ORIGINAL ARTICLE

Correlation between Colposcopy, Cytology and Histopathology in High-risk Patients for Cervical Cancer in Perimenopausal Women in Himachal Pradesh, India

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ABSTRACT

Objectives: To determine the correlation between cytology, colposcopy and histopathology, individually and in combination, in high-risk patients for detection of early cancer of the cervix.

Materials and methods: A total of 200 high-risk patients in the age groups of 35 to 60 years were included in the study. Pap smear, colposcopy and colposcopically directed biopsies were taken from the suspicious area.

Results: Sensitivity, specificity and positive predictive value of Pap smear are 65.2, 96.3 and 89.3% respectively. Correlation between cytology and colposcopy was 81%, between colposcopy and histopathology was 90.6%, between cytology, colposcopy and histopathology was 90.6% and between cytology, colposcopy and histopathology was 87.3%.

Conclusion: Combination of various methods increases the diagnostic accuracy over that of each method separately.

Keywords: Cervical intraepithelial neoplasia, Low grade squamous intraepithelial lesion, High grade squamous intraepithelial lesion, Carcinoma *in situ*.

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INTRODUCTION

Cervical cancer is the most common cancer among women in India. It comprises 12% of all cancers in women.[1] It is the most common cancer in women worldwide. In the developing countries, 60 to 80% of the cases are seen in advanced stages II and III. However, cervical intraepithelial neoplasia (CIN) occurs at a much lower age and one-third of the cases are observed below 30 years.[2] Downstaging is visual inspection of cervix with speculum. The gold standard for diagnosis of cervical cancer and its premalignant lesions is Papanicolaou test sensitivity of Pap test in 51% which increases to 86.8% after three tests.[3] The major advantage of colposcopy is to outline the most suspicious lesion on the cervix for histopathological diagnosis by directed biopsies. The colposcopic prediction of histopathology was clinically accurate in 85% of cases.[4] Keeping in view the topographical conditions and high incidence of cervical cancer in Himachal Pradesh (HP), the present study was an attempt to evaluate the high-risk patients by combination of various methods.

MATERIALS AND METHODS

The study was conducted in Kamla Nehru Hospital, Department of OBG, IGMC, Shimla, on 200 high-risk patients in the age group of 25 to 60 years, World Economic Forum (WEF), May 2008 to April 2009.

The inclusion criteria were as follows:

- Foul-smelling vaginal discharge
- Chronic vaginal discharge
- Intermenstrual and postcoital bleeding
- Multiple sexual partners
- Early age of marriage
- Smoking
- Unhealthy cervix.

Exclusion criteria were as follows:

- Frank growth of cervix
- Actively bleeding cervix
- Acute infection of cervix
- Known or treated cases of cervical cancer.

Pap smear, colposcopy and colposcopically directed biopsy were taken from suspicious areas. Correlation was made between different methods.

OBSERVATIONS

Out of 200 patients 69 (34.5%) were in 31 to 35 years age group and out of 59 preinvasive cervical cancer 24 (12%) were in 31 to 35 years age group. Most of the patients with preinvasive and invasive cervical cancer were uneducated or educated up to primary and belonged to poor socioeconomic strata. Around 26 (13%) patients with discharge per vaginum, 16 (8%) with foul-smelling discharge, 15 (7.5%) with postcoital bleeding and 2 (1%) with postmenopausal bleeding were diagnosed to have preinvasive cervical cancer (Table 1). Preinvasive and invasive lesions were common in higher parity group. Out of 23 (11.5%) smokers, 15 (7.5%) had preinvasive and 3 (1.5%) had invasive cancer. Both active and passive smoking has been observed to have more correlation. In Pap smear, 23 (11.5%) had LSIL, 19 (9.5%) High grade squamous intraepithelial lesion (HSIL), four (2%) had carcinoma *in situ* (CIS) and one (0.5%) had invasive carcinoma (Table 2). Colposcopically, 130 (65%) had abnormal colposcopic findings (Table 3). Colposcopic

Table 1: Presenting complaints

Sr. no.	Complaints	No. of pts.	Percentage	Preinvasive	Percentage	Invasive cancer	Percentage
1	Discharge P/V	127	63.5	26	13	0	0
2	Foul-smelling DPV	30	15	16	8	1	0.5
3	Postcoital bleeding	22	11	15	7.5	3	1.5
4	Postmenopausal bleeding	10	5	2	1	1	0.5
5	Excessive menses	4	2	0	0	0	0
6	Pain abdomen	3	1.5	0	0	0	0
7	Scanty menses	2	1	0	0	0	0
8	Irregular BPV	1	0.5	0	0	0	0
9	Backache	1	0.5	0	0	0	0
	Total	200	100	59	29.5	5	2.5

