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## Age, Parity and stages of cervix cancer: A hospital Based study

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### ABSTRACT

Cervical Cancer continues to be a huge burden in the society in spite of remarkable advancement in diagnosis and management of the disease. In our country approximately 85% of cervical cancer patients present in locally advanced stage. Low socioeconomic status, early age of pregnancy, multiparity, high prevalence HPV infection and smoking have been the major factors responsible for cervical cancer. The study was designed to see epidemiological factors associated with incidence of cancer cervix in state of Bihar, India. The study was done on 600 cervical cancer patients from January 2015 to March 2015 who underwent radiotherapy at our hospital. Data were collected and statistical analysis was performed according to statistical package of graph and prism. Mean age of the patients was 49.5 years. Average parity was 4.81 children per patient. It was observed that 2.83%, 55.33%, 18.16%, 1.33% of patients belonged to FIGO stage I, II, III, IV respectively. Histology of the cervical cancer patient showed that 91.83% of the patients were squamous cell carcinoma. 3.5% of the patients was of Adenocarcinoma and 1.67% of the patients were of adenosquamous cell carcinoma. It is concluded from our study that mean age of incidence of cervix cancer is low in Muslim women as well low in general as reported in other part of the country. Majority of patients were reported in advanced stage, with Average parity was 4.81 children per patient. 91% patients were having Squamous cell carcinoma.

**Keywords:** cervical cancer, epidemiology, parity, Adenocarcinoma

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## INTRODUCTION

Cervical Cancer continues to be a huge burden in the society in spite of remarkable advancement in diagnosis and management of the disease. Cervical Cancer was the fifth most common cancer in women worldwide and has now been second most cancer since 2007. [Shiffman, 2007]<sup>1</sup>. Annually 510000 new cases of cervix cancer have been reported worldwide with 288000 deaths due to it. Approximately 85% of the cervical cancer burden is in less developed countries [sankarnarayanan, 2006]<sup>2</sup>. It has been estimated that nearly 132,000 new cases are diagnosed in india and about 1/3<sup>rd</sup> of death occur in india. .[WHO, 2010]<sup>3</sup>.

In our country 85% of the patients present in advanced stage with regional disease at the time of presentation (Dutta et al, 2013)<sup>4</sup>. HPV has been found to be one of the major causes of cervical cancer (IARC, 2007)<sup>5</sup> The prevalence of HPV infection in Indian population has been up to 96.67%.( Sowjanya et al, 2005 and Kulkarni et al, 2011)<sup>6,7</sup>. Apart from this smoking has also been a risk factor for cervical squamous cell carcinoma (Darling et al, 1992)<sup>8</sup>. Molecular studies have shown that HPV-16 and 18 are the two most common highly oncogenic types found in invasive cervical cancer and out of these two HPV-16 has been found more commonly (Bhatla et al, 2008)<sup>9</sup>. Furthermore, it has been reported that nicotine stimulates growth of epithelial cells in healthy women (Basu et al, 1990)<sup>10</sup> and that nicotine stimulates the growth of HPV-immortalized ectocervical cells (Waggoner and Wang, 1995)<sup>11</sup> Low socioeconomic status has been responsible for cervical cancer.(Schiffman et al,1996)<sup>12</sup>. Other factors responsible for cervix cancer have been genetic susceptibility, sexually transmitted diseases and use of hormonal contraceptives, nutritional deficiency and high parity (ICMR 2014)<sup>13</sup>. Smoking is also one of the responsible risk factor for squamous cell carcinomas but not adenocarcinoma of the cervix (Critchlow et al, 1995)<sup>14</sup>.

Thus present work is designed to study epidemiological factors associated with incidence of cervical cancer in Bihar.

## MATERIALS AND METHOD

This study was conducted in Radiotherapy department of Mahavir Cancer Sansthan, Patna. The study period was between January 2015 to March 2015. This study was done on 600 cervical cancer patients who underwent radiotherapy at our hospital. The study was approved by the ethics committee of Mahavir Cancer Institute and Research Centre, Patna, Bihar, India. Patients who had completed their treatment and were on follow up were included. Every detail of them was taken from them as well as from their medical records right from the date of registration till their last follow up. Data were collected and statistical analysis was performed according to statistical package of graph and prism.

