A COMPARISON OF THE SWEDE SCORE AND REID'S COLPOSCOPIC INDEX SCORE IN WOMEN WITH SUSPECTED CERVICAL CANCER

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Abstract

The two widely used colposcopic indices were compared in this prospective study, Swede's score and the Reid Colposcopic Index (RCI) score.

Methods and Materials: 567 women over the age of 21 who had a positive screening test, symptoms of postcoital or postmenopausal bleeding, or a cervix that looked unhealthy were included in this study. All of these patients underwent a colostomy. Colposcopic findings were used to calculate the Swede score and RCI score.

HPE results were recorded and a biopsy was performed.

Results: The average age was 38.6 years, or 9.95 years. The RCI scores and Swede scores were highly correlated (correlation coefficient: 0.94, with a P value of 0.0001). However, at a cut-off of 5+, the Swede score had a higher NPV and sensitivity than the RCI score (P value 0.0001) for the detection of CIN-II+. Lesions with a score of 2 or greater were more likely to be malignant.

Conclusion: When it comes to finding cervical cancer, the Swede score and the RCI score are well correlated. Swede's score, on the other hand, is superior to RCI's. A good screening tool for CIN-II+ with a sensitivity and NPV of 100 percent is the Swede score of 5 or higher. The Swede score is superior to the RCI score due to the inclusion of lesion size.

Keywords: - Swede score, cervical cancer, Reid's colposcopic index.

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INTRODUCTION:
Cancer of the cervix is the fourth most common cancer in women worldwide, with 5,70,000 new cases annually. Carcinoma cervix has a long progression period from the premalignant lesions to the invasive cervical cancer. With early detection, the cure rates of carcinoma cervix approach 100%. As a result, many screening methods have been developed, such as the Pap (Papanicolaou) smear and aided visual methods [Visual inspection with acetic acid (VIA) and Visual inspection with lugol's iodine (VILI) Hans Hinselmann invented colposcopy in 1925. Colposcopic biopsy and histopathological examination (HPE) remain the industry standard for determining whether a woman has cervical cancer. With colposcopy, precise biopsies can be taken from obvious growths as well as abnormal or dysplastic areas.

However, in a developing nation with limited resources, taking a biopsy from every patient is impossible. Also, biopsies taken from cases with obvious growths typically reveal advanced cancer. As a result, scoring systems were developed to screen high-risk cases and make colposcopy more objective. The Reid's colposcopic index (RCI) is one example of such a scoring system. It was created in 1985 by Reid and Scalzi. It is based on the histological characteristics of the lesion, such as margin, color, type of vascularity, and iodine staining. In 2005, Strander et al. also developed the Swede score, which had five characteristics: aceto uptake, vessels, lesion size, and iodine were the subjects of this study to compare these two commonly used indices.

MATERIALS AND METHODS
The institutional ethics committee gave the go-ahead for this prospective, observational, and analytical study. The study included all women who met the inclusion and exclusion criteria and attended the gynecology outpatient department (OPD) of selected tertiary hospital in tirupati, from November 2020 to January 2021. During this time, every woman who went to the OPD had a Pap smear done.

CRITERIA FOR INCLUSION:
1. Women with sex who are over 21 years old

having postcoital or postmenopausal bleeding symptoms or an unhealthy-looking cervix VIA/VILI positive pap smear

CRITERIA FOR REJECTION:
1. Women who are pregnant Women with cervix growth that is clearly visible.
2. Previously treated for cancer of the cervix or cervical intraepithelial neoplasia (CIN).

A total of 567 patients were included in the study but did not give their consent to participate. All of the patients gave written, informed consent.The routine examination, pertinent clinical history, and demographic information were all recorded. Both the speculum and the vaginal area were examined. Every woman had a Pap smear done. After confirming that the woman is not in the menstrual phase, has maintained her abstinence, and has not used spermicidal cream or jelly or vaginal douche in the past two days; speculum examination was carried out. The short end of the Ayre's spatula was kept inside while the long end was rotated at an external angle, resulting in a smear. Using an endocervical brush, an endocervical cytology smear was performed.

