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AN OBSERVATIONAL STUDY OF CORRELATION BETWEEN MENOPAUSE AND EARLY HPV INFECTION

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ABSTRACT

Background: Raising awareness about the symptoms and undergoing cancer screening programs can aid in the early detection of cervical cancer. Numerous developed countries have observed a decrease of 50-70% in the annual incidence and prevalence of cervical cancer after launching campaigns for early detection. As a result, researchers have extensively looked into predicting the correlation between menopause and a higher risk of HPV virus infection. **Methods:** We screened 498 women, out of which 108 were menopausal women during our study period, i.e., six months in G. G. G. Hospital, Jamnagar. We collected the personal and clinical histories of the patients from the gynecology department. HPV infection screening method was PAP test as our routine cytopathology practice. **Result and discussion:** We found that 56% of women were in the age of less than 35 years at the time of screening, which seems uncommon in comparison to other studies. 93% of women from urban areas as compared to rural places, with the mean for menarche being 13.5 years. we found 77.8% and 85.58% parity in range of 1-4. Burning micturition, itching, white discharge, and abdominal pain were the

most common symptoms. A Chi-square test was performed, and the p-value states that the correlation was insignificant. **Conclusion:** We found menopause a high-risk factor for HPV infection; however, symptoms weren't found to be significant in either of the scenarios. Thus, it is suggested that menopausal women should screen themselves annually to avert the risk of HPV infection.

Keywords: Human Papilloma Virus, Screening, PAP, Menopause

INTRODUCTION

Background: India accounts for about 20% of cervical cancer cases reported from the world. A local study found four types of cancer (breast, cervical, oral, and lung) account for more than 41% of the nation's cancer burden, with mouth and breast cancer being more common in men and breast and cervical cancer more common in women. When it comes to prevention, the first cancer that comes to mind is cervical cancer. This cancer is mostly diagnosed among middle-aged and menopause women **[1]**. Despite this, there is no national programme in place that offers fundamental preventive measures like screening services **[2]**.

Ignorance of pre- and postmenopausal symptoms can result in a significant risk factor for cancer. Due to ignorance and lack of awareness, women can misjudge the two symptoms concurrently or separately. Throughout their lifespan, women experience a variety of physiological changes, including menopause **[3]**.

Women who are close to or have reached menopause may worry that the symptoms they are feeling are caused by menopause or another illness, such cancer. It's critical to understand that some menopause symptoms can resembles, which are cancers that originate in the female reproductive system out of which uterine cancer, ovarian cancer, and cervical cancer are the three most prevalent cancers **[4]**.

Regular Pap tests are crucial for detecting cervical cancer in its early stages, as symptoms are often similar. It is crucial to be aware of the similarities and differences in symptoms so that worrying, or "red flag," symptoms of a potential underlying cancer are not disregarded or mistakenly identified as symptoms of menopause. Early cervical cancer most often has no symptoms. The most typical sign of cervical cancer is irregular or excessive vaginal bleeding **[5]**.

The signs and symptoms of cervical cancer frequently resemble those of other diseases. Abnormal vaginal bleeding, such as after sex, in between periods, or after menopause, is one of the potential warning indicators. Other red flags include irregular vaginal discharge, prolonged menstrual bleeding, and pain during sexual activity. There is a reliable test for detecting cervical cancer and precancerous abnormalities in the cervix,

which are frequently picked up early in a Pap test. This is why a post-menopausal woman should continue to have cervical cancer screenings at the intervals suggested by her doctor along with visual inspection (per speculum and per vaginal examination) **[6]**. Many findings suggest the requirement to screen asymptomatic women for cervical cytology, and physical examination as many precursor lesions of cervical cancer may remain hidden for long time **[7]**.

Objectives: To establish a correlation between menopause and early HPV infection. To establish a correlation between positive intraepithelial lesions and negative intraepithelial lesions in the context of symptoms and examination findings.

MATERIAL AND METHODS

The present study was observational study carried out on patients presenting in Gynecology department from November 2022 to April 2023 at G.G.G. Hospital, Jamnagar. Approval was obtained from the Institutional Ethics Committee (IEC), and informed consent was obtained from participants. Confidentiality was maintained for each subject in every aspect as per IEC norms. Participants who were not willing were excluded from the study. Complete assessment was done by taking personal and clinical history. Details regarding the patient, such as age, age of marriage, marital status, community, geographic entities, symptoms, menarche, menstrual history, etc, were recorded in Case record form. Papanicolaou smear test was performed to diagnose the cervical malignancy, which was carried out by the cytopathology department of Shri M.P. Shah Medical College, Jamnagar **[8]**. Results for the same were collected for the study purpose. Data analysis, including statistical tests, was carried out using Microsoft Office 2010.

