cancer by workers like, Dasgupta *et al.*, 2003. During the present study, maximum number of the patients 54.3% had their first issue belonging to age group 18-23. These findings were found to be consistent with the findings observed by Parazzini *et al.* (1989) and Chankapa *et al.* (2011).

Early childbearing and repeated child births have been found to be associated with the increasing risk of carcinoma cervix. Increased parity has been associated with the development of cervical cancer and has been studied by workers like Brinton *et al.*, 1989, Parazani *et al.*, 1998 and Varghese, 2004. Pregnancy may produce some dysplastic lesions of the cervix which regress, persist or progress to carcinoma. Brinton *et al.*, 1989 reported that the pregnancy could exert an adverse effect on cervical cancer. Trauma to the cervix is one of the possible explanations that warrant explorations include increased susceptibility to infection through immunosuppression, hormonal influence and dietary deficiencies.

Majority of the patients (49.1%) in the present study were Multiparous (Para 4-6) Aras *et al.*, 1995, Bayo

et al., 2002, Franceschi *et al.*, 2003, Misra *et al.*, 2009, Fotra et al., 2011 and Sharma *et al.*, (2010) carried out similar kind of study to find out the association of parity with the cervical cancer.

The incidence of CaCx has been reported to be very low amongst Muslims as compared to Hindu females. This type of work has been carried out by Wahi *et al.* (1972), Jussawalla & Yeole, 1984 & Biswas *et al.*, 1997. Work on the similar pattern has also been carried out to find out the association of religion with the development of cervical cancer.

Appreciable variation in the incidence of cervical cancer was observed in the present study. The probability of cervical cancer was highest (61.8%) in Hindu females followed by 26.2% in Muslim females. Circumcision as practiced by Muslim is believed to be the preventive factor which accounts for the lower incidence of cervical carcinoma in Muslim women as compared to Hindu women (Misra *et al.*, 2009 & Sharma *et al.*, 2010). The incidence of cervical cancer has also been studied by various workers in case of Muslim population such as Bhurgri *et al.*, 2007, Howayada *et al.*, 2007, Komodoti *et al.*, 2005 and recently by Yasmeen *et al.*, 2010. The possible reason for absence / low incidence of cervical dysplasia and cancer in the Muslim population could be the socio- cultural and religious practices prevalent among Muslim society that include compulsory male religious circumcision.

The incidence of cervical cancer was found to be the highest (55%) in the females belonging to rural areas. Our findings were consistent with the reports of Coker *et al.* (2006) & Monroe *et al.* (2008) and Singh & Badaya (2012). These workers attributed the high incidence of CaCx amongst the rural females to the poor genital hygiene, low nutritional status and reproductive behavior which contribute to the progression of the disease. Poverty is the lack of minimum opportunities necessary for holistic human development of individuals, due to insufficient resources and lack of effective rights to take advantage of and exploit skills or abilities. Poverty therefore, constitutes an extreme form of exclusion of individuals and their families from the productive process, social integration, and access to diverse goods, services and opportunities.

Education and socioeconomic status decides the living standard of a person and chances of getting the disease. Although the rural women are less educated and

are less aware about the onset and consequences of the disease. Cultural beliefs and custom barriers faced by the women let her shy to discuss their problems and getting examined by a male doctor. Economic constraints prioritize women towards financial and social responsibilities and self neglect towards their health issues by curtailing their expenses in the form of time and money in visiting health centers.

Thus our study is an addition to fill the much needed lag in the knowledge of cervical cancer, its causes and the socio-demographic profile of the women participated in the study. Specific knowledge on cervical cancer is thus a critical element in determining whether a woman should take the above mentioned parameters seriously. The contribution by the health departments and various other health organizations would also help to raise the health standard of female population of Jammu region by organizing health camps time to time to bring a sea change in the beliefs and knowledge about cervical cancer in the state.

