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A Comparative Diagnostic Validity of Two Colposcopic Indices-Reids Index and Swede Score with Cervical Histology

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Abstract

Introduction: The cervical cancer is the third most common Cancer worldwide and the second most common in India. Since it has a long lag time from preinvasive stage to invasive stage, it is the duty to prevent by proper screening and treatment at the right time.

Aim of the Study

1. To do histopathological analysis of colposcopically directed biopsies.
2. To compare and correlate Colposcopy and cytology with histopathology.
3. To critically evaluate the sensitivity and specificity of Colposcopy indices REIDS vs SWEDE score in the early detection of high-grade lesions in cervix.
4. To perform direct excisional procedure as "see and treat" method at a specified cut off of the score which denotes high grade lesions.
5. To reduce the number of visits and follow ups for better compliance.

Materials and Methods: All patients with age group 20 to 59 years with abnormal screening test are selected for the study with the sample size of 167. Relevant information, detailed history regarding past history regarding past history, marital history, obstetric history are recorded using preformed proforma. Oral and written consent are obtained. Colposcopy will be done for the patients of study and the visualization of cervix was done under magnification and findings were noted. The margins of the atypical cervical epithelium were graded accordingly and scores will be allotted as per both REIDS index and SWEDE score. Colposcopy directed biopsy from abnormal areas were taken. Patient will be explained about nature of study and informed consent is obtained. The results will be scored by statistical methods.

Conclusion: Based on the study, it was concluded that both scores-REIDS COLPOSCOPIC INDEX and SWEDE SCORE performed well in this hospital based study on a selected population referred to colposcopic clinic. From the present study, it is evident that SWEDE score of 8 or more has good specificity when compared to the REIDS COLPOSCOPIC INDEX and can be used for performing direct excisional procedure as a "see and treat" method at this cutoff. Hence LESION SIZE parameter included in SWEDE SCORE act as a good predictor of high-grade lesions.

This may be the preferred method for the management of high grade CIN because it reduces the number of visits and failure to receive treatment.

The main strength of the study is that biopsies were taken for all subjects irrespective of the presence or absence of lesion in colposcopy, eliminating the verification bias.

Keywords: Colposcopy, Cervicitis, CIN, Carcinoma Cervix, High Grade Lesion, Low Grade Lesion

Introduction

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Inclusion Criteria

1. All patients of age group 30-59 who are screening positive VIA/VILI positive /Pap smear positive.
2. Persistent inflammatory smears.
3. Unhealthy looking cervix.
4. Postcoital bleeding.

Exclusion Criteria

1. Obvious growth
2. Previous procedure on cervix
3. Pregnant women
4. Severe debilitating disease.

Results and Analysis

Table 1: Age Distribution among Study Groups:

Age Distribution	Frequency	Percent
20-30 Years	13	7.7
31-40 Years	45	26.9
41-50 Years	59	35.3
51-60 Years	50	29.9
Total	167	100

Among the 167 women, 7.7% (13/167) were between 20-30years. 45 women were between 31-40years. 35% (59/167) belonged to the age group of 41-50years. 29% women belonged to 51-60years.As age increases, incidence of CIN also increases. The incidence of CIN is higher among the age group of 41-60 in our study.

Table 2: Mean Age of the Study Group

	N	Minimum	Maximum	Mean	SD
AGE	167	25	60	44.6	9.5

In the present study the total study was done in 167 patients with a maximum age of 60 and minimum age of 25.The mean age was 44.9 and standard deviation was 9.5

Table 3: Cytology Distribution among Study Groups

Cytology	Frequency	Percent
Chronic Cervicitis	86	51.4
CIN I	3	1.7
CIN II	8	4.7
CIN III	15	8.9
Carcinoma	55	32.9
Total	167	100

Among the study groups, 86 were found to have chronic cervicitis in biopsy report,3 had CIN I,8 (4.7%) had CIN II,15(8.9%) had CIN III,55(32.9%) had carcinoma which correlates with our scores.

