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Epidemiology of cervical cancer in state of Bihar India: Hospital based study

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ABSTRACT

The cancer cervix is the second most common cancer among women worldwide. About 86% of the cases occur in developing countries and is responsible for 88% of deaths. It constitutes about 11-30% of all cancer in women in India. The current estimates indicate that approximately 1,32,000 new cases are diagnosed each year with this disease in India and is responsible for 74,000 deaths annually, which accounts for the 1/3rd of the global deaths from cervical cancer. The present work is designed to study the epidemiological distribution of cervical cancer in Mahavir Cancer Sansthan, Patna the capital city of the state of Bihar in India. The patient registry data of the hospital shows that the annual registered new patients from all cancers were 20,746. The cervical cancer constituted 14% of the patients. In this retrospective study 700 case notes were reviewed between 2013 -2014. Mean age at marriage was 15 years. Mean age for cervical cancer is 49.5 years and 80% of the patients were between the ages of 30-60 yrs. 55 % were pre-menopausal. Average parity is 4.92, 7% of women addicted to either tobacco chewing or bidi smoking. Only 1.8% had family history of cancer. 5% belong to the ethnic minority. 95% patients belong to the low socioeconomic status and 54% patients have never been to school. 71% of the patients were in stage 2b at the time of first clinical presentation, 24% stage 3, 4% stage 4 and only 1% patients were in stage 1. 50% of the patients belong to 6 districts which fall in Gangetic belt. It is concluded from the study that 99% patients reported at stage 2b and beyond. Poverty and ill literacy were the two key factors identified for high incidence of cervical cancer. Most cases belong to Gangetic belt of Bihar.

Keywords: Cervical Cancer, Bihar, Gangetic belt, parity.

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INTRODUCTION

Cancer of the cervix uteri was once one of the most common malignant neoplasm in large parts of the world. It is still the most common cancer in women in developing and under developed country. Cervical cancer is the second biggest cause of female cancer mortality worldwide with 288,000 deaths yearly. About 510,000 cases of cervical cancer are reported each year with nearly 80% in developing countries: 68,000 in Africa, 77,000 in Latin America, and 245,000 in Asia¹The study in Costa Rica found that risk of precancerous lesions and cervical cancer increased with increasing number of live births. He also found that oral contraception use was associated with precancerous lesions and cervical cancer. Hildesheim² found that, both factors of high parity and oral contraception use, increase the risk of precancerous lesions and cervical cancer in women with positive HPV infection. The risk of cervical cancer increased with parity and use of oral contraceptives but not with injectable progestogen. HPV-16 or -18 infections might include estrogens or progestins for its increased multiplication³. Bayo⁴ in Mali showed that risk factors for cervical cancer were parity >10 versus <5 children. Multiparity is believed to be a risk factor for cervical cancer (CC), especially among human papilloma virus (HPV)-positive women⁵. Cervix cancer risk factor includes use of oral contraceptives and smoking^{6,7}.

India, which accounts for one sixth of the world's population, also bears one fifth of the world's burden of cervical cancer. There are approximately 130,000 new cases of cervical cancer in India and 70,000 deaths per year and the disease is reported to be responsible for almost 20 percent of all female deaths annually. India's cervical cancer age-standardized incidence rate (30.7 per 100,000) and age-standardized mortality rate (17.4 per 100,000) are the highest in South Central Asia.

The present work is designed to study the epidemiological distribution of cervical cancer in Mahavir Cancer Sansthan in Patna the capital city of the state of Bihar in India.

MATERIALS AND METHOD

The medical records of 700 patients treated at the Mahavir Cancer Institute and research Centre for cervix cancer between 2013 and 2014 were reviewed. Approval for this study was obtained from the institutional ethics committee of the Mahavir Cancer Institute and research Centre. Only patients with cervix cancer were included in this study. There were a total of 2800 patients with invasive cervix cancer treated at the Institute during this period.

Patients were evaluated for their age, parity, menstrual history, education, socioeconomic status, geographical distribution, addiction, family history of cancer, histology, grade, International Federation of Gynecologists and Obstetricians (FIGO) stage, etc. All patients

were staged according to the FIGO staging system. The pathology for all patients was reviewed by a gynecologic pathologist.