## RESULTS AND DISCUSSION

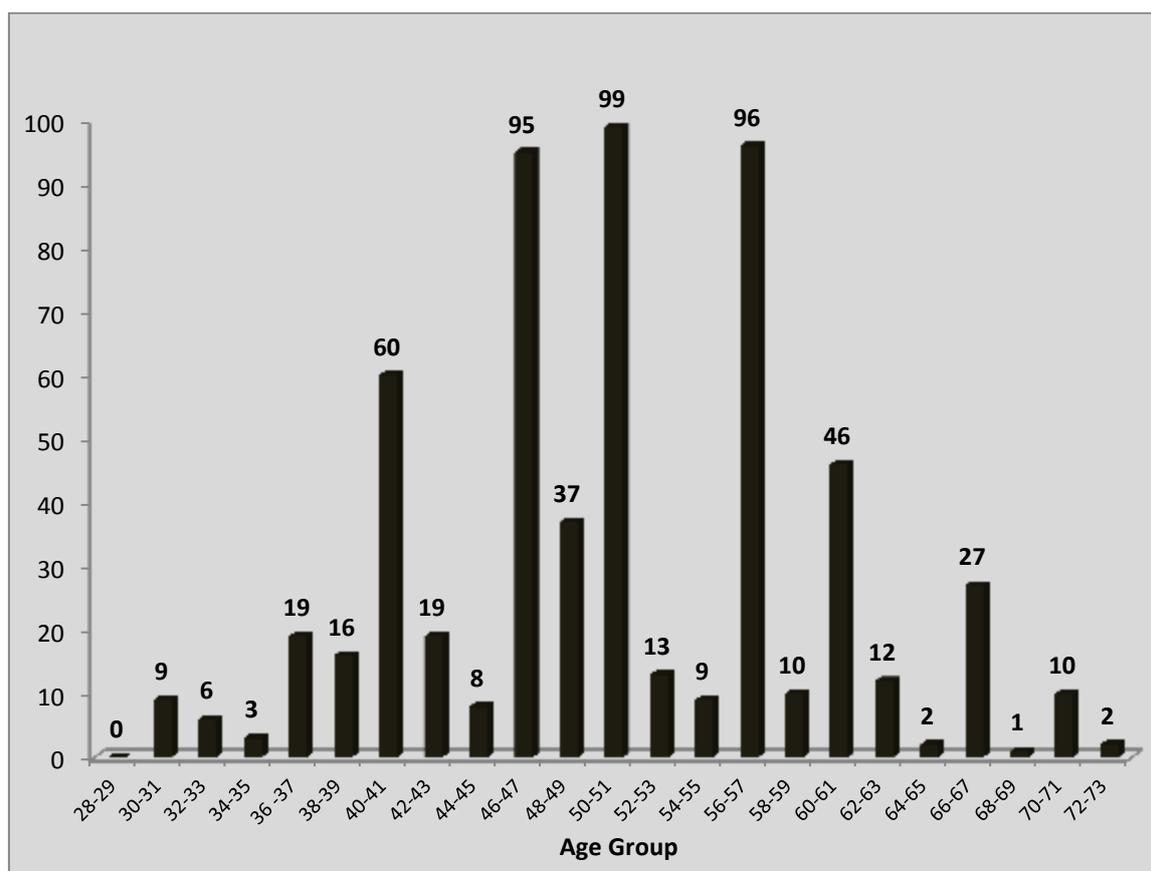
It was observed that mean age of cervical patient was 49.5 years. Mean age for Hindu patients were 49.7 years while it was less in muslims and was 47.0 years (Figure – 1 & 2).

It was observed that only 7.66% of patients were premenopausal, while 55.83% were postmenopausal.17.33% of the patients were perimenopausal.19.16% of the patients were operated and had surgical menopause (Figure - 3).