Table 4: Swede distribution among study groups

Swede	Frequency	Percent
0-4	77	46.1
5-6	11	6.58
7-10	79	47.3
Total	167	100

Table 5: Distribution of Subjects at Different Values of Swede Colposcopic Score (N=167)

Score	Frequency	Chronic Cervicitis	CIN I	CIN II	CIN III	Carcinoma
1	0	0				
2	14	14				
3	39	39				
4	24	24				
5	7	6		1		
6	4	2		2		
7	10		2	1	5	2
8	19	1	1	4	4	9
9	33				6	27
10	17					17
Total	167	86	3	8	15	55

Findings of colposcopic examination were scored according to SWEDE score. Out of 167 women, 78 had high grade lesions. Based on the SWEDE score, it was 55 out of 167 would have carcinoma. Among the SWEDE Score (5or more), 3 would have CIN I lesion, 78 have high grade lesions.

Table 6: RCI distribution among study groups

RCI	Frequency	Percent
1-2	44	26.34
3-4	39	23.35
5-8	84	50.29
TOTAL	167	100

Table 7: Distribution of subjects among different values of REIDS Colposcopic Index (N=167)

Score	Frequency	Chronic Cervicitis	CIN I	CIN II	CIN III	Carcinoma
1	6	6				
2	38	38				
3	24	24				
4	15	14		1		
5	9	2	2	3	2	
6	18	2	1		6	9
7	17			2	5	10
8	40			2	2	36
Total	167	86	3	8	15	55

Findings of colposcopic examination were scored according to REIDS COLPOSCOPIC INDEX. Of the 167 women,78 had high grade lesions. Based on the score, it was anticipated that 81 would have some grade of CIN, REIDS index (5 or more)3 out of 167 had CIN I,77 would have high grade lesions.

Table 8: Complaints among study groups

Complaints	Frequency	Percent
Heavy menstrual bleeding	7	4.19
Intermenstrual bleeding	9	5.38
Postcoital bleeding	17	10.17
Postmenopausal bleeding	47	28.14
White discharge	69	41.31
Lower abdominal pain	18	10.77
Total	167	100

Among the complaints, most of women 69 out of 167 had complaints of white discharge per vaginum,47 had postmenopausal bleeding.

Table 9: Association of cytology with age among study groups

Age	Chronic Cervicitis		CIN I		CIN II		CIN III		Carcinoma		Total
	No	%	No	%	No	%	No	%	No	%	
20-30 Years	10	76.9%	0	0%	2	15.4%	1	7.7%	0	0%	13
31-40 Years	35	77.8%	0	0%	3	6.7%	0	0%	7	15.6%	45
41-50 Years	27	46.6%	2	3.4%	3	5.2%	5	8.6%	21	36.2%	58
51-60 Years	14	27.5%	1	2%	0	0%	9	17.6%	27	52.9%	51
Total	86	51.5%	3	1.8%	8	4.8%	15	9%	55	32.9%	167
P Value-0.0005											

Table 10: Association of cytology with RCI among study groups

RCI	Chronic Cervicitis		CIN I		CIN II		CIN III		Carcinoma		Total
	No	%	No	%	No	%	No	%	No	%	
1-2	44	100%	0	0%	0	0%	0	0%	0	0%	44
3-4	38	97.4%	0	0%	1	2.6%	0	0%	0	0%	39
5-8	4	4.8%	3	3.6%	7	8.3%	15	17.85%	55	65.47%	84
Total	86	51.5%	3	1.8%	8	4.8%	15	9%	55	32.9%	167
P Value-0.0005											

Table 11: Association of cytology with SWEDE score among study groups

Swede	Chronic Cervicitis		CIN I		CIN II		CIN III		Carcinoma		Total
	No	%	No	%	No	%	No	%	No	%	

