Original Research Article

Evaluation of Swede score and Reid score to improve the predictive value of colposcopy and its correlation with histology

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ABSTRACT

Background: Cervical carcinoma is the second most common malignancy amongst women in India. It is regarded as a public health problem and a priority in cancer control programmes by the WHO. Colposcopy has proven to be very useful in identifying and guiding the biopsy of dysplastic lesion. To minimize inter-observer variation, colposcopic scoring system has been introduced.
Methods: A prospective cross- sectional study including 250 women in whom the prevalence of different grades CIN was done. Co-relation of Pap (cytology) with colposcopy scoring system viz. Reid's and Swede scores, has been made in this study. The two screening methods were compared and their statistical association with histological findings were analyzed.
Results: Per speculum examination performed in 250 sexually active women with suspicious looking cervix, belonging to 25-60 years of age, with most common presenting complaints of pain abdomen (38.8%) followed by leucorrhoea, irregular cycles and Post coital bleed. Unhealthy cervix (49.2%) and persistent discharge (28%) were the most common indications for colposcopy. An assessment of both SWEDE score and Reid score as a function of histological findings was done, while Swede score of >5 showed slightly more sensitivity (100%) for diagnosing CIN1+ lesions, Reids score of >5 was more specific (100%) with a higher positive predictive value (100%) for diagnosing CIN 1, 2, 3 and invasive cervical carcinoma. There was a marked positive association between Reid score and SWEDE score.
Conclusions: The colposcopic scoring systems and histopathology showed significant compliance. Predictive accuracy of colposcopy increased with increasing severity of disease.

Keywords: Cervical intraepithelial lesion, Reid's colposcopic index, Swede score

INTRODUCTION

Carcinoma cervix is an important cause of female mortality in our country. India alone accounts for one quarter of worldwide burden. It is estimated that cervical cancer occurs in approx. 1 in 53 Indian women during their lifetime as compared to 1 in 100 women in developed world and India brunt's 18% of the invasive cancer cervix in world.[1] Cervical intraepithelial neoplasia (CIN) or cervical dysplasia is a premalignant condition of the cervix caused by the human papilloma virus (HPV).

Albeit, it is most commonly encountered STI with unavoidable massive prevalence worldwide but easy accessibility of the cervix to clinical examination, application of cytology and tissue sampling procedure have led to extensive screening programme for early detection and treatment of the disease as invasive cancer.

The squamo-columnar junction represents the transformation zone and Atypical metaplasia with abnormal nuclear changes mark the precursor for dysplasia and malignancy.

PAP is still the most commonly recommended screening test, but numerous studies demonstrate, that sensitivity of a single Pap smear for high-grade CIN2+ or worse lesions is low and cytology-based screening methods are difficult to implement is a low-cost resource setting due to laboratory and skilled technical expertise involved. Hence, presently, visual inspection with acetic acid (VIA) or visual inspection with Lugol's iodine (VILI) is being recommended as the preferred test for universal screening in developing countries. VIA is inexpensive, its results are immediately available but its accuracy and reproducibility is questionable because of lack of standardization. Nevertheless, validation of all the screening procedures, colposcopy remains the reference standard being a simple, non-invasive OPD procedure, it helps in determining the location, size and extent of abnormal cervical lesions. And to minimize the inter observer variation, colposcopic scoring systems like Reid's colposcopic index (RCI) and Swede scores have been employed.[2]

The purpose of this study was to evaluate the diagnostic efficacy of colposcopy using RCI and Swede score and to determine the degree of correlation between the two indices and histopathologic evidence, for the ultimate goal of improving effectiveness of secondary cervical cancer prevention.

METHODS

A prospective cross- sectional study was conducted in the department of obstetrics and gynecology, in collaboration with department of pathology LLRM Medical College and associated with SVBP Hospital, Meerut from June 2018 to May 2019 comprising 250 women who fulfilled the selection criteria attending gynae OPD. Ethical clearance was obtained from the Institution's ethics committee.

Inclusion criteria

- Women of aged between 21-65 years, sexually active, suspicious looking cervix post coital bleeding, persistent inflammatory smears, persistent leucorrhoea not responding to antibiotics, VIA /VILI positive, Pap smears showing atypia.