The smear on the glass slide was fixed with 95% ethyl alcohol after being prepared. The Bethesda classification system was used to grade the sample: 13 0: Negative for malignancy or intraepithelial lesion (NILM)

1: Reactive cellular changes caused by inflammation (including typical repair), radiation, and an intrauterine device (IUD) are additional non-neoplastic findings. status of the glandular cells after hysterectomy;
2: ASCUS: Unknown significance of atypical squamous cells in the third group 3: ASC-H: Squamous cells that are not normal can't rule out HSIL
4: AGC: An unusual glandular cell LSIL: Squamous intraepithelial lesion of low grade 5: HSIL: Squamous intraepithelial lesion of high grade
6: VIA performed malignant screening by smearing the cervix with a cotton swab dipped in a solution of 5% acetic acid .

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Box 1: The modified Reids Colposcopic Index			
Colposcopic signs	**Zero point**	**One point**	**Two point**
Color	Low-intensity acetowhitening (not completely opaque); indistinct acetowhitening. transparent or translucent acetowhitening. Acetowhitening beyond the margin of the transformation zone. Pure snow-white color with intense surface shine (rare)	Intermediate shade - gray/white color and shiny surface (most lesions should be scored in this category)	Dull, opaque, oyster white; gray
Lesion margin and surface configuration	Microcondylomatous or micropapillary contour flat lesions with indistinct margins Feathered or finely scalloped margins angular, jagged lesions 3 satellite lesions beyond the margin of the transformation zone	Regular-shaped, symmetrical lesions with smooth, straight outlines	Rolled, peeling edges internal demarcations between areas of differing colposcopic appearance - a central area of high-grade change and peripheral area of low-grade change
Vessels	Fine/uniform caliber vessels closely and uniformly placed. Poorly formed patterns of fine punctation and/or mosaic. Vessels beyond the margin of the transformation zone. Fine vessels within microcondylomatous or micropapillary lesions	Absent vessels	Well-defined coarse punctation or coarse mosaic
Iodine staining	Positive iodine uptake giving mahogany brown color, negative uptake of insignificant lesion, i.e., yellow staining by a lesion scoring three points or less on the first three criteria areas beyond the margin of the transformation zone, conspicuous on colposcopy, evident as iodine-negative areas (such areas are frequently due to parakeratosis)	Partial iodine uptake - variegated, speckled appearance	Negative iodine uptake of significant lesion, i.e., yellow staining by a lesion already scoring four points or more on the first three criteria

RCI: Reids Colposcopic Index, CIN: Cervical intraepithelial neoplasia. RCI (overall score) histology: 0-2: Likely to be CIN1, 3-4: Overlapping lesion - likely to be CIN1 or CIN2, 5-8: Likely to be CIN 2-3

Box 2: Swede score			
Characteristics	**Score**		
	0	**1**	**2**
Acetouptake	0 or transparent	Cloudy, milky	Distinct, opaque white
Margins and surface	0 or diffuse	Sharp but irregular, jagged, geographical satellites	Sharp and even, difference in surface level including "cuffing"
Vessels	Fine, regular	Absent	Coarse or atypical vessels
Lesion size	<5 mm	5-15 mm or 2 quadrants	>15 mm or 3-4 quadrants or endocervicall undefined
Iodine staining	Brown	Faintly or patchy yellow	Distinct yellow

Findings was Within the transformation zone, a distinct acetowhite region was deemed VIA positive. Normal saline and Lugol's iodine were applied to the cervix with a cotton swab following one to two minutes of VIA. Brown (positive uptake), yellow-brown (partial uptake), and canary yellow (no uptake) were the colours that were observed for the iodine uptake. The VILI was deemed positive in areas with no uptake (canary yellow), while the VILI was deemed negative in areas with partial uptake and positive uptake. Colposcopy was ordered for every patient who had a pap smear that came back positive for either VIA or VILI, had a history that seemed suspicious, or had a cervix that looked unhealthy or suspicious. A video colposcope (Digital colposcope with workstation, Goldway) was used for the procedure. The cervix was examined in a bright light. Saline was used to get rid of any pus or mucus. After that, a cervical examination with a green filter was performed. Any region with leucoplakia was noted. After that, 5 percent freshly prepared acetic acid was used.

