Contents lists available at www.innovativejournal.in

INNOVATIVE JOURNAL OF MEDICAL AND HEALTH SCIENCE

Journal homepage: http://www.innovativejournal.in/index.php/ijmhs

ISSN No. 2277-4939

CERVICAL CANCER SCREENING: RISK FACTORS FOR CERVICAL NEOPLASIA AMONG RURAL WOMEN OF NANDED MAHARASHTRA

Dr. Shubhangi Tulshiram Khamankar, Dr. Virendra Belekar, Vijay Manohar Bhagat, Dr. Shubhangi Ramesh Baviskar

Assistant Professor, Jawaharlal Nehru Medical College,Sawangi (Meghe), Wardha MS India.

ARTICLE INFO

Corresponding Author:

Dr Vijay Manohar Bhagat

Assistant Professor, Jawaharlal Nehru Medical College,Sawangi (Meghe), Wardha MS India.

.

Keywords: Cancer, cervix uteri, cervical squamous intraepithelial lesions, malignancy

ABSTRACT

Cancer of the cervix uteri is the second most common cancer among women worldwide; most frequent cancer in women in India. It is also the most common cancer in women in many parts of the world including South-Central Asia. Papanicolaou (pap) smear detects aberrations (if any) in cervix epithelium i.e. dysplasia and early cervix cancer. It is the most appropriate method over HPV screening or HPV vaccination in Indian settings. Screening of high risks for cervical cancer with pap smear will yield better in terms of lives saved and cancers prevented. The present study was conducted to study cytological findings in cervical discharge by Pap smear and to evaluate role of cytology in early detection of cellular aberration like cervical squamous intraepithelial lesions and malignancy by The Bethesda System -2001. Age, premalignant cervical epithelial changes, post menopausal women and high parity were observed to be risk factors for cervical neoplasia on pap smear. Increasing parity is observed to be significantly and independently increases risk of cervical neoplasia. Screening of women in reproductive age by pap smear for cervical cancer is recommended especially in resource poor countries like India.

INTRODUCTION

Cancer of the cervix uteri is the second most common cancer among women worldwide [1]; most frequent cancer in women in India [2]. It is also the most common cancer in women in many parts of the world including South-Central Asia[1]. Cancer of the cervix has been the most important cancer in women in India; constituting 11-30% of all cancers in women[3]. About 86% of the cases occur in developing countries, representing 13% of female cancers. India has a population of approximately 365.71 million women above 15 years of age, who are at risk of developing cervical cancer. The current estimates indicate approximately 132,000 new cases diagnosed and 74,000 deaths annually in India, accounting to nearly 1/3 of the global cervical cancer deaths. About 88% deaths from cervical cancer occur in developing countries[4]. 2012). The markedly decline in death rate in the last 40 years in industrialized countries is owing to adoption of healthy life style and extensive screening of apparently healthy and symptom free women. Screening of women more than thirty five years for Human Papilloma Virus (HPV) is preferred in developed countries but its feasibility in developing countries such as India is questionable. Papanicolaou (pap) smear detects aberrations (if any) in cervix epithelium i.e. dysplasia and early cervix cancer. It is the most appropriate method over HPV screening or HPV vaccination in Indian settings.

Screening of high risks for cervical cancer with pap smear will yield better in terms of lives saved and cancers prevented. Therefore the present study was conducted to study cytological findings in cervical discharge by Pap smear and to evaluate role of cytology in early detection of cellular aberration like cervical squamous intraepithelial lesions and malignancy by The Bethesda System -2001.

MATERIAL AND METHOD

Study design: The present study was observational cross sectional study.

Settings: The study was carried out at Government Medical College and Shri Guru Govind Singhji Memorial Hospital, Nanded.

Study participants: The present study was carried out among women attending Gynecology and family planning OPD during the study period. Women visiting the OPD during their menstrual period and women having visible cervical malignancy were excluded.