REFERENCES

- Rao DN and Ganesh B. Estimate of cancer incidence in India in 1991. *Indian J Cancer* 1998; 35: 10-8.
- De Sajose S, Bosch FX, Munoz N, et al. Social differences in sexual behavior and cervical cancer. *IARC Sci Publ* 1997; 138: 309-17.
- Priyanka G. A new vaccine for cervical cancer and some good hope. Available at: http://cancersuport.aarogya.com/index.php?option=com_content&task=view&id=333&Itemid=361, 2009.
- Shanta V. Perspectives in cervical cancer prevention in India. The International Network for Cancer Treatment and Research. 2003.
- Sankaranarayanan R, Nene BM, Shastri, et al. HPV screening for cervical cancer in rural India. *The New England Journal of Medicine* 2009; 360: 1385-1394.
- IARC working group. Human papilloma viruses. IARC Monograph on the evaluation of carcinogenic risks to human. Lyon: *International Agency for Research on Cancer* 65; 1995.
- Walboomers JJM, Jacobs MV, Manos MM, et al. Human papilloma virus is a necessary cause of invasive

- cervical cancer worldwide. *Journal of Pathology* 1991; 89: 12-19.
- Ferenczy A and France E. Persistent Human papilloma viruses infection and cervical neoplasia. *Lancet Oncolgy* 2002; 3: 11-16.
- Rao, PS, Reddy, RS and Reddy DJ. Study of etiological factors of carcinoma of cervix. *J Indian MA* 2004; 32: 463-470.
- Arora R. Cervical Cancer: A clinical approach. *Obst & Gynae* 1999; 4: 658-666.
- Rughooputh S, Kachaliya S, Jetly D and Greenwell P. Cervical cancer and human papilloma virus among slum dwellers in India. *Br J Biomed Sci* 2007; 64: 28-31.
- Das BC, Gopalkrishna V, Hedau S, et al. Cancer of the uterine cervix and human papillomavirus infection. *Current Science* 2000; 78(1): 52-63.
- Yasmeen J, Qurieshi MA, Manzoor NA, et al. Community based screening of cervical cancer in a low prevalence area of India: A cross sectional study. *Asian Pacific Journal of Cancer Prevention* 2010; 10: 231-234.
- Parazzini F, Vecchia C, Ceccetti G, et al. Reproductive factors and the risk of invasive and intraepithelial cervical neoplasia. *Br J Cancer* 1989; 59: 805-809.
- Nandakumar A, Anantha N, and Venugopal TC. Incidence, mortality and survival in cancer of the cervix in Bangalore, India. *British Journal of Cancer* 1995; 71: 1348-1352.
- Biswas LN, Manna B, Maiti PK, et al. Sexual risk factors for cervical cancer among rural women: A case control study. *International Journal of Epidemiology* 1997; 26(3): 491-495.
- Bayo S, Bosch FX, Sanjose S, et al 2002. Risk factors of invasive cervical cancer in Mali. *International Journal of Epidemiology* 2002; 31: 202-209.
- Thomas DB, Ray RM, Qin Q and the WHO collaborative study of neoplasia and steroid contraceptives. Risk factors for progression of squamous cell cervical carcinoma-in to invasive cervical cancer: results of a multinational study. *Cancer causes and control*. 2002; 13: 683 -690.
- Varghese PR. Protective effect of a traditional practice against cervix cancer in Kerala. *J. Hum Ecol* 2004; 15: 187-190.
- Kaku M, Aleyamma M and Rajan B. Impact of socio-economic factors in delayed reporting and late stage presentation among patients with cervix cancer in a major cancer hospital in South India. *Asian Pacific Journal of Cancer Prevention* 2008; 9: 589-594.
- Misra JS, Srivastava S, Singh U, et al. Risk factors and strategies for control of carcinoma cervix in India: Hospital based cytological screening experience of 35 years. *Indian Journal of Cancer* 2009; 46: 155-159.
- Chankapa YD, Pal R and Tsering D. Correlates of cervical cancer screening among undeserved women. *Indian Journal of Cancer* 2011; 48: 40-46.
- Ushadevi G, Arul AR and Ashok K. Knowledge about cervical cancer risk factors among the rural women of Kancheepuram district, Tamil Nadu. *Nat J Com Med* 2012; 1:125-128.
- Zeller JL, Lynm C and Glass RM. Carcinoma of the Cervix JAMA Patient page. *JAMA* 2007; 298(19): 2336.
- Kessler KI. Human cervical cancer as venereal disease. *Can Res* 1977; 39: 1912.
- Rotkin ID. A comparison review of key epidemiological studies in cervical cancer related to current searches for transmissible agents. *Cancer Res* 1973; 33: 1353-67.
- La Vecchia C, Franceshi S, et al. Sexual factors, venereal diseases, and the risk of intraepithelial and invasive cervical neoplasia. *Cancer* 1986; 58: 935-41.
- Herrero R, Brinton LA, Reeves WC, et al. Sexual behavior venereal diseases, and hygienic practices and invasive cervical cancer in a high risk population. *Cancer* 1990; 65: 380-386.
- Donnan SPB, Wong FWS, et al. Reproductive and sexual risk factors and human papilloma virus infection in cervical cancer among Hong Kong Chinese. *Int J Epidemiol* 1989; 320: 1437-41.