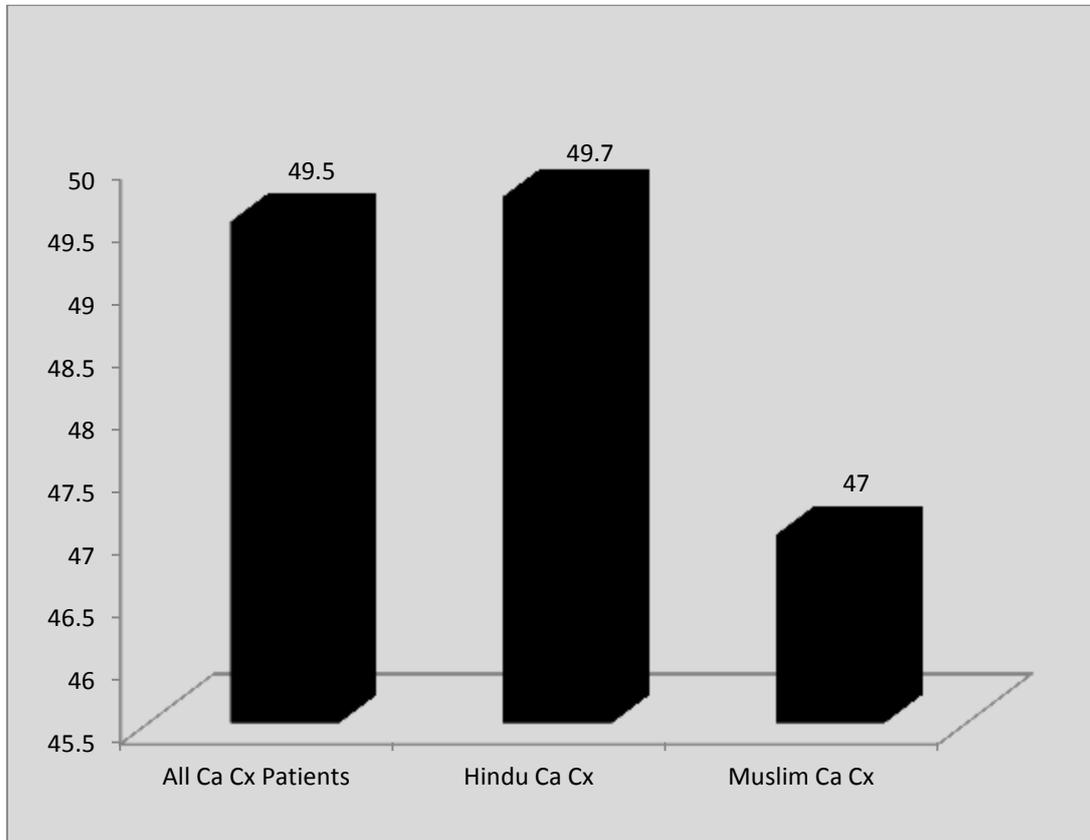
It was found that majority of the patients were multiparous except 0.33% patients were nulliparous and only 1.7% had single parity. Average parity was 4.81 child per patient . In Hindu population it was 4.72 children per patient. In Muslim population average parity higher, that was , 6.63 child per patient (Figure – 4 & 5).

It was observed that 2.83%, 55.33%, 18.16%, 1.33% of patients belonged to FIGO stage I, II, III, IV respectively.22.33% of the patients underwent surgery, mostly simple hysterectomy, so staging was not known.

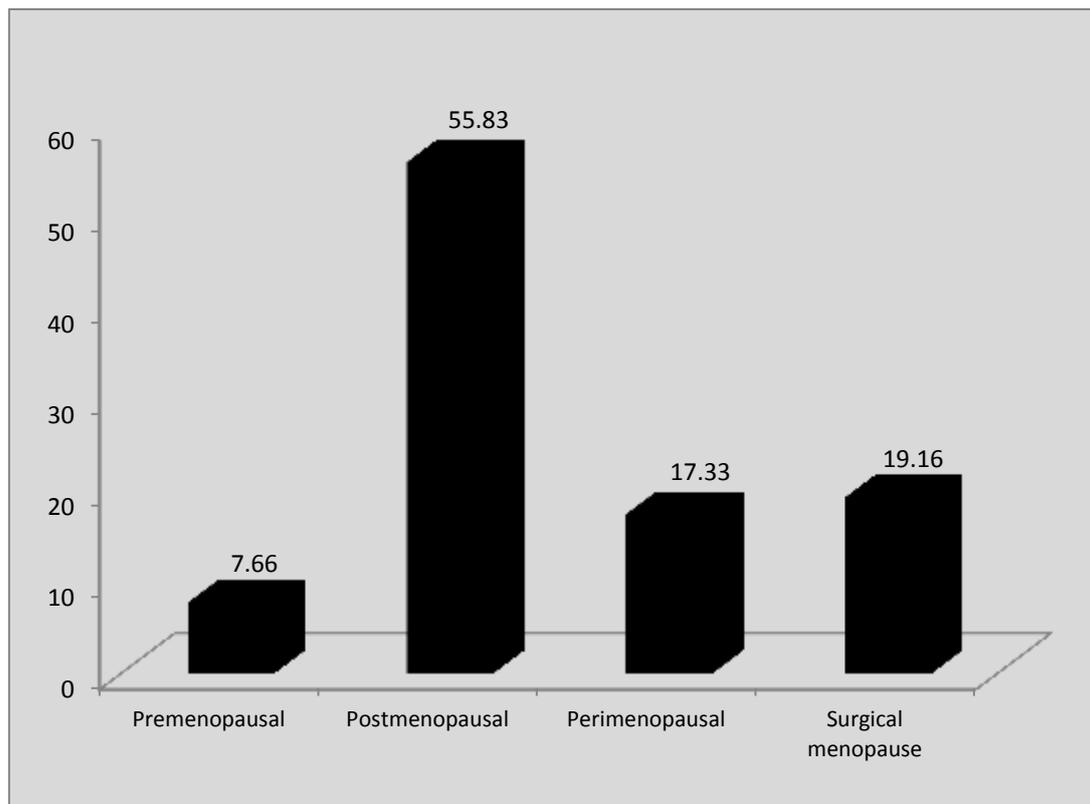
Histology of the cervical cancer patient showed that 91.83% of the patients were squamous cell carcinoma.3.5% of the patients was of Adenocarcinoma and 1.67% of the patients were of adenosquamous cell carcinoma (Figure - 6).