Data collection procedure: Government Medical College and Shri Guru Govind Singhji Memorial Hospital, Nanded is one of the reputed teaching and service institute catering

rural and under privileged population of Marathwada region of Maharashtra.

Sexually active women attending Gynaecology and family planning OPD during the study period offered to participate in the study. After due consent, the socio-demographic information and detailed history was obtained. They were further subjected to clinical examination including detailed gynecological examination. Cervical smears specimen was collected prior to bimanual examination with Ayre's wooden spatula. Staining was done with Papanicolaou stain and evaluation of smear was done as per The Bethesda system (TBS) 2001. The results were communicated to treating physician.

Ethical issues: The study was approved by institutional ethics committee of Government Medical College and Shri Guru Govind Singhji Memorial Hospital, Nanded. A written informed consent was collected from each study participants.

Data analysis: The collected data entered into Microsoft excel and further analyzed using Epi info version 3.0 CDC Atlanta. The descriptive statistics analyzed using proportions and inferential statistics analyzed by appropriate tests of significance.

RESULTS:

1610 women attending Gynaecology and family planning OPD during the study period subjected for cervical pap smear. Out of these, 1485 smears (92.42%) were satisfactory for evaluation. Among the satisfactory smears, 202 (13.60%) smears showed intraepithelial lesions while, 1283 (86.40%) were Negative for Intraepithelial Lesions or Malignancy (NILM). Among these maximum (43.73%) belonged to 31-40 years. Mean age was 37.54 years. 75.28% women presented with white discharge per vagina, followed by itching (12.36%).

Cervical epithelial abnormality was detected in 202 (13.60%), majority of them presented with white discharge (60.4%), followed by bleeding per vagina (30%) and post coital bleeding (6.6%).

Most of the NILM smears (70.24%) had inflammatory changes. Mean age in LSIL (Low grade Squamous Intraepithelial Lesion) was 39.57 years, in HSIL (High grade Squamous Intraepithelial Lesion) was 46.50 years and in SCC (Squamous Cell Carcinoma) was 48.5 years. All the positive intra-epithelial lesions showed squamous epithelial abnormality. Maximum (11.25%) among them were low grade squamous intra-epithelial lesions (Table 1).

Upon bivariate analysis, it was noted that age >40 years, cervical erosion, post menopause, high parity were risk factors for cervical neoplasia (Table 2). All the factors from bivariate analysis were analyzed for independent association by logistic regression model. It was observed that cervical erosion changes and high parity independently increases the risk of cervical neoplasia (Table 3). Further the severity of cervical neoplasia was studied for association with increasing age and parity. Increasing age was observed to be risk factor for severity of cervical neoplasia. The risk of cervical neoplasia increases from 1.43 in third decade to 7.46 & 16.18 in fourth and fifth decade respectively. Increasing parity also increases risk of cervical neoplasia but this relationship was statistically non significant.

DISCUSSION:

1485 satisfactory pap smears were studied for evaluation of risk factors for cervical neoplasia. Out of these 202 (13.60%) smears shown cervical neoplasia.

Commonest presenting complaint among patients showing cervical neoplasia was white discharge per vagina in (60.4%) cases. Similarly vaginal discharge was the most common complaint in studies on cervical dysplasia by other authors[5].

Most of the NILM smears had inflammatory changes, (70.24%). As also noted by Vergese et al (70%)[5].

Mean age for low grade neoplasia (LSIL), high grade neoplasia (HSIL) and squamous cell carcinoma (SCC) were 39.57, 46.50 and 48.5 years respectively. All the positive intra-epithelial lesions showed squamous epithelial abnormality. Maximum (11.25%) neoplastic lesions were among them were low grade squamous intra-epithelial lesions (Table 1).