RESULTS:
Swab of cotton swab all over the cervix. The cervix was then examined at magnifications ranging from 5 to 25 times after one minute of acetic acid application.

The angio-architecture was observed. After that, soft cotton balls were used to apply Lugol's iodine to the cervix after it was gently dabbed with normal saline. It was observed that the cervix absorbs iodine. While removing the speculum, the uterine walls were also carefully examined for any lesions. Acetouptake, the surface of the margin, the vessels, the size of the lesion, and iodine staining were all recorded and rated in the colposcopic findings. Based on the total scores, the RCI score and the Swede score were calculated for each patient (see Tables 1 and 2). A biopsy was taken from the area with the most unusual appearance.

Under anaesthesia, it was taken in the lithotomy position. The samples were sent to HPE with labels attached. The HPE's findings were as follows: normal, inflammation, CIN-I, II, and III, as well as invasive cervical cancer (ICC). Normal, inflammation, and CIN-I HPE results were classified as "Benign," while CIN-II, CIN-III, and ICC results were classified as "Malignant."
Analyses of the Statistic: SPSS was used for the analysis. The number of cases and percentages of

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each of the relevant qualitative parameters were used to represent the prevalence. Mean and standard deviation were used to describe quantitative parameters.

Separately, the RCI and Swede scores' sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) were calculated.

The "unpaired t test" for quantitative data and the "chi square test" for qualitative data were used to determine the P value. Fisher's exact test was used when any cell value was less than. A "statistically significant" result was one with a p value of less than 0.05.

RESULTS

The study population had a mean age of 38.6 9.95 years, ranging from 22 to 65 years. The majority of women were multiparous (Paragraph 3: 35.8% and Paragraph 2: 30.5%). The RCI score for each kind of HPE pathology is shown in Table 3. A RCI score of less than five was mostly associated with benign pathologies (>90 percent), whereas a score of six or higher is associated with cancerous diseases. The Swede score on HPE is shown in Table 4 based on the type of pathology. Scores of 5 or higher were associated with malignant pathologies, while scores of less than 5 were associated with benign pathologies in Swedes.

With a cutoff value of 5, the RCI and Swede scores' sensitivity, specificity, positive predictive value, and negative predictive value are displayed in Table 5.

RCI Score Benign Percentage	Benign Number	Percentage	RCI Score Benign Percentage Number	Malignant Percentage	Total Number
1	28	100.0%	0	0.0%	28
2	36	100.0%	0	0.0%	36
3	206	94.5%	12	5.5%	216
4	82	92.0%	7	8.0%	89
5	41	87.5%	6	12.5%	48
6	40	90.7%	4	9.3%	43
7	31	64.6%	17	35.4%	48
8	7	31.8%	15	68.2%	22
9	9	24.3%	28	75.7%	37
TOTAL	478	84.3%	89	15.7%	567

detection of high-grade lesions (CIN-II+). There was an excellent correlation between the RCI and Swede scores (correlation coefficient: 0.94 and P value<0.0001).

Table 4: Swede score according to the type of pathology on HPE

SWEDEN SCORE	BENIGN FREQUENCY	%	MALIGNANT FREQUENCY	%	TOTAL
0	27	100.0%	0	0.0%	27
1	5	100.0%	0	0.0%	5
2	53	100.0%	0	0.0%	53
3	170	100.0%	0	0.0%	170
4	109	100.0%	0	0.0%	109
5	30	56.6%	23	43.4%	53
6	22	100.0%	0	0.0%	22
7	35	87.5%	5	12.5%	40
8	13	31.0%	29	69.0%	42
9	7	25.0%	21	75.0%	28
10	7	38.9%	11	61.1%	18
TOTAL	478	84.3%	89	15.7%	567

However, the sensitivity and NPV of Swede score (P value <0.0001) was more than RCI score (P value <0.0001) for both the scores for detection of CIN-II+.

