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Use of Schiller's Test of the Cervix to Increase the Detection rate of Cervical Dysplasias.

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Summary

The objective of the study was to determine whether Lugol's iodine application to the cervix can increase the detection rate of cervical dysplasias.

The study included 456 patients attending the OPD of UISE Maternity Hospital, Kanpur with various gynecological symptoms. After a detailed history regarding symptoms, sexual behaviour and contraceptive use a Pap smear was taken. Eighty five patients were found to have a negative Pap smear and were included in the study. In this group Lugol's iodine was applied to the cervix, when they were recalled after one week. Mahagony brown colour was taken to be a negative Schillers test whereas partial uptake or no uptake was regarded as a positive Schillers test. In all Schiller's positive cases colposcopy and directed biopsies were taken if indicated.

We reviewed the records of 85 women referred for colposcopy with a negative Pap smear and positive Schillers test. Of these 50 had suspicious lesions on colposcopy and were biopsied while 35 had normal colposcopic examination. (Table I) Histological examination of the biopsy specimen revealed cervicitis in 17%, koilocytosis in 25% and dysplasia in 14%. However high false positive rate of 40% with Schillers test resulted in many unnecessary colposcopy referrals.

Given the observed false negative rate of Pap smear of 20-40%, detection of additional 14% cases of dysplasia might be expected, improving the detection rate.

Introduction

Cervical cancer is the most common malignancy of the female genital tract. It has been proven beyond doubt that carcinoma of cervix is preceeded for many years by precursors now called intraepithelial neoplasia but previously known as dysplasias. These precursor lesions are amenable to cure if diagnosed early and if treated adequately will lead to a decrease in the incidence of cancer cervix. Also screening methods can help detect invasive carcinoma at an early stage when it can be successfully treated.

Papanicolaou test screening of cervix is one well established screening method. Usually those patients with abnormal Pap smear are referred for colposcopic evaluation, at which time 3% acetic acid and Schiller Iodine are applied to cervix before examining the cervix at various magnifications. Pap smears are easy to perform, can be done by paramedical staff as well in the rural areas. The test is estimated to have a low false positive rate (less than 5%), but the false negative rates may range from 20-40%. This high false negative rate will result in many cases of dysplasia or cancers being missed. To reduce this high false negative rates and thereby increase the detection rates of cervical dysplasia, various methods are being tried. Naked eye examination of cervix after topical Lugol's iodine application is one such test. The mature squamous epithelium of the ectocervix contains glycogen so on application of Lugol's iodine it takes up a deep mahogany brown colour. This is known as Schillers negative test. Various cervical

lesions that interfere with normal maturation of the epithelium result in the absence of iodine uptake. Hence iodine negative areas. This is known as Schiller's positive test. However it is rather nonspecific and inflammation, intraepithelial neoplasia and invasive cancer all may be Schillers positive.

However, Schiller's test, though nonspecific, may be useful in the rural set up where pathological services are inadequate and can be used as a screening method.

To determine whether Lugol's iodine application to the cervix can increase the detection rates of cervical dysplasia, we reviewed the findings in patients referred to colposcopy clinic for evaluation of Schiller's positive areas in the presence of normal Pap smear.

Material and Methods

The study included 456 patients attending the OPD of UISE Maternity hospital, Kanpur with various gynecological symptoms. After a detailed history regarding symptoms, sexual behaviour and contraceptive use a Pap smear was taken. Eighty five patients were found to have a negative Pap smear and were included in the study. In these patients Lugol's iodine was applied to the cervix when they were recalled after one week. Mahogany brown colour was taken to be a negative Schiller's test while partial uptake or no uptake was regarded as a positive Schiller's test. In all Schiller's positive cases colposcopy was done and directed biopsies taken if indicated. Vaginal cytological study was done at the department of Pathology G.S.V.M. Medical College Kanpur.

Observation and Discussion

Table I
Colposcopic Examination of Schiller's Positive case n=85

Normal	Suspicious
35	50

We reviewed the records of 85 women referred for colposcopy with negative Pap smear but positive Schillers test. The ages ranged from 16 to 35 years with a mean age of 22 years. All patients were sexually active.

Of these 85 women, 50 had suspicious lesions with colposcopy and were subjected to biopsy. Whereas 35 had normal colposcopy findings. The histological examination of biopsy specimen revealed cervitis in 15/85 (17.64%), koilocytosis with evidence of HPV infection in 22/85 (25.8%) and dysplasia in 12/85 (14%) cases. (Table II).

Table II
HPE Examination of the Biopsy taken in Patients with a Positive on Schiller's Test and Suspicious Colposcopy

(n=50)	n	%
Cervicitis	15	17%
Koilocytosis	22	25%
Mild Dysplasia	8	
Moderate dysplasia	4	> 14%
Severe dysplasia	-	

Thus Schiller's test detected 12/85 i.e. 14% additional cases of cervical dysplasias which were not detected by Pap smear. Given the observed false negative rate of Pap smear of 20-40% detection of dysplasias by colposcopic examination in an additional 14% might be expected. However, the Schiller's test carries a high false positive rate 35/85 (41%) resulting in many unnecessary colposcopy referrals. Using colposcopic examination as a definitive evaluation of cervical lesions, we concluded that many lesions interpreted as suspicious at the initial screening were normal physiological changes. Most often ectopy or erosion was diagnosed as cervical dysplasia. This change occurs in women taking oral contraceptives and during pregnancy.

In this condition columnar epithelium is present on the ectocervix and does not take up the stain as it lacks glycogen.

An important point to note is that naked eye examination of the cervix detects iodine negative areas in over 95% cases in which the same were observed on colposcopy missing out only small lesions. No such study has yet been published. However larger studies are needed to further confirm the results.

Conclusion

In the rural set up with inadequate health facilities and limited screening opportunities Schillers test of the cervix can be used as a screening method for cervical dysplasia albeit with a higher viz 40% false positive rates. Also it can help detect up to 15% additional cases of cervical dysplasia which have been missed by the routine Pap smear. Thus Schiller's test together with Pap smear may result in increased detection rate for cervical neoplasm in screening programs.