Upon bivariate analysis, it was noted that age >40 years, cervical erosion, post menopause, high parity were risk factors for cervical neoplasia (Table 2). All the factors from bivariate analysis were analyzed for independent association by logistic regression. It was observed that cervical erosion changes and high parity independently increases the risk of cervical neoplasia (Table 3). Vergese et al (1999) noted that increasing age, increasing parity, illiteracy and poor sexual hygiene were risk factors for cancer cervix on regression analysis[5]. Low educational status, high parity, sexual intercourse in young age, multiple sexual partners, history of venereal disease and smoking are known to be risk factors for cervical cancer[6]. Especially HSIL is considered a significant precancerous lesion[7] which necessitates screening for cervical cancer.

In the present study the proportion of abnormal pap smear increased from young (less than thirty years) women through fourth, fifth and sixth decade of life. In our study short term (less than four years) use of hormonal contraception was not associated with cervical neoplasia especially with carcinoma similar results noted by Chichareon S et al (1998) [6].

Further the severity of cervical neoplasia was studied for association with increasing age and parity. Increasing age was observed to be risk factor for severity of cervical neoplasia. The risk of cervical neoplasia increases from 1.43 in third decade to 7.46 & 16.18 in fourth and fifth decade respectively. Increasing parity also increases risk of cervical neoplasia but this relationship was statistically non significant. Especially for country like India screening of cervical cancer has serious implications not only because of high prevalence but as its knowledge among population is poor, lack of interest, monetory and psychological problems are characteristics of the population[4].

Table 1: Distribution of Cervical PAP Smears according to The Bethesda System (2001)

Diagnosis	No. of cases (%)
I. Negative for Intraepithelial lesion or malignancy (NILM) [n=1281 (86.32)]	
1. Micro-Organisms grown from infective lesions	
Trichomonas Vaginalis	8 (0.62)
Fungus	10 (0.78)
Bacterial vaginosis	4 (0.31)
2. Cellular non-neoplastic lesions	
Reactive changes with Inflammation	1241 (96.88)
Radiation	3 (0.23)
Atrophy	15 (1.17)
Total	**1281 (100%)**
II. Epithelial cell abnormalities [n=203 (13.68%)]	
ASCUS	3 (1.48)
LSIL	168 (82.76)
HSIL	30 (14.78)
SCC	2 (0.98)
Total	**203 (100)**

Table 3: Factors associated with abnormal PAP analysed in multiple logistic regression

Variable	Odds Ratio	95% CI		Significance (probability)
Age (in Years)	1.0765	0.6933	1.6715	NS (0.7427)
Cervical erosion	1.6013	1.1299	2.2695	S (0.0081)
Contraception	0.9119	0.5995	1.3872	NS (0.6665)
Menopause	0.8910	0.5710	1.3902	NS (0.6111)
Parity	6.8430	4.5855	10.2118	S (0.0000)
Religion	0.8474	0.4908	1.4631	NS (0.5523)

Table 2: Bivariate analysis of study participants and PAP smear results.

Variable	NILM (%)	Cervical Neoplasia (%)	Total (%)	Significance
1. Age (in years)*				
<30	327 (92.63)	26 (7.37)	353 (23. 79)	X^2=35.75
31-40	571 (88.53)	74 (11.47)	645 (43.46)	d.f.=1
41- 50	274 (78.74)	74 (21.26)	348 (23.45)	P<0.000
51-60	94 (77.05)	28 (22.95)	*122 (*8.22)	
>60	15 (93.75)	1 (6.25)	16 (1.08)	
2. Religion				X^2=0. 03
Hindu	1137 (86.27)	181 (13.73)	1318 (88.81)	d.f=1
Muslim	144 (86.75)	22 (13.25)	166 (11.19)	P=0.86
3. Cervical examination				
Normal	776 (89.50)	91 (10.50)	867 (58.42)	X^2=43.90
Erosion	364 (78.79)	98 (21.21)	462 (31.13)	d.f.=2
Hypertrophy	61 (81.33)	14 (18.67)	75 (5.05)	P<0.0000
Prolapse	80(100.00)	0(0.00)	80 **(5.39)**	
4. Contraception				X^2=9.69
Cu T	195 (92.42)	16 (7.58)	211 (14.22)	P=0.2143
OC Pills	53 (89.83)	6(10.17)	59 (3.98)	d.f.=3
TL	158 (87.29)	23 (12.71)	181 (12.20)	
Nil	875 (84.70)	158 (15.30)	1033 (6 9.61)	
5. Menopause				X^2=5.71
Yes	295 (82.40)	63(17.60)	358 (24.12)	d.f.=1
No	986 (87.57)	140 (12.43)	1126 (75.88)	P=0.016
6. Parity**				
Nullipara	28 (100.00)	0 (0.00)	28 (1.89)	X^2=148.31
1	71 (73.20)	26 (26.80)	97 (6.54)	d.f.=1
2	296 (97.69)	7 (2.31)	303 (20.42)	P=<0.000
3	522 (95.78)	23 (4.22)	545 (36.73)	
>4	364 (71.23)	147 (28.77)	511 (34.43)	