RESULTS AND DISCUSSION

50% of the patients belong to 6 districts which fall in Gangetic belt (Figure 1). Mean age at marriage was 15 years. Mean age for cervical cancer is 49.5 years and 80% of the patients were between the ages of 30-60 yrs (Figure 2). 55 % were pre-menopausal (Figure 3). Average parity is 4.92. 7% of women addicted to either tobacco chewing or bidi smoking (Figure 4). 5% belong to the ethnic minority. Only 1.8% had family history of cancer (Figure -5). 95% patients belong to the low socioeconomic status and 54% patients have never been to school (Figure 6). 71% of the patients were in stage 2b at the time of first clinical presentation, 24% stage 3, 4% stage 4 and only 1% patients were in stage1 (Figure 7).

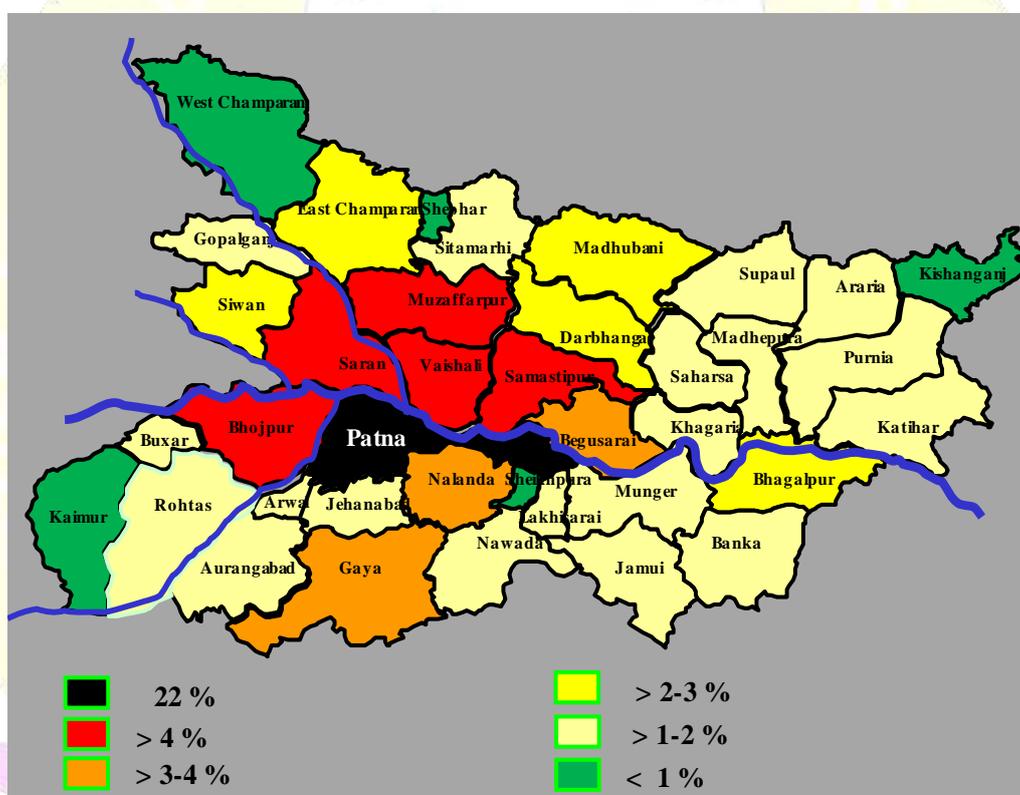


Figure 1: MCS cancer map of Bihar - 2015

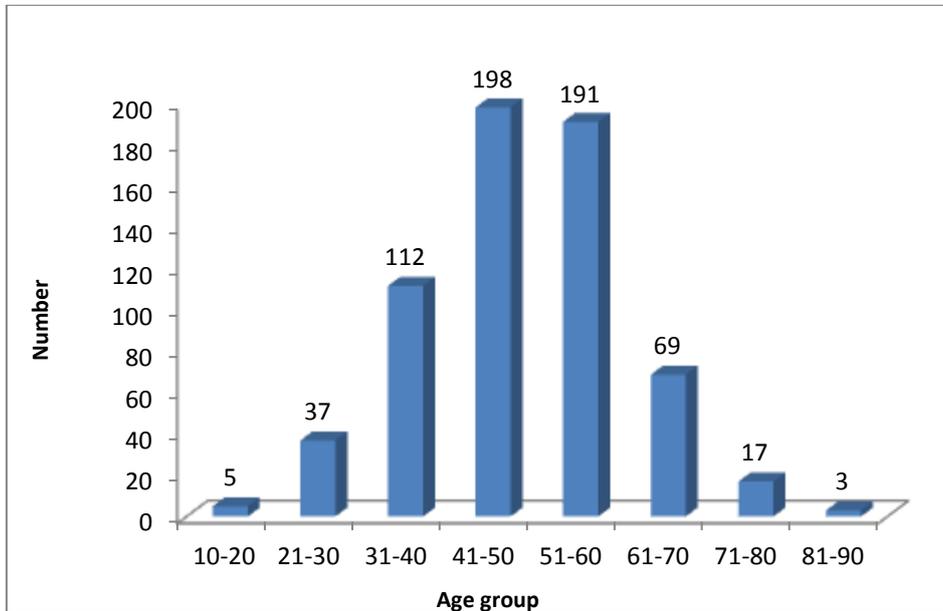


Figure 2: Cervix Cancer Patients in Different Age Groups