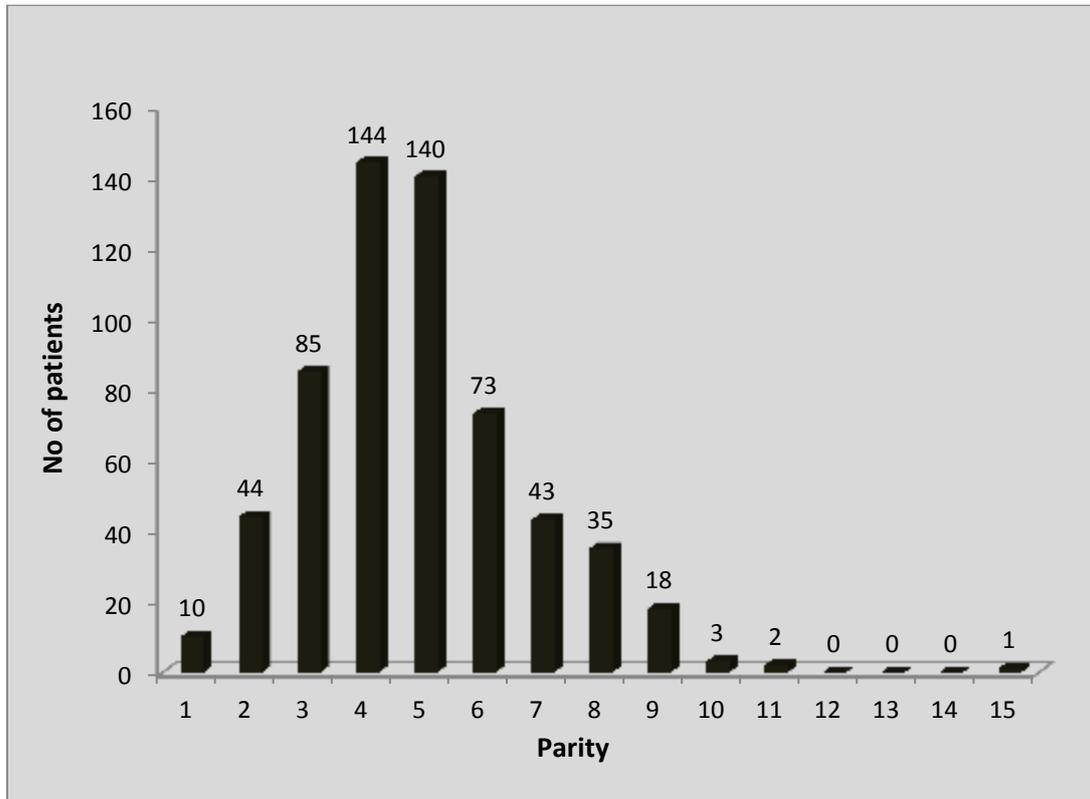
**Figure -1: Age Distribution of cervix cancer patients**



