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COMPARATIVE STUDY BETWEEN SWEDE SCORE AND PAP SMEAR IN PREDICTION OF PREMALIGNANT LESION OF CERVIX

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ABSTRACT **Introduction:** Cervical Cancer is an important public health problem in India. Cervical cancer can be prevented by early detection using various screening procedures **Objective:** The study was conducted to compare the diagnostic efficacy between pap smear and Swede score in prediction of premalignant lesion of the cervix. **Method:** This prospective observational study was carried out in the Dept. of Gynaecology & Obstetrics at Medical College Hospital (MCH), Kolkata within 12 month period . Approximately 206 women between 20-65 years of age at OPD with specific complaints were studied. The cases were studied by pap smear followed by colposcopy and directed biopsy. Then histopathology was compared with both colposcopic Swede score and pap smear. Sensitivity, specificity and predictive values were calculated to measure the accuracy and validity of the test.**Result** Swede Score on colposcopy for detection of high-Grade lesion (CIN2/CIN2+) had a sensitivity 85%, specificity 98.92%, Positive predictive value 89.47%, Negative predictive value 98.40% and like hood ratio79.05 (very high/very good test efficiency). In all cases P value was <0.0001 i.e. for both pap smear and Swede score were extremely significant .But like hood ratio and diagnostic accuracy of the test were highest for Swede score for the detection of high grade CIN.**CONCLUSION** Swede score via colposcopy is very cost effective than cytological screening programme. Swede score with its cut-off value can be useful in treating patients at first visit without histological confirmation.

KEYWORDS : Cervical screening, Cervical intraepithelial neoplasia (CIN), Colposcopy, Swede score

Introduction –

Cervical Cancer is an important public health problem in the developing country like India. It is the 4th leading cause of female cancer in the world, second leading cause of female cancer in India and the 2nd most common female cancer in the women aged between 15 to 44 years in the world1. Cervical Cancer has a long precancerous phase and therefore can be prevented by early detection using various screening procedures like Pap smear, Visual Inspection with Acetic Acid (VIA), Visual Inspection with Lugol's Iodine (VI LI) and HPV DNA Testing. Reid's Colposcopic Index (RCI) is currently the most accepted scoring system. The sensitivity of RCI with threshold for any lesion detected was 89%, but fell to 56% in case of high-grade lesion. The specificity for low grade lesion was lower at 57.5% which increased to 92.9% for high grade lesion2. Recognizing the correlation of size of the lesion with like hood of harboring high grade disease, a new scoring system, the Swede's score, has been revised by Srander et al in 20053. In the initial study the specificity was reported to be as high as 95% in detecting the cervical intraepithelial neoplasia (CIN)2+ lesions[2].

Objectives– The study will be conducted -1) To compare the histopathological findings with pap smear and Swede score on colposcopy

2) To evaluate/ compare the diagnostic efficacy between pap smear and Swede score in the prediction of the premalignant lesion of the cervix especially high-grade lesions like CIN2/CIN2+.

Method

This prospective observational study was carried out in Medical College Hospital, Kolkata within 12 month (1.01.21 to 31.12.21) period . Approximately 206 women aged 20-65 years attending at GOPD with complains of intermenstrual bleeding, postcoital bleeding, excessive discharge per vagina, suspicious cervix on naked eye examination and abnormal pap smear were studied. Exclusion criteria were as follows: diagnosed and treated cases of carcinoma cervix, obvious growth of cervix on per speculum examination, post total hysterectomy patients, pregnant women, menstruating women, untreated vaginal infection, chronic debilitating diseases, HIV and hepatitis B infection and unsatisfactory colposcopy. The study protocol was approved by Institute Ethics Committee , Medical College Kolkata (MCH) . After an informed and written consent, all subjects were included in the study. A detailed history was taken and complete general, physical and pelvic examination were done. Pap smear was done after a 2weeks course of appropriate antibiotics at GOPD. Colposcopy and biopsy were done at minor OT after informed and written consent. First a per speculum examination of the cervix was done to look for any obvious findings including abnormal discharge per speculum .At first , excess mucus was gently removed from the cervix with saline soaked cotton swabs.3% of glacial acetic acid was gently applied over the cervix using a cotton swab for 2 minutes. After 45 seconds the epithelial changes were noted and recorded. Four colposcopic variables: acetowhiteness, margins plus surface, vessel pattern and size of the lesions were analyzed. Lugol's iodine was applied and the iodine uptake was noted and scored using Swede's score. Colposcopy directed punch biopsies were obtained from abnormal areas. If the colposcopy was normal then the biopsies was taken from the cervix within the transformation zone. Biopsy samples were sent for histopathological examination in 10% formalin. The Swede score has a total score of 0-10. A score of >= 5 was used to indicate all high grade lesions. Histology was compared with colposcopic Swede score by using SPSS version. Chi square test was used to test the statistical significance between the variables. A p value less than .05 was considered statistically significant. Sensitivity, specificity , predictive values, likehood ratio, diagnostic accuracy were calculated to measure the accuracy and validity of the test.