Table 5: RCI score and Swede score of 5+ for CIN II+

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Parameters	RCI score (5+)	Swede Score (5+)
Sensitivity	71.9%	100.0%
Specificity	82.0%	76.2%
PPV	42.7%	43.8%
NPV	94.0%	100.0%
P value	<0.0001	<0.0001

the relationship between the type of HPE pathology and the size of the lesion. The size of the lesion was given a score of 0 (less than 5 mm), 1 (between 5 and 15 mm), or 2 (more than 15 mm). Lesions with a score of 2 or greater were more likely to be malignant. 15.0% of cases with a score of 0 had cancer on HPE, or 2.2%.

DISCUSSION:
The fourth most common cancer in women is cervical cancer. It is the most treatable kind of cancer when found early. Because of this, efficient screening techniques are crucial. The patient goes through a painful and invasive procedure called colposcopy once the screening comes back positive. Every patient may not be able to have a biopsy taken in a setting with limited resources. As a result, the scoring systems developed based on the characteristics of the colposcopy lesion aid in further patient screening. The purpose of this study was to compare two commonly used scoring systems: both the Swedish score and the RCI score.

The average age of the participants in this study was 38.6 - 9.95 years. This was similar to the study by Usmani K et al., where the average age was 37.5-38.98 years. Another study by Kushwah B and Kushwah S found that the majority of women (56.25 %) were between the ages of 30 and 39, with a mean age of 40.84 years. Another study by Ranga R et al. found that the average age was 40.38.1 years. This was similar to the current study, which found that women over the age of 40 are more likely to get cervical cancer. In the Suwanthananon C and Inthasorn P study, the mean age was 40.65 years, with a range of: 20 to 73 years) In the study by Karya U et al., the majority of the women (41.6%) were between the ages of 31 and 40, with a mean age of 41.64 years. This was similar to previous studies.Squamous metaplasia, inflammation, and CIN-I comprised 84.3% of the study's benign lesions, while CIN-II, CIN-III, and malignant lesions made up 15.7%. This was comparable to the findings of the study by Usmani K. et al., in which 77.2% of the lesions were found to be benign and 22.8% to be malignant. Another study by Kushwah B. and Kushwah S. found that

70.7% of the lesions were found to be benign. Another study by Suwanthananon C. and Inthasorn P. found that the majority of the lesions were found to be benign (73%).20 The study As a result, it is reasonable to conclude that the majority of lesions are benign. Score variations on HPE based on the type of lesion: 37.8 percent of the cases in this study had a RCI score of 2. More than 90% of RCI scores between 0 and 3 were associated with benign lesions. This was similar to the study by Kushwah B and Kushwah S, in which the majority of cases (26.25 percent) had a RCI score of 2.18 Another study by Usmani K et al. found that RCI scores of 0 to 2 were associated with benign lesions (cervicitis and CIN-I).Another study by Suwanthananon C and Inthasorn P. found that RCI scores of 0 to 3 were mostly associated with benign lesions Lesions that scored between 0 and 4 were thought to be benign in Swedes. Similar to the current study, Usmani K et al. found a correlation between Swede scores of 0 to 4 and benign lesions (cervicitis and CIN-I. In a separate study conducted by Kushwah B and Kushwah S, 26.15 percent of cases had a Swede score of 3.18. This study was also comparable to this one. Similar to the present study, Suwanthananon C. and Inthasorn P. found that Swedes with scores between 0 and 3 were more likely to have benign lesions.

Scores from the RCI and Sweden: RCI score at the cutoff of 5 detected high-grade lesions (CIN-II+) with a sensitivity, specificity, PPV, and NPV of 71.9%, 82%, 42.77%, and 94%, respectively, in this study. Additionally, the Swede score at the cutoff of five needed to identify high-grade lesions (CIN-II+) was 100 percent, 76.2%, 43.8%, and 100 percent, respectively. With a correlation coefficient of 0.94 and a P value of less than 0.0001, there was a strong correlation between the Swede score and the RCI score. Additionally, the Swede score had a significantly higher NPV and sensitivity than the RCI score.