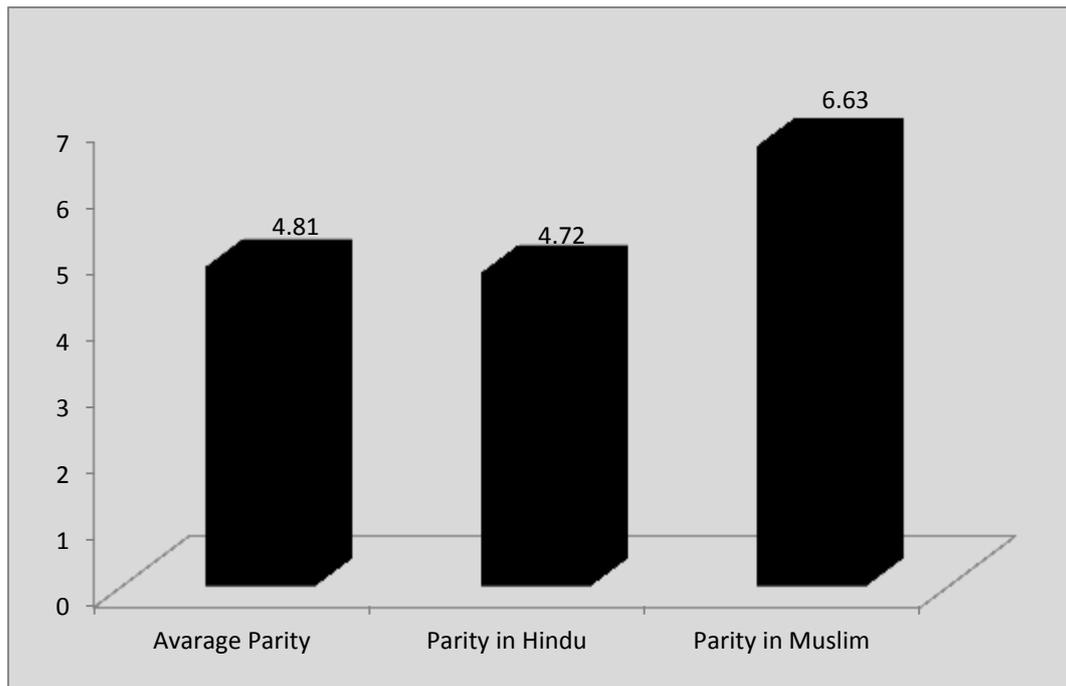
**Figure -2: Age of Cervix Cancer Patients**



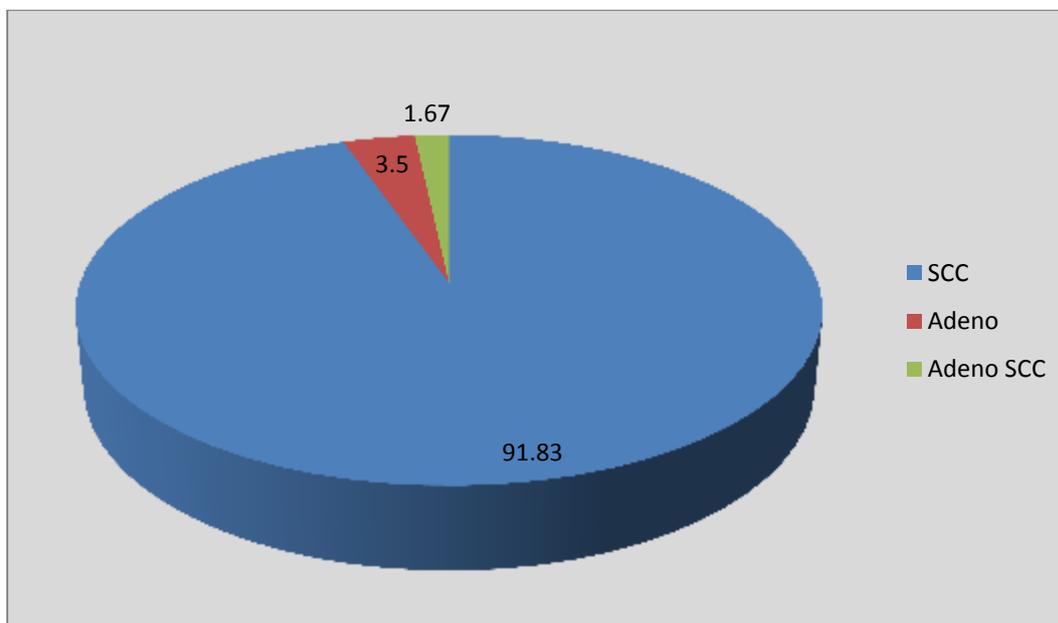
**Figure -3: Menopausal status in Cervix cancer patients**