RESULTS

Total 498 women were screened for HPV infection, out of which 108 menopausal women patients with suspected or proved cervical malignancy were included in the study. Results obtained from the study are elucidated in below tables.

Table 1: Description of the study variables

Study Variable	Categories
Personal Data	Age at the time of screening, Age of marriage, Residence, Community
Menstrual history	Menarche
Labour history	Mode of delivery, Place of delivery
Obstetric History	Gravidity, Parity, Living, Abortion, Tubal ligation
Clinical history	Contraception, Medication, Past, Personal, Family
Symptoms	Post-menopausal bleeding, Hysterectomy, Vaginal discharge, Irregular menses, Foul smell, Burning micturition, Itching, Abdominal pain, White discharge
Visual inspection	Per speculum examination, Per vaginal examination
Diagnostic findings	Negative Intraepithelial Lesions Malignancy (NILM), High-Grade Squamous Intraepithelial Lesion (HSIL), Low-Grade Squamous Intraepithelial Lesion (LSIL), Cancer positive

Table 2: Personal Data of Patients

Personal Data	Age	Frequency (n=108)	Percentage (n=108)
Age at the time of screening	25-35	60	55.56
	36-45	11	10.19
	46-55	18	16.67
	56-65	11	10.19
	>66	8	7.41
Age of marriage	<18	7	6.48
	18	46	42.59
	>18	50	46.30
	not known	5	4.63
Place of residence	Rural	8	7.41
	Urban	100	92.59
Community	Hindu	94	87.04
	Muslim	14	12.96

Table 3: Menstrual history

Menstrual history	Age	Frequency (n=108)	Percentage
Menarche	12	1	0.93
	13	65	60.19
	14	14	12.96
	15	8	7.41
	16	4	3.70
	17	1	0.93
	not known	11	10.19

Table 4: Labour History

Labour History	Count	Frequency (n=104)	Percentage
Mode of delivery	FTLSCS	3	2.88
	FTCS	22	21.15
	FTND/FTCS	1	0.96
	FTVD	71	68.27
	FTVD/FTCS	2	1.92
	FTVD/FTLSCS	1	0.96
Place of delivery	Hospital	78	75.00
	Home	18	17.31
	not known	23	22.12

Table 5: Obstetric history

Obstetric History	Count	Frequency (n=104)	Percentage
Gravidity	<1	2	1.92
	1-4	81	77.88
	5-8	20	19.23
	8-12	1	0.96
Parity	<1	2	1.92
	1-4	89	85.58
	5-8	11	10.58
	not known	2	1.92
Living	1-4	88	81.48
	5-8	11	10.18
	not known	5	4.62
Abortion	0	77	71.29
	1-4	23	21.29
	5-8	1	0.9
	not known	7	6.48
Tubal ligation	Yes	14	13.46
	No	67	64.42
	not known	23	22.12

Table 6: Clinical history

Clinical history	Frequency	Percentage
Contraception (n=108)	**3**	**2.8**
Medication (n=107)	**15**	**14.0**
Past (n=108)	**4**	**3.7**
Personal (n=107)	**6**	**5.6**
Family (n=108)	**2**	**1.9**

