Original Article

Cervical Cancer in Women with Unhealthy Cervix in a Rural Population of a Developing Country

Samir Kumar Hazra, Santu Maiti, Arunima Chaudhuri[1], Debdut Banerjee, Sarmistha Guha, Amitava Das

Departments of Gynecology, [1]Obstetrics and Physiology, Burdwan Medical College and Hospital, Burdwan, West Bengal, India

A B S T R A C T

Background: Cervical cancer, the most common malignancy among Indian women, is the second most common and fifth most fatal cancer in women world-wide. Aim The study is aimed to determine the risk factors, incidence of cervical malignancy in women with grossly unhealthy cervix in a rural population and to get an overview of effectiveness of the existing screening programs. **Subjects and Methods:** This cross-sectional prospective pilot study was carried in a tertiary care hospital in a span of 6 months. A total of 300 females with grossly unhealthy cervix with suspicions of malignancy, who had never undergone cervical cytology or any other cervical neoplasia screening procedure, were included. Unaided visual inspection with Cusco's speculum was performed followed by digital examination. Clinical staging was carried out in patients according to International Federation of Gynecology and Obstetrics (FIGO'S) Classification. Cervical punch biopsy was taken under colposcopic guidance and histopathological examinations were done. Data were analyzed using SPSS, version 15.0 (Chicago Illinois, USA) and presented as simple percentages. **Results:** Among 300 females, 63.4% (190/300) were aged between 40 and 59 years. Nearly, 70.7% were illiterate and 52.6% had monthly family income between Rs. 2,000 and 5,000. Majority was married and 72.7% had parity between 1 and 3 and 58.7% had early marriages. Unaided visual examination of the women showed 62.7% of them had visible growth and 48.7% of them had bleeding erosions. Visible growths along with bleeding erosions were present in 11.3% cases. Histopathological examination of cervical biopsy specimens revealed mild, moderate and severe dysplasia in 14, 22 and 36 cases, respectively. A total of 212 patients had invasive squamous cell carcinoma. Only 16 patients had normal histopathology findings. Nearly, 56.61% had Stage II disease; among them 27 had Stage IIa and 33 had Stage IIb disease, 26 patients had Stage I disease. Stage IIIa and IIIb have been found in 50 and 12 cases respectively. Four cases had cancer extending to urinary bladder and rectum (Stage IVa). **Conclusions:** Cervical carcinoma not only has a biomedical spectrum, but also has a wide cultural and socio-economic background. Extensive screening campaigns needs to be implemented with immediate effect to early diagnose cases to decrease the social burden of the disease.

KEY WORDS: Africa, cervical cancer, screening procedures

INTRODUCTION

Cervical cancer, the most common malignancy in Indian females, is the second most common and fifth most fatal cancer in women world-wide.[1-3] Over the past two decades, there has been a significant decrease in the incidence of cervical cancer in urban population of India.[1-3] Low socio-economic status, multiple pregnancies, poor sexual hygiene and early marriage are closely related to the population living in rural areas and all of these are important risk factors of cancer cervix.[4-6]

Cervical cancer is a preventable disease with treatment of precancerous lesions and is also curable at early stages.[7,8] Cervical cytology and human papillomavirus (HPV) co-test are recommended by American College of Obstetricians and Gynecologists as effective screening programs for cancer cervix, but these are not very effective in developing countries like India, where resources are limited and incidence of cervicitis is high. Adaptation of more cost-effective strategies like screening by unaided visual inspection that is "down-staging" has been advocated in these countries. Other methods include visual inspection with acetic acid (VIA), VIA after magnification and visual inspection with Lugol's iodine.[8-12] In spite of these strategies cervical cancer is still highly prevalent and remains as a major cause of mortality in India.[13,14]

Address for correspondence
Dr. Arunima Chaudhuri,
Krishnasayar South, Borehat, Burdwan - 713 102,
West Bengal, India.
E-mail: arunimachaudhuri4u@gmail.com

The purpose of this project was to find the risk factors, incidence of cervical neoplasia in women with grossly unhealthy cervix, visiting the Department of Gynecology and Obstetrics of a tertiary care hospital in West Bengal, which caters a large number of patients from its surrounding rural areas. Clinical staging of the disease was carried out to get an overview of effectiveness of the existing screening programs of cervical cancer.