Exclusion criteria

- Obvious growth/ frank lesion on cervix, pregnant/nulliparous women, severe debilitating disease, history of pelvic irradiation, women with clinical evidence of acute pelvic infection, previous procedure on cervix like excision biopsy, cryotherapy and conization, unsatisfactory colposcopy or known case of CA cervix.

Detailed clinical history taken, general physical and local examination with Cusco's speculum was performed all included cases and was recorded in a proforma. A naked eye examination of cervix and a pap smear was followed by colposcopy. Saline test was performed to study the vasculature of cervix. Visual examination with acetic acid and Lugol's iodine was done for any obvious lesions or distorted margins and surface integrity of cervix, which were then graded. Scoring of all the findings as per RCI and Swede score was done. Lastly, for Swede score, size of the lesion was determined and colposcopy directed biopsies were taken from abnormal areas. Colposcopic and histopathology findings were compared and reported. Women with CIN2/3 were advised treatment, according to the standard of care.

Statistical analysis

Statistical analysis of all the recorded data was done on MS excel and SPSS 26 version 64-bit software.

RESULTS

Socio-demographics

Regarding age distribution, high incidence of CIN was noted in age group of 24-65 years, with the mean of 41.64 years of age. Maximum women belonged to age group 31-40 years (41.6%) followed by 41-50 years (27.6%). Amongst rural or urban showed slight rural preponderance (53.2% versus 46.8%). Most women had a parity between 1 to 4 (221, 88.4%) followed by 5 or more (27, 10.8%). Two nulliparous women (0.8%) were also included in the study. Additionally, it was found that most women belonged to low (121, 48.4%) or middle (125, 50%) socioeconomic status. Women were mostly Hindus (157, 62.8%) followed by Muslims (65, 26%), 18 (7.2%) Sikh and 10 (4%) Christian females. Most Women married between 18 to 25 years (237, 94.80%). However, 5 women (2.0%) married before 18 years of age were also documented. Most of the women in the study were using one or the other form of contraceptives (162, 64.8%) while 88 (88, 35.2%) were not using any. Barrier devices were the most common form of contraceptive (76, 30.4%) used in the study followed by oral contraceptive pills (35, 14%). 19 (7.6%) women had a positive history of tobacco use in the past.
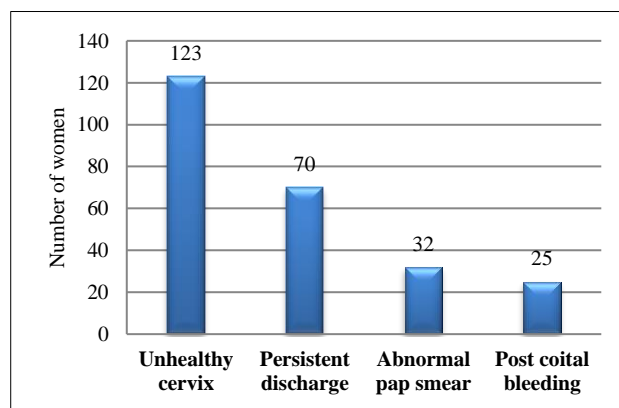

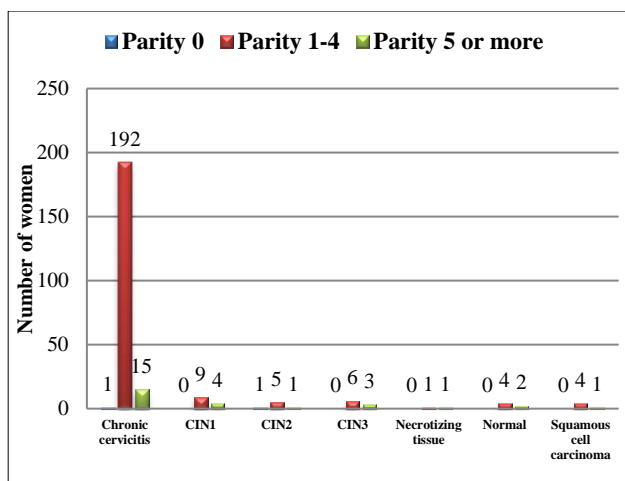**Figure 1: Indications for colposcopy.**

Figure 2: Histopathology and parity status.