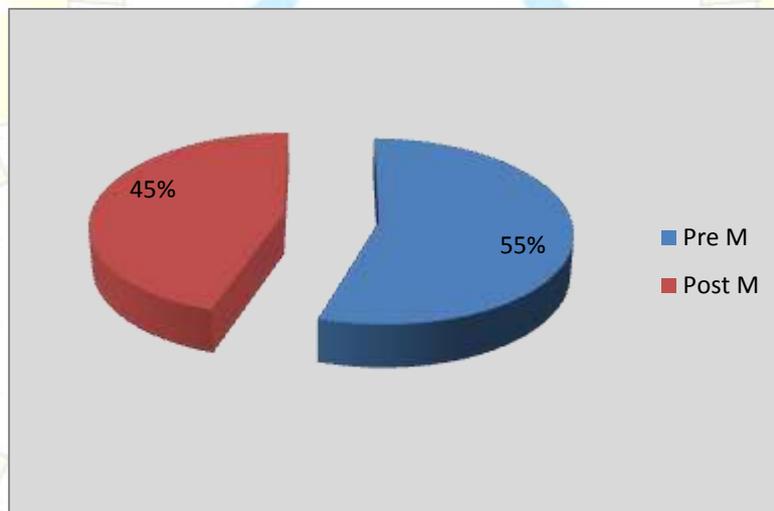


Figure 3: Menopausal Status of cervix cancer patients

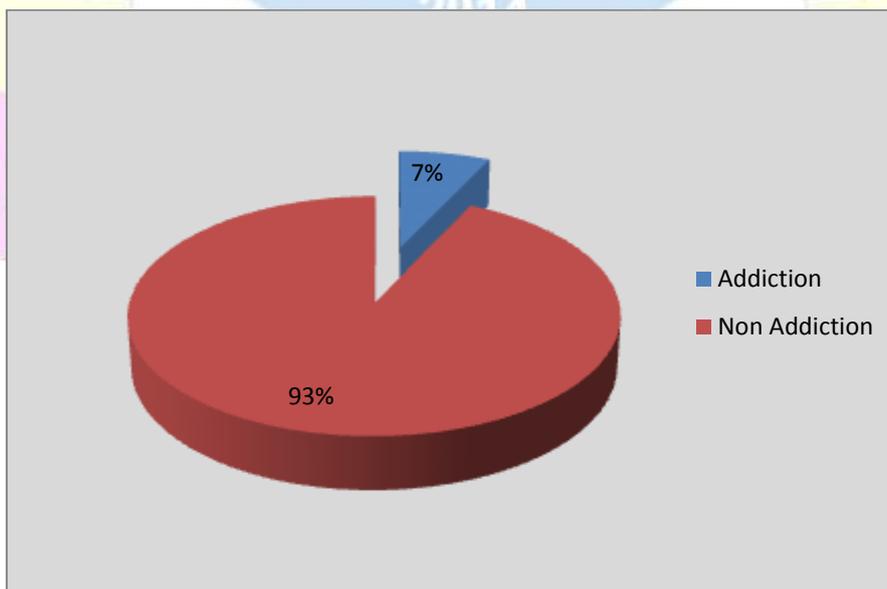


Figure 4: Addiction in Cervix cancer patients

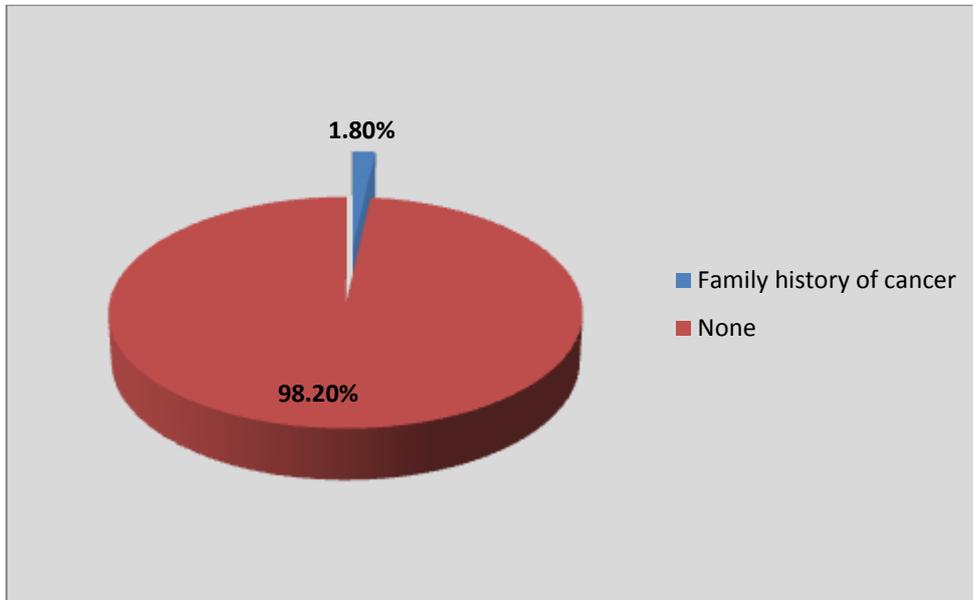


Figure 5: Family history of cancer in Patients

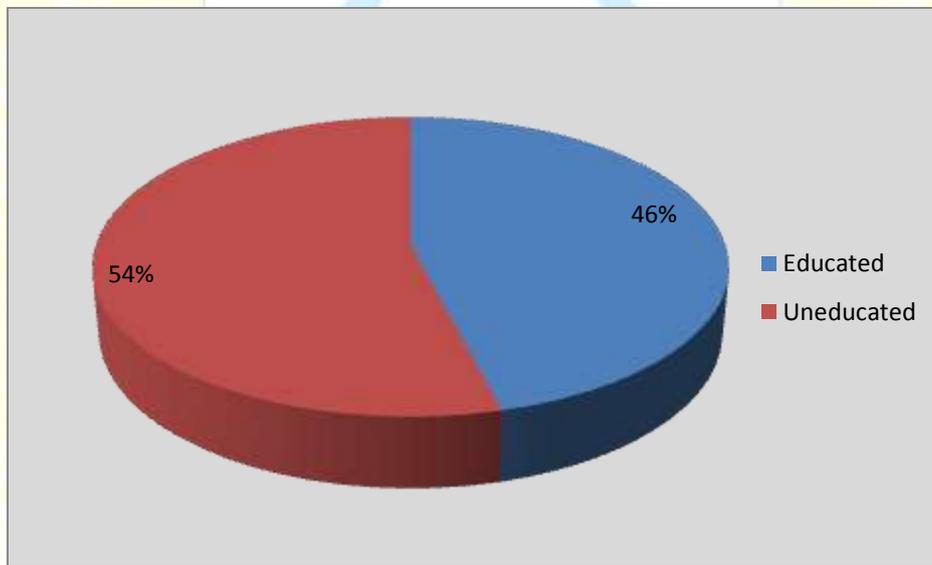


Figure 6: Education status in cervix cancer patients

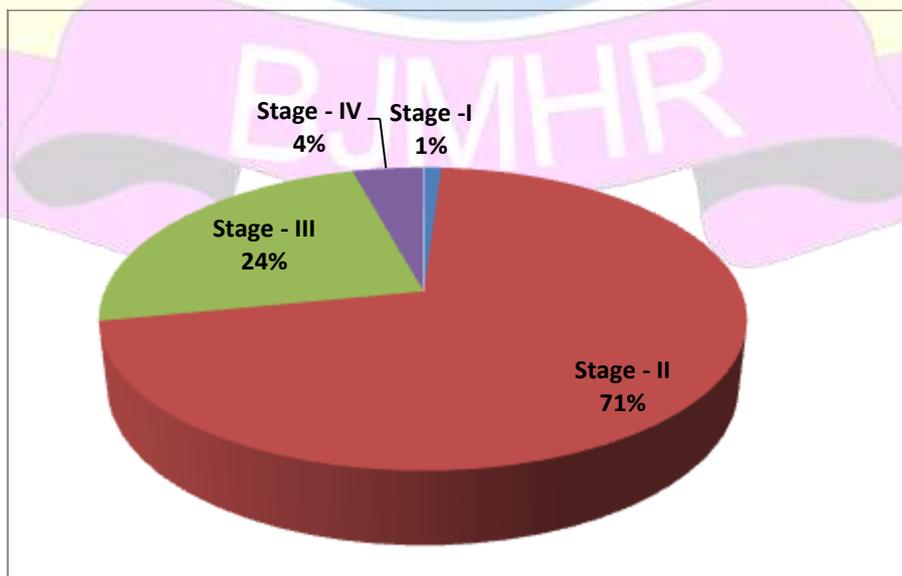


Figure- 7: Cervix Cancer patients Stage wise

The risk factors implicated in the development of cervical dysplasia and cervical cancer include high parity⁸. There are few studies which do not show any role for multiparity in the aetiology of cervix cancer or CIN^{9,10}. There are several pregnancy-induced cervical changes, which may predispose to malignant transformation. Multiparity may increase the risk of cervix cancer by maintaining the transformation zone on the