0-4	77	100%	0	0%	0	0%	0	0%	0	0%	77
5-6	8	72.7%	0	0%	3	27.3%	0	0%	0	0%	11
7-10	1	1.3%	3	3.8%	5	6.3%	15	19%	55	69.6%	79
TOTAL	86	51.5%	3	1.8%	8	4.8%	15	9%	55	32.9%	167
P VALUE-0.0005											

Table 12: Correlations

RCI Score		Swede's Score
RCI Score	R Value	.966**
	P Value	.0005
	N	167

Table 13: ROC Area Under the Curve

Test Result Variable(s)	Area	Std. Error[a]	p-value	95% C.I	
				LB	UB
Swede's Score >= 5	.957	.017	.0005	.922	.991
Swede's Score >= 8	.948	.021	.0005	.907	.989

The test result variable(s): Swede's Score >= 5, Swede's Score >= 8 has at least one tie between the positive actual state group and the negative actual state group. Statistics may be biased.

Table 14: Swede Score >=5 With RCI Score

		RCI Score		
		Malignant	Benign	Total
Swede Score >=5	Malignant	75	8	83
	Benign	0	84	84
Total		75	92	167

Sensitivity	100
Specificity	91.3
PPV	90.4
NPV	100
Accuracy	95.2

Table 15: Swede Score >=8 with RCI Score

		RCI Score		
		Malignant	Benign	Total
Swede Score	Malignant	68	1	69

>=8	Benign	7	91	98
Total		75	92	167

Sensitivity	90.7
Specificity	98.9
PPV	98.6
NPV	92.9
Accuracy	95.2

The present study showed that the specificity for a total score of 8 or more was 98.9 % and sensitivity was 90.7% for CIN 2+ lesions which was better than the results when compared to the scores when reduced to 5, sensitivity was 100% while the specificity became 91.3% which is at the expense of specificity. The association of SWEDE score and the cytology was statistically significant (0.0005)

The present study compared the performance of swede score with REIDS index with sensitivity, specificity, negative predictive value, positive predictive value and accuracy. A good and graded agreement between REIDS and swede score with histopathology was documented. There was a good correlation between REIDS and swede score and the correlation coefficient was 0.966

Discussion

Cervical cancer which was the second most common cancer worldwide. Since it has the larger preinvasive stage, it is very easy to screen and treat the patient before progression.

The present study deals with the screening of cervical cancer which included a sample of 167 women with abnormal symptoms like excessive white discharge, postmenopausal bleeding, postcoital bleeding, intermenstrual bleeding, women with abnormal VIA, VILI and pap smear.

Further proceeded with the help of colposcopy and biopsy in women with above mentioned symptoms and abnormal pap smear or VIA/VILI. Based on the results obtained, we calculated the sensitivity and specificity of two scores (reids and swede) and compared it with biopsy.

Regarding age distribution, majority were women more than the age of 40(109/167).Carcinoma cervix was prevalent in women more than 40 years.

Based on the clinical complaints, majority of patients had excessive white discharge (69/167) followed by postmenopausal bleeding (47/167).

Based on the theory, postmenopausal bleeding is highly predictive and pointing towards cancer cervix. Postcoital bleeding also noted in 10 among 16.

The present study revealed that the specificity of 98.9% when swede score was more than or equal to 8.No CIN 2+ lesions were noted when the swede score was less than 5.But when the score was reduced to 5, sensitivity reaches 100% at the specificity of 91.3% which was decreased. The negative predictive value was 100% when the score was reduced to 5.The association of swede score with cytology is statistically significant.

Conclusion

Thus, it was concluded that both scores performed well in this hospital based study on a selected population referred to colposcopic clinic. From the present study, it

is evident that SWEDE score of 8 or more has good specificity and can be used for performing direct excisional procedure as a "see and treat" method at this cutoff. Hence LESION SIZE parameter included in SWEDE SCORE act as a good predictor of high-grade lesions.

This may be the preferred method for the management of high grade CIN because it reduces the number of visits and failure to receive treatment.

The main strength of the study is that biopsies were taken for all subjects irrespective of the presence or absence of lesion in colposcopy, eliminating the verification bias.

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