**Figure -4: Parity in cervix cancer patients**



**Figure -5: Parity in Cervix Cancer Patients**



**Figure 6: HPR of Cervix Cancer Patients**

The global incidence of the cancer is very low in women under age of 25 years. The incidence of cancer increases at age of 35 to 40 years and reaches its maximum in women in their 50s and 60s. (PCCW, 2005)<sup>15</sup>. Vrede and Sabaio, 1987<sup>16</sup> reported the 33.7% cases of cervical cancer in women aged 41 to 50 years, while Mans et al, 2003 & 2011<sup>17,18</sup> found no differences in cervical cancer incidence between women of 50 years and older and those aged 20 to 49 years. Sreedevi et al, 2015<sup>19</sup> reported peak age of occurrence of cervical cancer in India is between 55 and 59 years, and the highest age-adjusted rates are in Aizawl in the north eastern part of India at 24.3 per 100,000 women. In our study we observed that the peak age of cervical cancer occurrence was 46 to 51 years with mean age being 49.5 years which is less than previous reporting. We observed that Muslim patients had cervical cancer earlier than Hindu patients.

Vergese et al (1999)<sup>20</sup> noted that increasing age, increasing parity, illiteracy and poor sexual hygiene were risk factors for cancer cervix. Indicators of poor hygienic conditions showed an especially strong effect. A direct role of poor hygienic conditions and menopausal status in cervical cancer has been reported. (Bayo et al, 2002)<sup>21</sup>. In our study 55.8% of patients were postmenopausal, which correlates well with the study by Bayo et al that there is a direct role of poor hygienic condition and menopausal status. Only 26.82% patients were premenopausal, which indicates that premenopausal women have less incidence of developing cervix cancer.

Illiteracy, multiple sexual partners, sexual intercourse in young age, high parity, history of venereal disease is known to be risk factors for cervical cancer [Chichareon et al, 1998]<sup>22</sup>.

Multiparity is believed to be a risk factor for cervical cancer, especially among human papilloma virus (HPV)-positive women (Eluf-Neto et al, 1994)<sup>23</sup>. There are several pregnancy-induced cervical changes, which may predispose to malignant transformation. Multiparity may increase the risk of cervical cancer by maintaining the transformation zone on the ectocervical region. In their immature phase of development, the metaplastic cells are most susceptible to HPV infection and possibly later to progression to cervical cancer. The metaplastic transformation zone in the ectocervix of a woman will repeatedly be exposed to carcinogenetic agents. For this reason, multiparity may intensify the actions of carcinogenic infectious agents (Nair and Pillai,1992)<sup>24</sup>.

High parity and early age at first birth has been associated with the risk of squamous cell carcinoma of the cervix while adenocarcinoma risk has been associated with early age at first birth and not with parity. Munoz et al (2002)<sup>25</sup>. Italian women younger than 45 years with three or more births had an increased risk of 8.1 compared with nulliparous women, and the relative risk increased with the number of births (Parazzini et al, 1998)<sup>26</sup>. We also found multiparity as a risk factor for cervix cancer in our group of patients where average parity was 4.8. In muslim cervix cancer patients average parity was higher than Hindu patients. Thus multiparity could be one of the reasons for muslim patients getting cervical cancer a little earlier than hindu patients in our study.

Approximately 85% present in advanced and late stages, and more than half (63%–89%) present with regional disease (Dutta et al, 2013)<sup>27</sup>. In our study only 2.83% patients were reported in stage I which denotes lack of awareness in women about cervix cancer in this region.

Adenocarcinomas and adenosquamous carcinomas of the cervix account for about 15% of invasive cervical cancers, and both absolute and relative numbers of adenocarcinomas in screened populations have increased in recent years. This may reflect a cohort effect similar to that seen for squamous cell carcinomas and related to increased exposure to HPV infection in women born since 1960 (Madeleine et al, 2001; Sasieni and Adams, 2001)<sup>28</sup>, and the fact that cervical screening may be less effective in detecting adenocarcinomas than squamous cell carcinomas (Mitchell et al, 1995)<sup>29</sup>. In our study adenocarcinomas and adenosquamous carcinomas of the cervix were reported in only 5.17% patients while squamous cell carcinoma were reported in 94.83% patients which is found increased in last decade.

## CONCLUSION

It is concluded from study that mean age of incidence of cervix cancer is lower in cervix cancer patients while it is much lower in Muslim women. Majority of patients reported in advanced stage Which denotes that actual initiation of cervix cancer occurs in very early age.

Only 25% women were premenopausal. Average parity was 4.81 children per patient but was higher in Muslim patients. This reflects that high parity is responsible for early incidence of cervical cancer in Muslim patients.

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