ectocervix region. Moreover, the number of squamous metaplastic cells in the transformation zone increases during pregnancy¹¹. Multiparity may intensify the actions of carcinogenic infectious agents¹². We also observe high parity in our study group patients. Moreno¹³ reported that long-term use of oral contraceptives may be the causative factor for cervix cancer but it was not supported by our study data as none of the women into study group ever has history of oral contraceptive use.

Data from Bosch did not include any information about the age at first intercourse. Smoking or Caesarean sections also thought to be involved in the pathogenesis of Cervix Cancer¹⁴. More than one sexual partner and sexual initiation at an early age¹⁵, in our study group patients has early marriage which relates early sexual initiation. Tobacco smoking is supported by McIntyre¹⁶ probably in our study only 7% patients has addiction habit. The presence of other sexually transmitted infections^{17, 18}, and immunosuppression is factors involved in cervix cancer¹⁹. Dietary habit involved with immunosuppression²⁰. So far, the involvement of dietary habits in the development of these conditions is not certain. In gangetic zone people socioeconomic status and literacy level is low. Our study suggest that low socioeconomic status associated with dietary habit and illiteracy is remarkable factor contributes for cervix cancer.

CONCLUSION

We found that early age of marriage which probably relates to first sexual contact in most cases is one of factor contributing for cervix cancer. Low socioeconomic status and illiteracy were the two important factors identified for high incidence of cervical cancer. Gangetic zone of Bihar was high incidence area for cervix cancer.

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