RESULT

A total 206 women were included in our study within 12 months' period. The demographic profile of the patients is shown in Table 1. The mean age was 31.78+/-2.2 yrs.

Table-1. Demographic Profile

Age of patients in Group (years)	Years	Number of patients	% of total
	20-30	41	19.9%
	31-40	124	60.19%
	41-50	36	17.47%
	51-60	5	2.42%

Age At Marriage	Years	Number	Percentage
	16-20	95	46.17%
	21-25	65	31.55%
	26-30	46	22.33%
Parity	Number of children	Number of patient	Percentage
	1	0	0%
	2	10	4.85%
	3	84	40.77%
	4	90	43.68%
	>4	22	10.54%
Duration of marriage	Duration group (years)	Number of patients	Percentage
	1-5	1	.48%
	6-10	25	12.13%
	11-15	24	11.65%
	16-20	56	27.18%
	>= 20	100	48.54%

The majority of women were between 31-40 years and the minimum age among the patients was 20 years. About 77.72% had their marriage by 25 years of age. Among the patients 48.54% had >= 20 years' duration of marriage. Most women were with para 4 (43.68%) followed by para3 (40.77%).

Indications of Colposcopy (SWEDE SCORING) were discharge per vagina (32.04%), unhealthy cervix (19.42%), abnormal pap smear (41.26%), postcoital bleeding (2.91%) and intermenstrual bleeding (4.37%).

Table-2. Distribution Table Relating PAP smear (Bethesda System) with BIOPSY findings

PAP smear		BIOPSY confirmation of PAP smear report			
Pap Smear Findings	Total	Chronic Cervicitis	CIN1	CIN2	CIN3
NILM including inflammation	78 (37.86%)	76 (36.89%)	2 (.09%)	0	0
ASCUS	43 (20.87%)	38 (18.45%)	4 (1.94%)	1 (0.49%)	0
LSIL	44 (21.36%)	14 (6.79%)	26 (12.62%)	3 (1.45%)	1 (0.49%)
HSIL	41(19.90%)	6 (2.91%)	20 (9.71%)	4 (1.94%)	11 (5.34%)
Total	206(100%)	134 (65.05%)	52 (25.24%)	8 (3.88%)	12 (5.83%)

There are 128(62.14%) cases having precancerous conditions. Among this, 58 cases were benign and 50 cases having CIN1,8 cases having CIN 2 and 12 patients having CIN3. Remaining 78 patients had normal PAP smear findings , among which 76 had benign lesions and only 2 cases were with CIN1. Pap smear for detection of all premalignant lesions had a sensitivity 97.22%, specificity 56.72 %, Positive predictive value 54.69%, Negative predictive value 97.44% and Likehood ratio 2.246. Whereas pap smear for detection of High Grade Lesion (CIN2/CIN2+) had a sensitivity 75%, specificity 86.02%, Positive predictive value 36.59%, Negative predictive value 96.97% and likehood ratio 5.365. In either of the cases P value was < 0.0001 indicate that pap smear for detection of CIN specifically for high grade CIN is extremely significant. But likehood ratio suggest that pap smear screening procedure is more efficient diagnostic procedure for detection of CIN2/CIN2+ i.e. high grade lesions (Likehood ratio 5.365) rather than all types of premailgnant lesions of cervix including ASCUS (Likehood Ratio 2.246).