BPV: Bleeding pervaginum; DPV: Discharge per vaginum; Pts: Patients; P/V: Per vaginum

Table 2: Pap smear diagnosis

Sr. no.	Pap smear diagnosis	Number	Percentage	Preinvasive	Percentage	Invasive cancer	Percentage
1	Normal	12	6	0	0	0	0
2	Unsatisfactory	9	4.5	0	0	0	0
3	Inflammatory	131	65.5	17	8.5	0	0
4	LSIL	23	11.5	23	11.5	0	0
5	HSIL	19	9.5	18	9	1	0.5
6	CIS	4	2	1	0.5	3	1.5
7	Invasive carcinoma	1	0.5	0	0	1	0.5
8	Atrophic	1	0.5	0	0	0	0
	Total	200	100	59	29.5	5	2.5

CIS: Carcinoma *in situ*; HSIL: High grade squamous intraepithelial lesion; LSIL: Low grade squamous intraepithelial lesion

Table 3: Colposcopic diagnosis

Sr. no.	Attribute		No. of pts	Percentage	Preinvasive	Percentage	Invasive cancer	Percentage
1	Suspected CIN or more	Total	58	29	53	26.5	5	2.5
		LSIL	30	15	30	15	0	0
		HSIL	15	7.5	15	7.5	0	0
		CIS	10	5	8	4	2	1
		Invasive carcinoma	3	1.5	0	0	3	1.5
2	Nonsuspected CIN	Total	94	47	6	3	0	0
		Chronic cervicitis	92	46	6	3	0	0
		Endocervicitis	2	1	0	0	0	0
3	Normal findings	Total	48	24	—	—	—	—
	Total		200	100	59	29.5	5	2.5

CIN: Cervical intraepithelial neoplasia; CIS: Carcinoma *in situ*; HSIL:High grade squamous intraepithelial lesion; LSIL: Low grade squamous intraepithelial lesion; Pts: Patients

Table 4: Histopathological Diagnosis

Sr. no.	Histopathology report	Number	Percentage
1	Normal	33	16.5
2	Chronic cervicitis	100	50
3	LSIL	31	15.5
4	HSIL	16	8
5	CIS	12	6
6	Invasive carcinoma	5	2.5
7	Endocervicitis	3	1.5
	Total	200	100

CIS: Carcinoma *in situ*; HSIL: High grade squamous intraepithelial lesion; LSIL: Low grade squamous intraepithelial lesion

diagnosis was low grade squamous intraepithelial lesion (LSIL) in 30 (15%), HSIL in 15 (7.5%), CIS in 10 (5%) and invasive carcinoma in 3 (1.5%) (Table 4). On histopathology, 33 (16.5%) were normal and rest had abnormal findings.

DISCUSSION

Cervical cancer is a disease that can be controlled to a great extent by effective screening, thereby exerting morbidity and mortality. Cytology evaluates morphological changes

Table 5: Correlation between cytology, colposcopy and histopathology

Combination	*Correlation (%)*
Cytology-colposcopy	81
Cytology-histopathology	89.3
Colposcopy-histopathology	90.62

in exfoliated cells, while colposcopic evaluation changes in vascular pattern of the cervix.[5,6] Alteration in vascular network reflects biochemical and metabolic changes in cervical tissues.[7] Pap smear is a very important screening test. It has sensitivity, specificity and positive predictive value of 65.62, 93.6 and 84.8% respectively which is comparable to Harold et al (1976), Hans Jurgon et al (1991), Bruce A Jones et al (1996) and Blumenthal et al (2001).[8,9] Diagnostic accuracy of colposcopy is 89.65%, while the different studies by Scott, Barton, Iyer and Bandi found it in the range of 80 to 90%.[10] Around 59 (29.5%) patients diagnosed as preinvasive cervical cancer colposcopic diagnosis was LSIL in 30 (15%), HSIL in 15 (7.5%) and CIS in eight (1%) cases.[11] The correlation between cytology, colposcopy and histopathology is 87.3% (Table 5), while Usha Saraiya (1980) found is 89% and Wills Shiella (1991) found it 95%.[12]

In India and other developing countries, social, educational and medical resources lag behind. There is problem in cervical cancer screening due to lack of human and economic resources. Other social and cultural factors and less priority for women's health issues are the reasons for high incidence of cervical cancer. Screening of high-risk women with different modalities will help in picking up the early cases and will improve the morbidity and mortality due to cervical cancer.

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