



Screening for cervical dysplasia and reproductive tract infections among coffee plantation workers in Kodagu District, Karnataka, India

Abstract:

Background: Cervical dysplasia is a pre malignant condition and cervical cancer is a leading cause of death among women in developing countries. This study was undertaken to coffee plantation workers to assess the prevalence of cervical dysplasia and reproductive tract infections (RTI) and its associated ethological factors among women aged 40 years and above. **Methods:** It was a cross sectional study conducted among female plantation workers aged 40 years and above and employed in coffee estates in Kodagu District, Karnataka, India. The tools in this study included an interview schedule to help collect socio demographic details and the procedures included per vaginal and per speculum examination along with Pap smear test. **Results:** A total of 141 women aged 40 years and above were screened for cervical dysplasia and reproductive tract infections. The prevalence of cervical dysplasia on Pap smear was seven percent and that of RTI was 12.05%. In this study there was no statistically significant association between cervical dysplasia or RTI with socio demographic variables like age, education, per capita income, age at marriage, age at first pregnancy or number of children. **Conclusion:** The prevalence of cervical dysplasia on Pap smear was seven percent and that of RTI was 12.05%. Regular screening of women in the reproductive age group with Pap smear and prevention and treatment of both partners with RTI may help reduce the chances of developing cervical cancer.

Key Words: Cervical dysplasia, cervical cancer, Pap smear, reproductive tract infections, coffee plantation workers.

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Introduction

Cancer of uterine cervix is the most common malignancy among women in India, and the sixth most common in developed countries.[1] India accounts for about 20% of cancer cervix reported from the world.[2] It is one of the leading causes of mortality among women in India accounting for 23.3% of all cancer deaths.[3] The age adjusted incidence rate for cervical cancer has been reported to vary from 19 to 44/100 000 women in various cancer registries in India.[4] The predominant risk factor for cervical cancer is persistent infection with a high-risk oncogenic type of Human papilloma virus (HPV) (types 16, 18, 31, 33, 35, 42, 55, 58). Malignant transformation by HPV is influenced by several factors such as HPV virus type, co-infection with multiple oncogenic virus types and high viral load. Host factors like parity, early age of sexual activity, poor socio-economic status and sexual promiscuity are important contributory factors.[5] Fortunately, the natural history of cervical cancer is such that it is possible to detect it early during a

pre-invasive curable stage by screening and early intervention, thereby preventing progression into a life threatening illness.[6] Despite this fact, almost three fourth of the cases are diagnosed in the advanced stages of disease.[2] The proportion of women living in communities who undergo Pap smear tests ranges from 2.6 - 6.9% in India.[7-10] Various methods of screening available include Papanicolaou smear (cytological screening), Visual inspection method using acetic acid (VIA) and Lugol's iodine (VILI) and HPV – DNA testing.[11] However, it is well established in literature and clinical practice that the best method for early detection and screening of precancerous lesions of uterine cervix is cytological examination by Pap smear.[12] Pap smear method with sensitivity of 72% and specificity of 94% is suitable for population based screening programme.[13] The present study was conducted with the aim of assessing the prevalence of cervical dysplasia and reproductive tract infections and its associated factors among unscreened population of female coffee plantation workers currently/ever married women aged 40 years and above.

Methods

A cross sectional study was conducted among non-pregnant female plantation workers aged 40 years and above in three coffee estates located in Virajpet Taluk, Kodak District, Karnataka, India from March – May 2011. Ethical approval was obtained and all the eligible women were recruited and explained about the study including the procedure and an informed consent was obtained. Data was collected using an interview schedule which included socio demographic data, family planning arrangements and general health status. The gynecological examination included a thorough inspection of the external genitalia, speculum examination to check for the presence of vaginal discharge and the appearance of the cervix. A sterile endo-cervical swab and a high vaginal swab were used to collect vaginal secretions for microscopy examination. A Papanicolaou (Pap) smear was collected with disposable wooden Ayers spatula. The smears were prepared on glass slides and then fixed with ethanol based fixative and transported within 48 hours for reporting to an accredited pathology laboratory in Mysore. The microscopic examination included gram stain and potassium hydroxide wet mount.

Results

Total of 141 women gave consent and were underwent screening. The mean age was 46.79 ± 5.77 years. The mean age at marriage was 17.4 years and 97 (68.8%) of the subjects were married before completing 18 years of age (legal age of marriage for females in India). The socio demographic details of the study population have been explained in Table I.

Table I: Socio demographic details of the study population

Variable	Interval	Number	Percentage
Age in years	40-45	66	46.8
	46-50	40	28.4
	51-55	23	16.3
	56-60	11	7.8
	61-65	1	0.7
Education	Illiterate	111	78.7
	Class 1-4	13	9.3
	Class 5-7	15	10.6
	Class 8-10	2	1.4
Per capita Income In Rupees	<845	96	68.1
	846-1690	44	31.2
	1690-2818	1	0.7
Marital status	Currently married	103	73
	Divorced/widowed	38	27
Age at Marriage in years	<15	48	34
	16-18	49	34.8
	>18	44	31.2

Table II depicts the gynecological examination findings of the study population. In the study population, 97 (68.8%) had normal findings on speculum examination.

Table II: Per vaginal findings of the study population

Findings	Number	Percentage
Normal	97	68.8
White discharge	18	12.8
Erosions/growth	11	7.8
Bleeding /on touch	11	7.8
2 nd Degree prolapse or more	4	2.8

Table III explains the association between socio demographic variables and Pap smear findings. There was no statistically significant association between socio demographic features like age, education and per capita income with Pap smear findings.