Table-3. Distribution table relating COLPOSCOPIC findings with BIOPSY

COLPOSCOPY	BIOPSY confirmation of COLPOSCOPIC findings				
FINDINGS	TOTAL	CHRONIC ERVICITIS	CIN 1	CIN2	CIN3
BENIGN	126(61.5%)	115(56%)	11(5.5%)	0()	0()
LGL	61(29.61%)	17(8%)	41(20%)	3(1.5 %)	0()
HGL	19(9.22%)	2(.5%)	0()	5(2.5 %)	12(5.83 %))
TOTAL	206(100%)	134 (65.05%)	52(25.24 %)	8(3.88 %)	12(5.83 %)

SWEDE SCORE: < 5 – normal/ benign
5-7- LGL (CIN1)
>=8 – HGL (CIN2/CIN2+)

There were 126 (61.5%) benign cases on colposcopy but on biopsy 115 cases with chronic cervicitis and 11 cases with CIN1.Colposcopy revealed LGL was 61 (29.61%), but among these 17 cases with chronic cervicitis, 41 cases with CIN1 and 3 cases with CIN2. Among 19 cases (9.22%) were with HGL on colposcopy; containing 2 cases with chronic cervicitis, 5 cases with CIN2 and 12 cases with CIN3 proved on biopsy. Swede Score on colposcopy for detection of all premalignant lesions had a sensitivity 90.28%, specificity 88.81% %, Positive predictive value 81.25%, Negative predictive value 94.44% and Like hood ratio 8.065(high/good test efficiency). Whereas Swede Score on colposcopy for detection of High Grade Lesion (CIN2/CIN2+) had a sensitivity 85%, specificity 98.92%, Positive predictive value 89.47%, Negative predictive value 98.40% and like hood ratio79.05 (very high/very good test efficiency). In all cases P value was <0.0001 i.e. both pap smear and Swede score were extremely significant for detection of all types of CIN as well as high grade CIN. But like hood ratio and diagnostic accuracy of the test were highest for Swede score for the detection of high grade CIN.

DISCUSSION

In our study , majority (60.19%) of patients were in the age group 31-40 years exactly matched with the study done by Kushwah S [2]; here majority (56.25%) of patients were in the age group 30-39 years with main indication of colposcopy being abnormal pap smear. We had done colposcopy also mainly for abnormal pap smear. In all previous studies of Swede score, the cut off point for any excision for Swede score was 8 or more. The study done by Strander [3] proved that the specificity for a total score of 8 or higher was 90% and no lesion of CIN>=2 found with Swede score <5. So in our study the following categorization has been done : Swede score<5 – normal/benign lesion, 5-7 indicates LGL (CIN1) and>=8 indicates HGL (CIN2/CIN2+). Bowring et al found that a score>= 8 had a specificity 95% for CIN2/CIN2+ with a sensitivity 38%, whereas lowering the cut off for CIN2/CIN2+ with a sensitivity at the expense of specificity (sensitivity =65%, specificity =82%). In the study done by Kushwah S [2], the specificity for Swede score of >= 8 was 100% and sensitivity was 36.84% for CIIN2+ lesions, which was better than the result reported by Bowring et al. Our study showed a specificity 98.92% and sensitivity 85% with a cut off score >= 8 for detecting high grade lesion, which is better than Bowring et al and Kushwah S Study. Our study had a similarity with Velpula study [4]in respect to demographic variables. . In Velpula et al[4] study sensitivity and specificity of colposcopy is of 100%, 90.35% respectively , positive predictive value 75% and negative predictive value 100% and is comparable to study done by Agarwal et al[6] in which Colposcopy had sensitivity (93.3%), specificity (70%), PPV (75.7 %) for detecting CIN- our study also gives similar results. The result of Velpula study is comparable to that of study done by Ramesh et al[5] and Padmini et al[7] . So our study had produced similar result as done by Velpula, Agarwal, Ramesh and Padmini et al[4,5,6,7]. The study done by Simridhi [8] is a prospective study to evaluate use of colposcopic scoring system in special preference of avoiding or reducing the need for cervical diagnostic biopsy. Here Swede score of 5 had positive predictive value (PPV) 42.7%, negative predictive value (NPV) 90.2% sensitivity 72.9% , a specificity around 71.9% which has been increased when cut off >=8. Tests with higher sensitivity is better for a screening test whereas tests with higher specificity is appropriate for diagnostic test. Penumalli S et al[1] study ; for CIN1 sesitivity, specificity, PPV and NPV were 89.47%, 86.81%, 78.16%, 93.98% respectively ; whereas our study showed sensitivity 90.28%,specificity 88.82%, PPV 81.25%, NPV 94.44%. For >=CIN2 ,the Study done by Penumalli S[1] had a sensitivity 91.67%, specificity 99.49%,PPV 95.65%, NPV 98.98% , whereas our study showed sensitivity 85%, specificity 98.92%, PPV 89.47%and NPV 98.4%; these two studies were more or less similar in respect of results. In