SUBJECTS AND METHODS

This cross-sectional pilot study was carried in a tertiary care hospital in a span of 6 months after taking clearance of the Institutional Ethical Committee and informed consent of patients. Three hundred females with grossly unhealthy cervix, who had never undergone cervical cytology or any other cervical neoplasia screening procedure, were included.

Inclusion criteria
Females above the age of 30 years, with grossly unhealthy cervix with suspicions of malignancy (defined as presence of either or both of these: A visible growth with an irregular surface and erosion that bleeds on touch).

Exclusion criteria
Pregnant women, women who had undergone hysterectomy, women who received any prior treatment regarding cervical neoplasia, women with cervical lesions other than pre-defined criteria.

After history taking, general physical examination was performed. A structured questionnaire regarding the socio-demographic details (age, educational status and monthly family income, age at marriage, marital status and parity) of the study population and given to every participant.

Unaided visual inspection with the help of Cusco's speculum was performed in every case in well-lighted condition followed by the digital examination. Clinical staging was performed in patients according to International Federation of Gynecology and Obstetrics Classification.

Cervical punch biopsy was taken carefully under all aseptic condition in operation theater under colposcopic guidance and specimens collected in sterile vial containing 10% formalin were sent to The Department of Pathology for histopathological examination. Data was analyzed using SPSS, version 15.0 (Chicago Illinois, USA) and presented as simple percentages.

RESULTS

Among 300 females, 190 (63.4% 190/300) were between the age of 40 and 59 years. Most of them were illiterate (70.7% 212/300) and 52.6% (158/300) had monthly family income between Rs. 2,000 and 5,000. Majority were married (76.7% 230/300) and 72.7% (218/300) had parity between 1 and 3. Only 3.3% (10/300) were nulliparous. Nearly, 58.7% (176/300) had early marriages between 15 and 19 years of age. Unaided visual examination of the women showed that 188 (62.7% 188/300) of them had visible growth and 146 (48.7% 146/300) of them had bleeding erosion. Both these two lesions were present in 34 (11.4% 34/300) cases [Table 1].

Histopathological examination of cervical biopsy specimens revealed mild, moderate and severe dysplasia in 14 (4.7% 14/300), 22 (7.3% 22/300) and 36 (12% 36/300) cases respectively. 212 (70.7% = 212/300) women had invasive squamous cell carcinoma. Only 16 (5.3% = 16/300) women had normal histopathology findings.

Clinical staging was performed in 212 women affected with invasive squamous cell carcinoma in cervix. Majority of the patients (56.6% 170/300) had Stage II disease. Among them 54 (25.5% 54/300) had Stage IIa and 66 (31.1% 66/300) had Stage IIb disease. A total of 26 (12.3% 26/300) patients had Stage I disease. Stage IIIa and IIIb has been found in 50 (23.6% 50/300) and 12 (5.7% = 12/300) cases, respectively. Four cases had cancer extending to urinary bladder and rectum (Stage IVa). In Stage I cases surgical interventions were carried out followed by radiotherapy as required. Stage IIa onward patients were treated with radiotherapy and chemotherapy. Among the operated cases three patients complained of irregular bleeding per vagina on follow-up. In two patients, bleeding was controlled with medical management and one patient was lost during follow-up. Seven cases (Stage IIIb and IVa) expired during follow-up. This was a pilot project conducted by us to get an overview of the problem regarding diagnosis in a densely populated rural background of West Bengal. Hence, long-terms follow-up was not included in this study. We are conducting a larger project with long-term follow-up of patients at present.