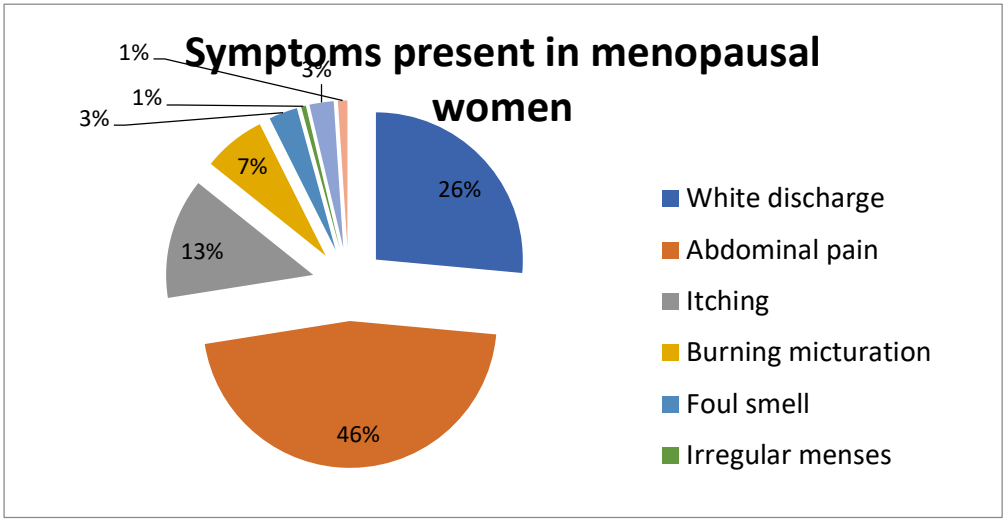

Figure 1: Symptoms Observed

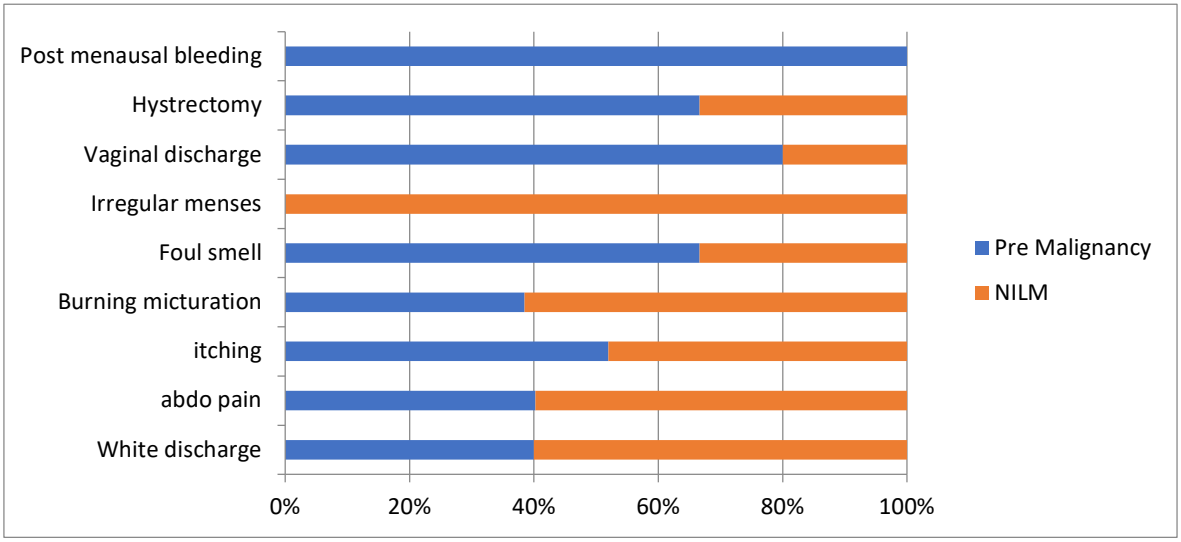

Figure 2: Symptoms v/s PAP results

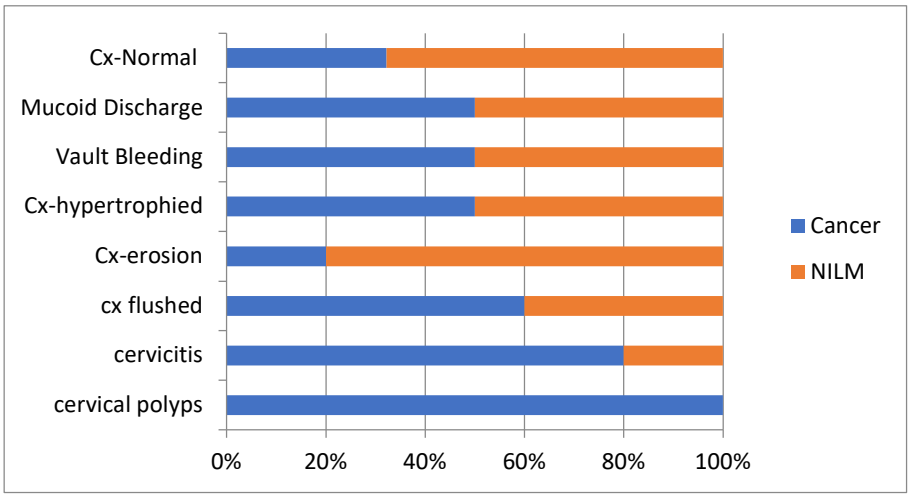

Figure 3: Pelvic per speculum observations

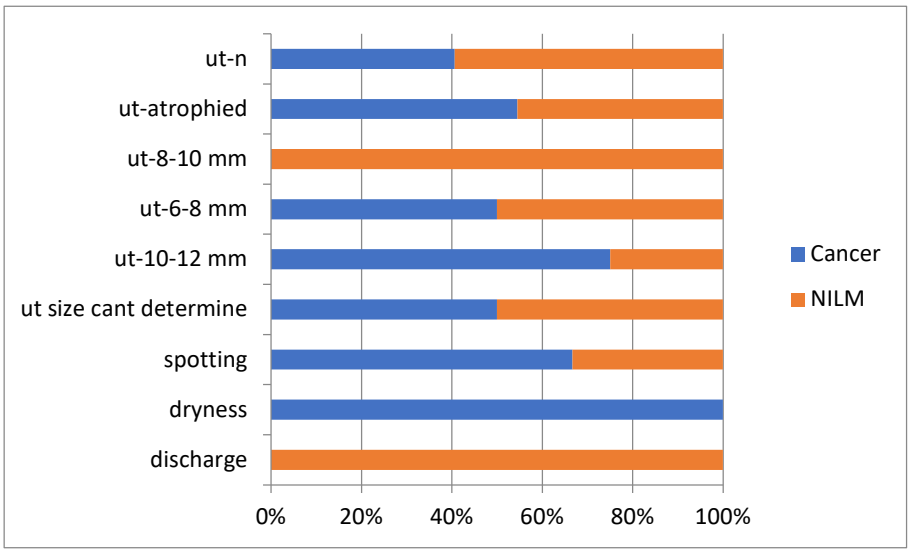

Figure 4: Showing Pelvic per vaginal observations

DISCUSSION

Personal data

Age: In this study, mean age of menopause was 52.2 years. we found that 56% of women were in the age of less than 35 years at the time of screening which seems uncommon in compare to other studies. Possible reason may be surgical menopause. Though women screened for cervical cancer belongs to this age group were 45% (n=498) and it may be due to their awareness and education. Women's perceived susceptibility to cervical cancer and their screening behavior may be affected by misconceptions associated with older age and menopause. The fact that most women undergo cervical screening as part of a medical checkup proves the effectiveness of organized screening programs in maximizing participation of the targeted

population. Additionally, if health professionals refer the patient, it may boost trust in the screening programs **[9]**. Mathew *et al* found that less than 1% women belongs to less than 35 years of age **[10]**. Neha EL *et al* found 36.5% cases of carcinoma cervix which belonged to the age group of 50 to 60, 42.3% cases belonged to age group of 60 to 70 **[11]**.