Indications for colposcopy

In the present study, subjects referred for colposcopy on the basis of an abnormal per speculum findings i.e. cervical erosion (37.6%), vaginal discharge (14%), hypertrophied cervix (29%), multiple nabothian follicles

(14%) and (12.8%) abnormal Pap smear (Figure 1). Since, Pap smear was taken for all cases, and cytology findings graded the study population into NILM in 214(85.6%), ASCUS in 15(6%), LSIL in 8 (4%), HSIL in 10 (4%), persistent inflammatory changes in 1(0.4%) respectively (Figure 1).

Histopathology findings

In the present study, prevalence of CIN of any grade was detected in 29 (11.6%) cases. With CIN 1 in 13 (5.2%) and CIN2 in 7 (2.8%) and CIN3 in 9 (3.6%) cases were seen. Upon corelating, histopathology findings with age, majority were women >40 years of age (p = 0.0373) with CIN3 lesions, in comparison to the ones belonging to <40 years age. Additionally, it was observed that in age group of 31-40 years, 41-50 years and 51-60 years had CIN+ lesion were 10 (4%), 11 (4.4%) and 7 (2.8%) in women respectively (Table 1). The prevalence of CIN1,2,3 and Invasive cervical cancer in women with parity 1 to 4 was 10.8% (24/221 women). The prevalence increased to 33.33% (9/27 women) in women with parity 5 or more. This increase in the prevalence with higher parity was statistically significant (p=0.0011) (Figure 2) (Table 1).

Table 1: Histopathology and age groups.

Histopathology	21-30 years	31-40 years	41-50 years	51-60 years	>60 years	Total
Chronic cervicitis	33	90	56	26	3	208
CIN1	1	4	7	1	0	13
CIN2	0	4	2		1	7
CIN3	0	2	2	4	1	9
Necrotizing tissue	0	1	0	1	0	2
Normal	1	3	1	1	0	6
Invasive cervical cancer	1	0	1	2	1	5
Total	36	104	69	35	6	250

Table 2: Diagnostic efficiency testing of Swede score (more than 5) with respect to histopathology.

	Histopathology positive (CIN1+)	Histopathology negative (normal/C. cervicitis)
Positive (5 or more)	30	10
Negative (less than 5)	4	204
p value and statistical significance		
Test	Fisher's exact test	
p value	<0.0001	
p value summary	****	
One- or two-sided	Two-sided	
Statistically significant (p <0.05)?	Yes	
Effect size	**Value**	**95% CI**
Sensitivity	0.8824	0.7338 to 0.9533
Specificity	0.9533	0.9161 to 0.9744
Positive predictive value	0.7500	0.5981 to 0.8581
Negative predictive value	0.9808	0.9516 to 0.9925

*-Excluding necrotizing tissue.

Colposcopy indices

Swede score

An assessment of the colposcopy Swede score for the 250 women highlighted that most of the women had a score of 2 (31.6%), 3 (28%) and 4 (14%). 7.2% women had Swede score of 8 or more which is highly suggestive of high grade/suspected invasive cancer (CIN 2+) and 16% women had a score of 5 or more, suggestive of non-invasive high-grade cancer (CIN 2+). An Assessment of Swede score more than 5 with respect to histopathology

for diagnosis of CIN2+ lesions were done. It was seen that SWEDE score of 5 or more has a very high sensitivity (100%), specificity (91.63%%) along with negative predictive value (100%) for the diagnosis of such lesions. However, the positive predictive value for the same is very less at 52.50%. This highlights the utility of Swede index of 5 or more than 5 as a tool for non-invasive diagnosis of CIN2+ lesions is slightly limited because of the poor PPV especially due to its inability to correctly differentiate CIN2 from CIN1 lesions but as the SWEDE score increased the histology progressively worsened from chronic cervicitis to invasive cervical cancer (p value <0.0001) (Table 2 and 3).

Table 3: Swede colposcopy index at cut off of 5 or higher for detection of CIN2+ lesions.