- Coppelson M and Reid B. Preclinical carcinoma of the cervix uteri: its nature, origin and management. Oxford England: Pergamon Press; 1967.
- Coppelson M and Reid B. The origin and nature of premalignant lesions of the cervix uteri. *Intern J Gynaecol Obstet* 1970; 8: 539- 550.
- Kaufman RH, Adam E, Kenogle J, et al. Relevance of human papilloma virus screening in the management of cervical intraepithelial neoplasia. *Am J Obstet Gynecol* 1997; 176: 87-92.
- Villa LL. Human papilloma viruses and cervical cancer. *Adv Cancer Res* 1997; 71: 321-341.
- Zehbe I and Wilander E. Human papilloma virus infection and invasive cervical neoplasia neoplasia: A study of prevalence and morphology. *J Pathol* 1997; 181: 270-275.
- Milde- Langosch K, Reithdorf S and Loning T. Association of human papilloma virus infection with carcinoma of cervix and its precursor lesions: theoretical and practical implications. *Virchows Arch* 2000; 437: 227-33.
- Franceschi S, Rajkumar T, Vaccarella S, et al. Human papilloma virus and risk factors for cervical cancers in Chennai, India: a case control study. *Int J Cancer* 2003; 107: 127-133.
- Franceschi S, Plummer M, Clifford G, et al. Differences in the risk of cervical cancer and human papilloma virus by education level. *British Journal of Cancer* 2009; 101: 865-870.
- Bosch FX, Lorincz A, Munoz N, et al. The casual relation between human papilloma virus and cervical cancer. *J Clin Pathol* 2002; 55: 244-265.
- Varghese C, Amma NS, Chitrathara K, et al. Risk factors for cervical dysplasia in Kerala, India. *Bulletin of the World Health Organization* 1999; 77(3): 281-283.
- Brinton LA, Reeves WC, Brenes MM, Herrero R, et al. Parity as a risk factor for cervical cancer. *American Journal of Epidemiology* 1989; 130: 486-495.
- Aras R, Pai Y and Pai NP. High fertility: risk factor for carcinoma cervix. *The Journal of family welfare* 1995; 41: 48-51
- Fotra R, Gupta S and Gupta S. Study of the cytogenetic and non-cytogenetic factors in cervical carcinoma in Jammu region of J&K state. *Journal of Cancer Research cum Therapeutics* 2011; 7: 286-291.
- Sharma P, Rahi M, and Lal P. A community based cervical cancer screening program among women of Delhi using camp approach. *Indian Journal of Community Medicine* 2010; 35(1): 86-88.
- Wahi PN, Luthra UK, Mali S, et al. Religion and cervical carcinoma in Agra, India. *Journal of Cancer* 1972; 9(3): 210-225.
- Jussawalla DJ and Yoele BB. Epidemiology of cancer of the cervix in Greater Bombay. *Journal of surgical oncology* 1984; 26: 53-62.
- Bhurgi, Y, Kauser N, Yasmeen, et al. Patho-epidemiology of cancer cervix in Karachi South. *Asian Pacific J Cancer Prev* 2007; 8: 357-362.
- Howyada SAEA, Amany R and Khadija D. Prevalence of cervical neoplastic lesions and human papilloma virus infection in Egypt: National Cervical Cancer Screening Project. *Infect Agent Cancer* 2007; 2:12.
- Monroe AC, Ricketts TC and Savitz LA. Cancer in rural versus urban populations. *Journal of Rural Health* 2008; 8: 212-220.
- Singh S and Badaya S. Factors influencing uptake of cervical cancer screening among women in India: a hospital based Pilot study. *J Community Med Health Educ*; 2: 1-6.