Personal history: 1. Age of marriage: In this study, mean age of marriage was 20.01 years. we found only 6.5% women having marriage at the age of less than 18 years. Jissa V Thu *et al* study found 35.1% women having marriage at the age of less than 18 years **[12]**. 2. Geographical entities: In this study, the mean between urban and rural entities was 54. We found 93% women from urban area as compared to rural place. Whereas Mathew *et al* found 59% women from rural and 49% from urban area **[10]**. 3. Community: Our study found 13% women form Muslim community whereas 87% were Hindu. Whereas Mathew *et al* found 10% women form Muslim community whereas 71% were Hindu and 18% were Christian and other community were less than 1% **[10]**.

Menstrual history: 1. Menarche: In this study, the mean for menarche was 13.5. We found 60.2% women having menarche at the age of 13 years followed by 13% at the age of 14 years. 2. Menopause: Our study found younger women which were aged less than 35 years. The incidence of early and premature menopause in women is concerning: 5% and 1%, respectively **[13]**. Larger numbers of women are at risk of cervical cancer due to early menopause **[14]**.

Labour history: 1. Mode of delivery: In this study we found that 68.3% deliveries were FTVD, whereas FTCS were 21.2%. 2. Place of delivery: In our study, 75% deliveries were done at hospital. Home delivery percentages were very low, i.e.,17.3%.

Obstetrics history: 1. Gravidity: In this study, we found 77.8% gravidity in range of 1-4. In Mekonen *et al* study they found 62.1% having less or equal to 2 **[15]**. 2. Parity: In this study, we found that 85.58% parity in range of 1-4. Whereas Mekonen *et al* found 71.2% in less or equal to 2 (15). 3. Abortion: In this study, we found 71.29% of patients with no abortion whereas Mekonen *et al* found 87.9% **[15]**.