Swede score	Histopathology positive (CIN2+)	Histopathology negative (normal/C. cervicitis/CIN1+)
Positive (5 or more)	21	19
Negative (less than 5)	0	208
p value and statistical significance		
Test	Fisher's exact test	
p value	<0.0001	
p value summary	****	
One- or two-sided	Two-sided	
Statistically significant (p <0.05)?	Yes	
Effect size	**Value**	**95% CI**
Sensitivity	1.000	0.8454 to 1.000
Specificity	0.9163	0.8730 to 0.9458
Positive predictive value	0.5250	0.3750 to 0.6706
Negative predictive value	1.000	0.9819 to 1.000

Table 4: Diagnostic efficiency testing of Reid score (more than 5) with respect to histopathology.

	Histopathology positive (CIN1+)	Histopathology negative (normal/C. cervicitis)
Positive (5 or more)	23	0
Negative (less than 5)	11	214
p value and statistical significance		
Test	**Fisher's exact test**	
p value	<0.0001	
p value summary	****	
One- or two-sided	Two-sided	
Statistically significant (p <0.05)	Yes	
Effect size	**Value**	**95% CI**
Sensitivity	0.6765	0.5084 to 0.8087
Specificity	1.000	0.9824 to 1.000
Positive predictive value	1.000	0.8569 to 1.000
Negative predictive value	0.9511	0.9146 to 0.9725

*-Excluding 2 cases of necrotizing tissue.

RCI

Another variable such as, Reid's Index for colposcopy evaluation of the women showed that most women had a score of 1 (26.8%), 2 (43.2%) and 3 (11.6%). 9.2%

women in the study population, had a Reids score of 5 or more, Furthermore, this assessment of Reid score more than 5 with respect to histopathology for diagnosis of CIN2+ lesions shows a very high sensitivity (95.24%), specificity (98.68%) and Positive Predictive value (86.96%) along with negative predictive value (99.56%)

for the diagnosis of such lesions. This highlights the utility of Reids index of 5 or more than 5 as a useful tool for non-invasive diagnosis of CIN2+ lesions and it was observed that as the Reids score increased the histology

progressively worsened from chronic cervicitis to Invasive cervical cancer (p value <0.0001) (Table 4 and 5).

Table 5: Diagnostic efficacy of Reids colposcopy index at cut off of 5 or higher for detection of CIN2+ lesions.

	Histopathology positive (CIN2+)	Histopathology negative (normal/C. cervicitis/CIN1+)
Positive (5 or more)	20	3
Negative (Less than 5)	1	224
p value and statistical significance		
Test	**Fisher's exact test**	
p value	<0.0001	
p value summary	****	
One- or two-sided	Two-sided	
Statistically significant (p <0.05)?	Yes	
Effect size	**Value**	**95% CI**
Sensitivity	0.9524	0.7733 to 0.9976
Specificity	0.9868	0.9619 to 0.9964
Positive predictive value	0.8696	0.6787 to 0.9546
Negative predictive value	0.9956	0.9753 to 0.9998

Table 6: Comparison of the various diagnostic efficiency parameters for various modalities combined.

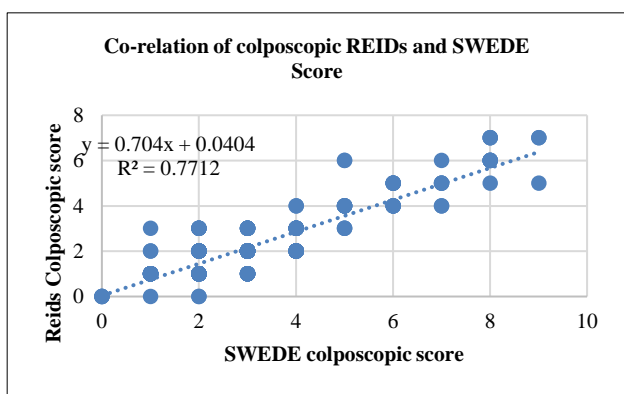| Effect	Colposcopy versus histology	Pap versus histology	Pap versus colposcopy
Sensitivity	0.6765	0.8235	0.7826
Specificity	1.000	0.9717	0.9289
Positive predictive value	1.000	0.8235	0.5294
Negative predictive value	0.9511	0.9717	0.9766
Likelihood ratio		29.10	11.01
p value	<0.0001 (significant)	<0.0001 (significant)	<0.0001 (significant)