either of the studies comparatively lower positive predictive values mean that all such lesions should be confirmed by diagnostic tests. The predictive value of colposcopy is better with high grade neoplasia and it implies that colposcopy performs better in the high grade lesions .The degree of correlation of colposcopy with histopathology was excellent for (High grade lesion) HGL as compared to (Low grade lesion) LGL.

CONCLUSION

Swede score is too simple to be used by any grade of colposcopist. Considering , its high sensitivity and specificity it can be used as a good screening test in cervical cancers especially in detecting high grade CIN like CIN2/CIN2+. Swede score via colposcopy is very cost effective than cytological screening programme which needs multiple visits and therefore effectively decreases the number of missing cases. Swede score with its cut-off value can be useful in treating patients at first visit without histological confirmation, which can be as follows : score< 5 – biopsy can be avoided; score 5to 7 - may be put up for biopsy for likehoodness of low grade lesions ; >= 8- directly opted for excision procedure having both diagnostic as well as therapeutic purpose for management of cervical precancerous lesions.

REFERENCES

1. Sudha Penumalli , Valsa Diana G,T.B Kasthuri. Evolution of Colposcopy Using Swede's Score in Screening of Cervical Cancer,Journal of Evolution of Medical and Dental Sciences-Dec,2017, Vol:6, Issue:94,Page: 6868-6873
2. Kushwah S, Kushwah B, Correlation of two colposcopic indices for predicting premalignant lesion of cervix, J Mid- life Health 2017;8 : 118-23
3. Strander B ,Ellstorm-Andersson A,Franzen S ,Milsom I, Radberg T. The Performance of a new scoring system for colposcopy in detecting high grade Dysplasia In The Uterine Cervix ; Acta Obstet Gynecol Scand 2005; 84: 1013-7.
4. Comparison of colposcopic findings with acetic acid with histology of colposcopic directed biopsy of premalignant lesions of cervix, A.P Dr. Srilakshmi Velpula and Dr. Mounika Yerrapragada ; International Journal of Clinical Obstetrics and Gynaecology 2020; 4(1): 325-32
5. Ramesh G, Sudha R, Jayashree A.K, Padmini J. Colposcopic Evaluation of the Unhealthy Cervix. Journal of Clinical and Diagnostic Research. 2012; 6(6):1026-1028.
6. Agrawal A et al. Role of cytology, colposcopy and colposcopic directed biopsy in the evaluation of unhealthy cervix. Int J Reprod Contracept Obstet Gynecol. 2016; 5:3765-9.
7. Padmini CP, Indira N, Chaitra R, Priyanka Das, Girish BC, Nanda Gopal KM, et al. Cytological and Colposcopic Evaluation of Unhealthy Cervix. Journal of Evidence based Medicine and Healthcare. 2015; 2(40):6783-6790, DOI: 10.18410/jebmh/2015/925.
8. Simridhi Bindroo , Monika Garg , Gitika ; Correlation of Cervical Pap Smear with Histopathological Diagnosis in Cervical Lesions: A 2 Years Retrospective Study , International Journal of Contemporary Medical Research ISSN (Online): 2393-915X; (Print): 2454-7379 | ICV: 98.46 | Volume 6 | Issue 7 | July 2019
9. Pimple SA, Amin G, Goswami S, Shastri SS ; Evaluation of colposcopy vs cytology as secondary test to triage women found positive on visual inspection test; Indian Journal Of Cancer/July- September-2010/Volume 47 /Issue 3
10. Nessa A, Wistrand C,Begum SA et al. Evaluation of stationary colposcope and the gynocular, by the Swede score systematic colposcopic system in VIA positive women: a crossover randomized trial. Int J Gynecol Cancer 2014;24 92): 339-45.