Clinical history: 1. Contraception: In this study we found 2.8% women using contraceptive measures whereas a study by Sreejata Raychaudhuri and Sukanta Mandal shows 61.5% women were using contraceptive measures (16). 2. Medication: In this study, 14% of women were found on different medications, mostly due to diabetes and hypertension. Neha E. L. *et al* found that 5.7% taking medication related to diabetes and 13.4% were of hypertension (11). 3. Family history: In this study, we found 1.9% having family history whereas

Neha E. L. *et al* found 9.5% patients having family history of cancer **[11]**.

Complaint's history

Identifying the complaints of menopausal women can support the designing of training programs, increase awareness and ensure a good quality of life **[17]**. 1. Post-menopausal bleeding: In this study we found 1% postmenopausal bleeding whereas Mahadik *et al* found 4.69%. Few studies found 3.5% patients having complaints of post-menopausal bleeding were having cervical cancer **[18-20]**. 2. Vaginal discharge: We found 3% vaginal discharge in menopausal women whereas Radu *et al* found 11% **[21]**. 3. Irregular menses: in this study we found 1% women with irregular menses whereas Radu *et al* found 22% **[21]**. 4. Foul smell: In this study we found 3% women with foul smell whereas Kumari *et al* found 31.25% **[22]**. 5. Burning micturition: In this study we found 7% women with burning micturition which is quite similar to Mahadik *et al* i.e. 7.38% **[18]**. A Chi-square test was performed, and the result found was 1.96, and p-value was 0.06, which states that there is no significant correlation. 6. Itching: in this study we found 13% women having itching in perineal region whereas Mahadik *et al* found 2.01% **[18]**. A Chi-square test was performed, and the result found was 0.95, and the p-value was 0.32, which states that there is no significant correlation. 7. Abdominal pain: Women having complaint of abdominal pain in this study were 46% whereas in Mahadik *et al*, and Ko *et al* was 0.9% and 17.44% respectively **[18, 19]**. A Chi-square test was performed, and the result found was 1.96, and p-value was 0.16, which states that there is no significant correlation. 8. White discharge: in this study we found 26% women complaining about white discharge whereas Mahadik *et al* found 9.89% **[18]**. A Chi-square test was performed, and the result found was 0.46, and p-value was 0.49, which states that there is no significant correlation.

Examination findings

1. **Per speculum examination:** A. Cervix normal: in this study we found 9.3% women having normal cervix whereas Mahadik *et al* found 50.16% **[18]**. Mucoid discharge: in this study we found 11.1% women having mucoid discharge whereas Mahadik *et al* found 0.16% **[18]**. B. Vault bleeding: in this study we found 2.8% women having vault bleeding whereas Mahadik *et al* found 0.16% **[18]**. C. Cervix hypertrophied: in this study we found 4.6% women having Cervix hypertrophied whereas Mahadik *et al* found 1.67% **[18]**. D. Cervix erosion: in this study we found 0.9% women having cervix erosion whereas Mahadik *et al* found 3.35% **[18]**. E. Cervix flushed: in this study we found 5.6%

women having cervix flushed whereas Mahadik *et al* found 3.2% **[18]**.

2. **Per vaginal examination:** A. Something coming out from the vagina: In this study, we didn't find any such case, but Mahadik *et al*. found 21.64% with such observation **[18]**. B. Spotting: in this study we found 1.9% women having spotting whereas Mahadik *et al* found 0.33% **[18]**. C. Discharge: In this study we didn't found any such case but Mahadik *et al*. found that 9.89% of women had discharge **[18]**. D. Dryness: in this study we found 0.9% of women observed dryness whereas Mahadik *et al*. found 0.16% **[18]**.

CONCLUSION

Burning micturition, itching, white discharge, and abdominal pain were the most common symptoms among menopausal women. In the Pelvic per speculum, Mucoid discharge and in the Pelvic per vaginal uterus, atrophied was the most common complaint. It was observed that there was no significant difference between symptoms of menopause and pre-cancerous condition. Thus, we found menopause is a high-risk factor for HPV infection, and its symptoms must be evaluated precisely. Misconceptualized behaviour of menopausal women also affects the cancer screening program and early diagnosis. It is suggested that menopausal women should screen themselves at least annually.

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CONFLICTS OF INTEREST

There is no conflict of interest.

AUTHOR'S CONTRIBUTION

Riya Mashru: Proposal preparation, Data collection and analysis, Report writing; Dhaval Parmar: Proposal preparation, Data collection and analysis, Report writing; Debasis Banerjee: Proposal preparation, Report validation; Vijay Popat: Proposal validation, Data collection.

INFORMED CONSENT

Informed consent was taken from all the enrolled patients.

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