*Age <40 years compared with >40 years, **Parity <4 compared with >4.

Table 4: Association of severity of cervical neoplasia with respect to age and parity

Variable	ASCUS + LSIL	HSIL+ SCC	Total	OR	Significance
Age					
<30	25 (96.15)	1 (3.85)	26 (12.80)	1	X^2 for Trend =22.499 P<0.000 d.f.= 3*
31-40	70 (94.59)	4 (5.41)	74 (36.45)	1.43	
41- 50	57 (77.03)	17 (22.97)	74 (36.45)	7.46	
51-60	17 (60.71)	11 (39.29)	28 (13.79)	16.18	
>60	1 (100)	0	1 (0.49)		
Parity					
1	24 (92.31)	2 (7.69)	26 (12.80)	1	X^2 for trend =3.24 d.f.= 3* P= 0.07158
II	7 (100)	0 (0)	7 (3.44)	0	
III	19 (82.60)	4 (17.40)	23 (11.33)	2.53	
IV	120 (81.63)	27 (18.37)	147 (72.41)	2.70	
Total	170	33	203		

*>60 years not compared due to 0 value in one of cell.

CONCLUSION:

Age, premalignant cervical epithelial changes, post menopausal women and high parity were observed to be risk factors for cervical neoplasia on pap smear. Increasing parity is observed to be significantly and independently increases risk of cervical neoplasia.

REFERENCES:

1. Ferlay J, Shin HR, Forman D, Mathers C and Parkin DM. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. Int. J. Cancer: 127, 2893–2917 (2010).

2. Kaarthigeyan K. Cervical cancer in India and HPV vaccination. Indian J Med Paediatr Oncol. 2012 Jan-Mar; 33(1): 7–12.

3. Nanakumar A. Ramnath T. Chaturvedi M. The magnitude of cancer cervix in India. Indian J Med Res 130, Sept.2009, 219-221.

4. Aswathy S., Mariya Amin Quereshi, Beteena Kurian & Leelamoni K. Cervical cancer screening: Current knowledge & practice among women in a rural population of Kerala, India. Indian J Med Res 136, Aug.2012,205-210.

5. Varghese C, Amma NS, Chitrathara K, Dhakad N, Rani P, Malathy L. et. al. Risk factors for cervical dysplasia in Kerala, India. Bulletin of the World Health Organization, 1999, 77 (3).

6. Chichareon S, Herrero R, Mun˜oz N, Bosch FX, Jacobs MV, Deacon J, Santamaria M, Chongsuvivatwong V, Meijer CJLM, Walboomers JMM. Risk Factors for Cervical Cancer in Thailand: a Case–Control Study. J Natl Cancer Inst 1998;90:50–7.

7. Saslow D, Carolyn D. Runowicz, Solomon D,Anna-Barbara Moscicki AB,Smith RA, Harmon J. Eyre HJ, Cohen C American Cancer Society Guideline for the Early Detection of Cervical Neoplasia and Cancer. CA Cancer J Clin 2002;52:342-362.