

Association Between Cervical Cytological Changes and Prolonged Sexual Exposure Due to Early Marriage: An Observational Study

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Abstract

Background: Cervical cancer is on the declining trend in India according to the population-based registries; yet it continues to be a major public health problem for women in India. Multifactorial causation, potential for prevention, and the sheer threat it poses make cervical cancer an important disease for in-depth studies, as has been attempted by this paper.

Material & Methods: A total of 1205 women who have undergone Pap smear examination at the camps, 100 were adolescents, 305 were young adult's girls and 800 were adult women. To see the effect of prolonged sexual exposure on the cytological status of cervix, these 1205 women were divided into 3 cohorts based on their ages as defined above.

Results: In adolescents, clinical lesions were not so common and 18 cases of erosion cervix (18%) and 2 hypertrophied cervix (2%) were diagnosed.

Conclusion: Preventing and treating cervical cancer and reducing the burden are possible by targeting resources to the areas with high prevalence. Vaginal discharge was common in all the three groups and showed rise with increasing age.

Keywords: Adult women, Cytological screening, rural adolescents, Teenagers.

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Introduction

It is an established fact that the incidence of SIL is increasing within teenage populations [1] and is most likely related to the increased rate of sexual activity and rising incidence of Human Papilloma Virus infection in adolescents [2-6]. The recommendation of National Cancer Institute is to cytologically screen the young girls at 18 years of age or at the onset of sexual activity. These girls are recommended to undergo Pap smear examination at yearly interval and when all the three reports are normal, the

screening interval should be extended to three years [7].

India has had a national program for cancer since 1975, when the emphasis was on equipping premier cancer institutions, which, by 1984–1985, shifted to primary prevention and early detection of cancer cases and, by 1990–1991, to the district cancer control program. As of 2008, creation/recognition of new regional cancer centers, strengthening of existing regional cancer centers, development of oncology wings in medical college

hospitals, the district cancer control program, and the decentralized NGO scheme were the priorities of the program. [8] In 2010, cancer control became a part of a more comprehensive, larger program on non-communicable diseases called National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Disease and Stroke (NPCDCS) where the common risk factors are addressed in an integrated manner. The present program, initiated on a pilot basis, emphasizes risk reduction and, in addition, promotes opportunistic screening or screening through camps in women above 30 years at different levels in rural areas and in urban slums. [9] It also advocates comprehensive cancer care in district-level hospitals and tertiary care centers for strengthening cancer care.

The cytology services organized by the Government seldom reach to the rural women. Since young rural girls have increased prolonged sexual activity after marriage, we have compared the cytological findings in the three cohorts-adolescent girls between 16-20 years, young adult girls between 21-25 years and adult women between 26-30 years to find out relation between the increasing sexual exposure and incidence of cervical cytopathology and the entire data has been analyzed in the context of different predisposing factors of cervical carcinogenesis.

Materials and Methods:

This was a prospective cervical screening study conducted in Jannayak Karpoori Thakur Medical College & Hospital, Madhepura, Bihar, India for 1 year.

Inclusion and exclusion criteria

To see the effect of prolonged sexual exposure on the cytological status of cervix, these 1205 women were divided into 3 cohorts based on their ages as defined above. The age when the smears were taken in them have been taken as age

to include them in either of the 3 cohorts accordingly.

Those women who have undergone hysterectomy or were pregnant or were more than 60 years of age were excluded from the study.

Methodology

The informed consent of the women was taken as thumb impression if illiterate or signature if educated. A total of 1205 women who have undergone Pap smear examination at the camps, 100 were adolescents, 305 were young adult's girls and 800 were adult women.

All the cervical smears were collected by the gynecologist attending the camp and stained in the cytology lab of the Pathology department of the college according to the Papanicolaou's technique. The cytopathological changes in the cervical smears were graded according to the Revised Bethesda System of classification of 2002.

Statistical analysis:

The entire data was statistically analyzed applying Chi-square test. The software used was SPSS version 22.

Results:

A total of 1205 women who have undergone Pap smear examination at the camps, 100 were adolescents, 305 were young adult's girls and 800 were adult women.

The clinical lesions of cervix were also evaluated in all the three cohorts [Table-1]. In adolescents, clinical lesions were not so common and 18 cases of erosion cervix (18%) and 2 hypertrophied cervix (2%) were diagnosed. In the young adult girls and adult women, all the 3 types of clinical lesions were seen, the erosion cervix being more common, (13.1% and 6.8%, respectively).

Gynecological symptoms namely vaginal discharge, vague pain in lower abdomen and menstrual disorders were also investigated in the three cohorts [Table-2]. Vaginal discharge was common in all the

three groups and showed rise with increasing age. The pain in lower abdomen was also common in all three groups but the menstrual disorders were low. The SIL rate associated with three gynecological symptoms was higher in the adolescents

than in young adult girls and adult women but the difference was found to be statistically insignificant (vaginal discharge- $\chi^2=0.82$: $p=0.332$, pain in lower abdomen- $\chi^2=5.91$: $p=0.022$, menstrual disorders- $\chi^2=0.90$: $p=0.971$).