Table III: Association between socio demography and Pap smear findings

Variable		Pap Smear Findings Number (%)				Total
		Normal	Inflam- matory Smear	Dysplasia	Infec- tion	
Age	40-45	6 (9.1)	42 (63.6)	5 (7.6)	13 (19.7)	66 (46.8)
	46-50	6 (15.0)	30 (75.0)	2 (5.0)	2 (5.0)	40 (28.4)
	51-55	4 (17.4)	16 (69.6)	2 (8.7)	1 (4.3)	23 (16.3)
	56-60	3 (25)	7 (58.3)	1 (8.3)	1 (8.3)	12 (8.5)
Education	Illit- erate	15 (13.5)	74 (66.7)	8 (7.2)	14 (12.6)	111 (78.7)
	Class 1-4	2 (15.4)	10 (76.9)	0	1 (7.7)	13 (9.2)
	Class 5-10	2 (11.8)	11 (64.7)	2 (11.8)	2 (11.8)	17 (12.1)
Per capita income in Rupees	<846	13 (13.5)	66 (68.8)	5 (5.2)	12 (12.5)	96 (68.6)
	846-1690	5 (11.6)	29 (67.4)	5 (11.6)	4 (9.3)	43 (30.7)
	1690-2818	1 (100.0)	0	0	0	1 (0.7)

Table IV depicts the association between reproductive variables and Pap smear findings. There was no statistically significant association between reproductive variables like age at marriage, age at first pregnancy, abortions, number of children and Pap smear findings. Among the study population 117 (83%) had ever practiced any form of birth control and 24 (17%) did not practice any form of birth control.

Discussion

In the study population (46.8%) of the women were in the age group of 40-45 years. Of all 78.7% of them were illiterate.

Table IV: Association between reproductive variables and Pap smear findings

Variable		Pap Smear Findings				Total
		Normal	Inflammatory smear	Dysplasia	Infection	
Age at marriage in years	<15	4 (8.3)	34 (70.8)	2 (4.2)	8 (16.7)	48 (34.0)
	16-18	8 (16.3)	29 (59.2)	4 (8.2)	8 (16.3)	49(34.8)
	>18	7 (15.9)	32 (72.7)	4 (9.1)	1 (2.3)	44(31.2)
Age at 1 st pregnancy in years	<15	1 (5.9)	9 (52.9)	1 (5.9)	6 (35.3)	17 (12.4)
	16-18	9 (18.4)	32 (65.3)	3 (6.1)	5 (10.2)	49 (35.8)
	>18	8 (11.6)	51 (73.9)	6 (8.7)	4 (5.8)	69 (50.4)
	Not known	0	2 (100)	0	0	2 (1.5)
Abortion	Present	1 (3.3)	23 (76.7)	3 (10)	3 (10)	30 (21.3)
	absent	18 (16.2)	72 (64.9)	7 (6.3)	14 (12.6)	111(78.7)
Number of children	<2	6 (9.8)	39 (63.9)	8 (13.1)	8 (13.1)	61 (44.5)
	>2	12 (15.8)	55 (72.4)	2 (2.6)	7 (9.2)	76 (55.5)

Most (68.8%) of the women had per capita income less than 846 rupees per month. It was observed that 55.5% of women had more than two children. Of all 68.8% had married before 18 years of age which is a potential risk factor for cervical cancer. On gynecological examination 68.8% had normal cervical findings, 12.8% had white discharge, 7.8% had erosions/growths, 7.8% had bleeding on touch and 2.8% had second degree cervical prolapse or more. Another study conducted in different setting had showed cervical erosion (22%), cervicitis (13.1%) and vaginitis (8.4%) which is higher than our findings [14]. It was found that seven percent of the women had dysplastic smears which were comparable to similar study [15] and lower when compared to another study where the prevalence was 12.7% [16] probably attributable to lack of promiscuity and isolation of plantation workers. Prevalence of Reproductive tract infections such as trichomoniasis, candidiasis and anaerobic vaginosis was found to be 12.1% which was low when compared to another study (24.4%). [15] The proportion of women having inflammatory smears was 67.3% may be attributable to undiagnosed subclinical gonococcal or Chlamydia infection or benign glandular changes in the ectocervix. Among risk factors associated with uterine cervix cancer among women, age at marriage less than 18 years (68.8%), illiteracy leading to poor genital hygiene (78.7%) and age at first pregnancy (58.2%) were observed to be the prominent risk factors even though they were not statistically significant. Other studies have reported a significant association of cancer cervix with the above mentioned risk factors. [17-19] There was no statistically significant association between socio demographic features like age, education and per capita income with Pap smear findings or between reproductive variables like age of marriage, age at first pregnancy, abortions and number of children. Population based descriptive study done in Sikkim also found that there was association between age, education, per capita income, age at marriage and child birth. [20] Hospital based study in North India found an association between prevalence of HPV and education and rural population and no association between prevalence of HPV and age, parity and age of marriage. [21]

Conclusion

The prevalence of cervical dysplasia in the study population on Pap smear was seven percent and reproductive tract infection

was 12.05%. The current prevalence of cervical dysplasia and the presence of potential etiological factors among women plantation workers it would be advisable to recommend regular screening and following-up by Pap smear for all eligible workers. Due to the high prevalence of non-specific inflammation on Pap smear, further evaluation for RTIs and regular follow-up of women with inflammatory changes is necessary, because women with inflammatory changes can develop dysplastic changes in the future. With the introduction HPV-DNA kits for screening HPV both among males and females in a sample of urine may change the future of screening for HPV.

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