DISCUSSION

In India, the age-adjusted incidence of cervical cancer (30.7/100,000 women, 132,082 incident cases) is the highest relative to that of all other types of cancer and is higher than the average for the South Central Asia region (GLOBACAN 2002 database, International Agency for Research on

Table 1: Clinical findings of cervix at first visit

Clinical findings of cervix	No. of subjects (*n*=300)	%
Visible growth with irregular surface only	154	51.3 (154/300)
Erosion that bleeds on touch only	112	37.3 (112/300)
Both growth and bleeding erosion	34	11.4 (34/300)

Cancer 2009). By 2025, the number of new cervical cancer cases in India is projected to increase to 226,084 (World Health Organization/Institut Català d'Oncologi Information Center on HPV and Cervical Cancer).[7]

In the present study, it was found that age more than 40 years, illiteracy, low family income, marriage at early age and increased parity is associated with increased risk of having unhealthy cervix and as well as cervical carcinoma. The studies of Juneja *et al.*,[14] Shields *et al.*[15] also pointed out these risk factors.

Majority of the patients (56.61%) had Stage II disease. Among them 25.47% had Stage IIa and 31.14% had Stage IIb diseases. Around 70.7% women had invasive squamous cell carcinoma. Carcinoma cervix can be treated with operations only in early stages, so early diagnosis is a prerequisite for better prognosis. Gaya *et al*. in 2012 reviewed the presentation and histopathological types of cervical cancer cases seen in Aminu Kano Teaching Hospital Kano, over a 16-year period. Among these cases with cancer of the cervix, 71.1% (275/386) were grand multiparous and 89.7% presented with advanced disease. Squamous cell carcinoma accounted for 86.3% (333/386) of the cancers.[5]

Shanta *et al*. in 2000 studied etiologic association and possible risk factors for cervical carcinoma. Sexual and reproductive factors, socio-economic factors (education and income), viruses e.g., herpes simplex virus, HPV, human immunodeficiency virus in cervical carcinogenesis and other factors such as smoking, diet, oral contraceptives, hormones play a significant role. These suggest that cervical cancer is highly suitable for primary prevention.[3]

Misra *et al*. in 2009 studied the role of risk factors in cervical carcinogenesis and strategies for control of the disease were assessed from the data, derived from 35 years of hospital-based screening in North India. It was felt that single lifetime screening should be carried out in all women of high parity irrespective of age and in older women above the age of 40 years irrespective of parity.[6]

Recently, a National Task Force was constituted for developing a "Strategy for Cancer Control in the 11th five year plan (2007-2011)," summarizing the current scenario and developing a comprehensive cancer control strategy for the country (National Cancer Control Program task force reports for 11th plan, 2008). The recommendations for cervical cancer are: Opportunistic screening using sustainable and financially viable means; capacity building for early detection and diagnosis; development of infrastructure and human resources for appropriate treatment and regular follow-up; provision of palliative care for advanced stage cancer across the country. There are missing components in this strategy.

Opportunistic screening has been recommended for India ignoring the fact that the improvements in cervical cancer incidence and mortality in the developed world are based on organized, nationwide screening campaigns. In the absence of any nationwide cervical screening program, cancer of cervix remains a major public health problem for India.[4,7,16-19]

Limitations of the study and future scope

This was a pilot project conducted in a time span of 6 months to get an overview of the problem regarding diagnosis in a densely populated rural background of West Bengal. Future projects with population at a large are on the way.

CONCLUSIONS

Cervical carcinoma not only has a biomedical spectrum, but also has a wide cultural and socio-economic background. Extensive screening campaigns needs to be implemented with immediate effect to early diagnose cases to decrease the social burden of the disease.