In the research conducted by Karya U et al., the values of sensitivity, specificity, PPV, and NPV for the RCI score at a cutoff of 5 for detecting high-grade lesions were 95.2%, 98.7%, 86.9%, and 99.6%, respectively. On the other hand, the values of sensitivity, specificity, and PPV for the Swede score at a cutoff of 5 were 100%, 91.6%, The Swede score had a NPV and sensitivity of 100 percent, which was higher than the RCI score, as was the case in the current study. Additionally, they discovered a strong correlation between the

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Swede score and the RCI score (correlation coefficient: 0.879; The sensitivity, specificity, PPV, and NPV of the RCI score for a cutoff of 5 for detecting high grade lesions were 94.44%, 91.48%, 80.95%, and 97.73%, respectively, in the study by Kushwah B and Kushwah S, and the Swede score for a cutoff of 5 was 100%, 91.3%, 82.6%, and 100%, respectively. The Swede score had a 100% NPV and sensitivity, just like the current study.

Additionally, they discovered a strong correlation between the Swede score and the RCI score (correlation coefficient: 0.92).18 The values of sensitivity, specificity, PPV, and NPV for the RCI score at a cutoff of 5 for detecting high-grade lesions were 96.97%, 95.35 percent, 88.89%, and 98.8%, respectively, and the values of sensitivity, specificity, PPV, and NPV for the Swede score at a cutoff of 5 were 100%, 88.37%, 76.74%, and 100% The Swede score had a 100% NPV and sensitivity, just like the current study. Additionally, they discovered a strong correlation between the Swede score and the RCI score (correlation coefficient: The values of sensitivity, specificity, PPV, and NPV of the RCI score for a cut off of 5 for detecting high grade lesions were 83.7%, 89.7%, 75%, and 93.7% respectively in the study by Suwanthananon C and Inthasorn P, while the values of sensitivity, specificity, PPV, and NPV of the Swede score for a cut off of 5 were 88.4%, The NPV, PPV, and sensitivity of the Swede score for a cut-off of 5 for detecting high-grade lesions were all 100%, 86.4%, 68.4%, and 100%, respectively, in the study by Usmani K et a, which was comparable to the present study.

Lesion size on HPE varies depending on the type of lesion: On HPE, 59% of cases with a score of 2 (lesion size greater than 15 mm) were found to be malignant, indicating a correlation between lesion size and the number of malignant cases. This was similar to the findings of Kushwah B and Kushwah S's study, which found that an increase in the number of malignant cases was correlated with a larger lesion. On HPE, 71.4% of cases with a score of 2 on the size of the lesion were found to be malignant. They also observed that every CIN- II case had a lesion size score of 1,18 which was also comparable to the current study.

Additionally, Ranga R et al. found that 62.5% of cases with a score of 2 on lesion size were found to be malignant on HPE in another study. This was comparable to the current research. In their study, Karya U et al. observed that lesion sizes of more

than 15 mm are associated with high-grade lesions and malignancy (CIN-II, CIN-III, and ICC).21 This was similar to the findings of the present study. It was also discovered that all cases of CIN-II. had a score of 1.

LIMITATIONS:
The OPD attendance of the patients who had a positive cervical cancer screening limited the study. As a result, the findings may not apply to all cases.

CONCLUSION: The study clearly demonstrates that women in their late thirties are at high risk for cervical cancer. When it comes to finding cervical cancer, the Swede score and the RCI score are well correlated. Swede's score, on the other hand, is superior to RCI's. A good screening tool for CIN-II+ with a sensitivity and NPV of 100 percent is the Swede score of 5 or higher. The majority of malignancies are associated with larger lesions. The Swede score is superior to the RCI score due to the inclusion of lesion size.

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