Table 1: Relation of SIL with clinical lesions of cervix in adolescents, young adult girls and adult women.

| Age Group | Erosion Cervix | | Hypertrophied Cervix | | Others (Cystocoele, Cervicitis Etc.,) | |
|-------------------------------|----------------|-----------|----------------------|-----------|---------------------------------------|----------|
| | no. | SiL rate | no. | SiL rate | no. | SiL rate |
| Adolescents (100 cases) | 18 (18%) | 2 (2%) | 2 (2%) | 1 (1%) | - | - |
| Young adult girls (305 cases) | 40 (13.1%) | 12 (3.9%) | 4 (1.3%) | - | 8 (2.6%) | 7 (50%) |
| Adult women (800 cases) | 55 (6.8%) | 9 (1.1%) | 16 (2.0%) | 11 (1.3%) | 12 (1.5%) | 6 (50%) |

Table 2: Relation of SIL with gynecological symptoms in adolescents, young adult girls and adult women

| Age Group | Vaginal Discharge (581 Cases) | | Pain In Lower Abdomen (315 Cases) | | Menstrual Disorder (170Cases) | |
|-------------------------------|-------------------------------|------------|-----------------------------------|-------------|--------------------------------|-----------|
| | no. | SiL rate | no. | SiL rate | no. | SiL rate |
| Adolescents (100 cases) | 67 (67%) | 12 (12%) | 40 (40%) | 16 (16%) | 28 (28%) | 9 (9%) |
| Young adult girls (305 cases) | 132 (43.2%) | 48 (15.7%) | 108 (35.4%) | 38 (12.4%) | 79 (25.9%) | 19 (6.2%) |
| Adult women (800 cases) | 501 (62.6%) | 76 (9.5%) | 271 (33.8%) | 112 (14.0%) | 136 (17.0%) | 20 (2.5%) |

Discussion:

Cervical cytology carried out in the three cohorts of adolescents, young adult girls and adult women living in the rural areas revealed high ASCUS rate in the adolescents but receding with increasing age. The trend was reverse with SIL, the incidence showing rise with increasing age. The cytological monitoring is thus mandatory in these girls as the marriage in the villages is solemnised at an early age

and hence these girls are exposed to the early and prolonged sexual activity.

Sadoghi SB et al., have found severe dysplasia as early as at 15 years and invasive carcinoma as early as 20 years while conducting prevalence studies of cervical dysplasia and carcinoma cervix in a national wide planned population [10]. They have stressed for importance of cytological screening programs for sexually active women in view of severe

cytopathological changes occurring at young age. Carlson HJ and DeMay KM have also analyzed the mode ages of women with cervical dysplasia and have found that the onset of dysplasia was asymmetrically related with young age [11].

In cytology, cells are scraped from the squamo-columnar junction of the cervix and fixed on a glass slide for reading by a trained cytologist [12]. This method, commonly called Pap smear, has several limitations, such as high false-negative rates, low sensitivity, subjective interpretation, and low predictive value, as one-third of women who progressed to cervical cancer had a normal Pap smear. [13] The notification of results to women as well as the visits required for cytologic screening pose programmatic and logistic challenges. [13] In this context, visual screening was developed based on the principle that a higher concentration of intracellular proteins leads to a dense aceto-whitening effect. Its advantage is that it is an easy-to-learn, inexpensive method that requires minimum equipment. [13]

Moscicki AB also found increased rate of regression of LSIL in adolescents and young adult girls and adult women (94%), LSIL regressed to normal within 36 months of detection. Progression of LSIL to HSIL has been reported to vary from 7% to 14% in adult women [14]. They have also seen that only 3% of LSIL in adolescents and young adults went through HSIL. In present study, the regression of the lesion was very common than persistence or progression to SIL. Progression of ASCUS to LSIL was almost equal in all the three cohorts. However, persistence of LSIL was higher in the young adult girls and adult women than in adolescents. It was satisfying to note that none of the LSIL cases progressed to HSIL in all three groups. On contrary, 3 of the 5 HSIL cases found in young adult women regressed to LSIL.

Conclusion:

There is evidence that cervical cancer incidence is greater among women of lower classes, those less educated, and those with a larger number of children. Simultaneous behavior change communication exercises and routine screening in registry areas with a high incidence can perhaps accelerate the decline. In addition to this, prudent measures to vaccinate adolescent girls can be carried out after getting consent. Preventing and treating cervical cancer and reducing the burden are possible by targeting resources to the areas with high prevalence. Vaginal discharge was common in all the three groups and showed rise with increasing age.

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