REFERENCES

1. Nandakumar A, Ramnath T, Chaturvedi M. The magnitude of cancer cervix in India. Indian J Med Res 2009;130:219-21.
2. Biswas LN, Manna B, Maiti PK, Sengupta S. Sexual risk factors for cervical cancer among rural Indian women: A case-control study. Int J Epidemiol 1997;26:491-5.
3. Shanta V, Krishnamurthi S, Gajalakshmi CK, Swaminathan R, Ravichandran K. Epidemiology of cancer of the cervix: Global and national perspective. J Indian Med Assoc 2000;98:49-52.
4. Saha A, Chaudhury AN, Bhowmik P, Chatterjee R. Awareness of cervical cancer among female students of premier colleges in Kolkata, India. Asian Pac J Cancer Prev 2010;11:1085-90.
5. Gaya SA, Yakasai IA, Muhammad AZ, Galadanci HS, Garba ID. Cancer of the cervix in unscreened West African women. J Basic Clin Reprod Sci 2012;1:44-8.
6. Misra JS, Srivastava S, Singh U, Srivastava AN. Risk-factors and strategies for control of carcinoma cervix in India: Hospital based cytological screening experience of 35 years. Indian J Cancer 2009;46:155-9.
7. World Health Organisation. Comprehensive Cervical Cancer Control: A Guide to Essential Practice. Geneva: WHO; 2006. Available from: http://www.who.int/reproductivehealth/publications/cancers/9241547006/en/index.html. [Last accessed on 2009 Nov 18].
8. American College of Obstetricians and Gynecologists. Cervical cytology screening. ACOG practice bulletin no. 109. Obstet Gynecol 2009;114:409-20.
9. Sankaranarayanan R, Budukh AM, Rajkumar R. Effective screening programmes for cervical cancer in low-and middle-income developing countries. Bull World Health Organ 2001;79:954-62.
10. Stjernsward J, Eddy D, Luthra U, Stanley K. Plotting a new course for cervical cancer screening in developing countries. World Health Forum 1987;8:42-5.
11. Sankaranarayanan R, Nene BM, Dinshaw K, Rajkumar R, Shastri S, Wesley R, *et al*. Early detection of cervical cancer with visual inspection methods: A summary of completed and on-going studies in India. Salud Publica Mex 2003;45 Suppl 3:S399-407.
12. Juneja A, Sehgal A, Sharma S, Pandey A. Cervical cancer screening in

India: Strategies revisited. Indian J Med Sci 2007;61:34-47.

13. Dikshit R, Gupta PC, Ramasundarahettige C, Gajalakshmi V, Aleksandrowicz L, Badwe R, *et al*. Cancer mortality in India: A nationally representative survey. Lancet 2012;379:1807-16.

14. Juneja A, Murthy NS, Sharma S, Shukla DK, Roy M, Das DK. Selective cervical cytology screening: Discriminant analysis approach. Neoplasma 1993;40:401-4.

15. Shields TS, Brinton LA, Burk RD, Wang SS, Weinstein SJ, Ziegler RG, *et al*. A case-control study of risk factors for invasive cervical cancer among U.S. women exposed to oncogenic types of human papillomavirus. Cancer Epidemiol Biomarkers Prev 2004;13:1574-82.

16. National Cancer Control Programme. Guidelines for Cervical Cancer Screening Programme. Recommendations of the Expert Group Meeting 18th-19th November 2006. Government of India-World Health Organization Collaborative Programme (2004-2005).

17. Denny L. Cervical cancer: Prevention and treatment. Discov Med 2012;14:125-31.

18. Abu-Rustum NR, Sonoda Y. Fertility-sparing surgery in early-stage cervical cancer: Indications and applications. J Natl Compr Canc Netw 2010;8:1435-8.

19. Arbyn M, Castellsagué X, de Sanjosé S, Bruni L, Saraiya M, Bray F, *et al*. Worldwide burden of cervical cancer in 2008. Ann Oncol 2011;22:2675-86.

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