Figure 3: Co-relation of colposcopic REIDs and SWEDE score

Association between the colposcopy indices

As we co-relate the Reid's score and Swede Score-They were found to be positively associated. The Pearson coefficient R for the 2 linear ordinal variables was 0.8788 and r square value was 0.7712. This value highlights that

77% variability in the Reid score can be attributed to changes in the Swede score alone and vice versa, which was statistically significant (p <0.001) (Figure 3).
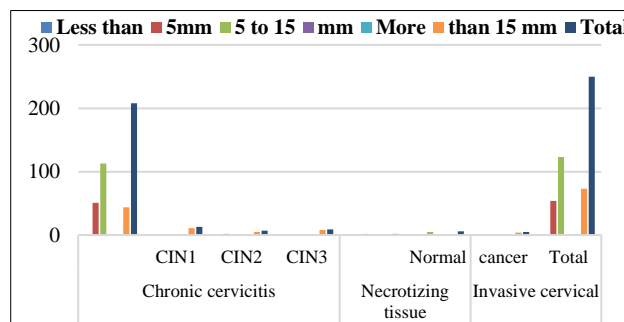

Figure 4: Lesion size and histology.

Lesion size

Interestingly, Lesion size can be used as a predictor of high-grade lesion as it was observed that women with lesions more than 15 mm in size or involving 3-4

quadrants were CIN2 (7, 2.8%) and CIN3(9,3.6%) with 5 invasive cervical cancer cases (Figure 4).

Table 7: Socoi demographic factors comparison.

Study	Major finding
Age (in years)	
Ramadevi et al	More in females >30 years
Vaidya et al	More in >35 years
Shalini et al	Most common in >35 years
Verma I et al	Most women in 31-50 years age group (71.20%)
Ale OV et al	Most women in age group 40-49
Present study	Most women in 31-50 years age group (69.20%)
Parity	
Kushtagi and Fernandez	More in parity >2
Vaidya et al	More in parity >4
Ale OV et al	More in parity 1-4
Ramadevi E et al	Most among parity 1-4
Present study	Significant increase in prevalence from parity 1-4 (10.8%) to parity 5 (33.34%)
Socioeconomic status	
Vaidya et al	Low socioeconomic status has important role
Indu verma et al	Middle - 53.60, upper-26
Present study	Middle - 50%, upper-1.6%
Smoking status	
Slattery ML et al	Non-smokers at more risk
Present study	Non-smokers -54.8%
Religion	
Verma I et al	Hindu females (48.80) and Sikh (48.80) females most common
Present study	Hindu (62.7%) most common
Contraceptive use	
Ashmita D et al	IUCD (32.7%) and OCP (11.5%) were most common
Verma I et al	Barrier method (25.60) and tubal ligation (20.80%) most common
Present study	Barrier (30.4%) and OCP (14%) most common
Place of residence	
Verma I et al	Urban (63.20%) most common
Present study	Rural (53.2%) most common

Pap (cytology), colposcopy and histopathology

Literature is replete with data pertaining to the sensitivity of pap smear and colposcopy ranging from 27% to 50% versus 44% to 89% respectively. Specificity of Pap smear and colposcopy ranging from 19.5% to 88.7% versus 52-93.4% respectively. On comparing the PAP smear and Histology and colposcopic findings, it was found that PAP smear, as a diagnostic tool for cervical screening had good sensitivity and specificity, with variable positive predictive value and diagnostic accuracy. This was attributed to the high number of false negative smears (Table 6).

DISCUSSION

Sociodemographic factor comparison

Ramadevi E et al in their study showed the prevalence of CIN was higher in women over 30 years.[3] Vaidya A, showed in his study that CIN was more prevalent in the age group of >35 years Shalini et al showed the mean age with cancer cervix was 35 versus 32 in women with benign pathology in cervix.+ Kushtagi and Fernandez showed the prevalence of CIN significantly higher in parity of more than 2. Vaidya et al showed more positive cases of CIN were found with parity more than.[4] Ale OV et al in their study saw most common age group affected was between 40-49 years with most commonly parity between 1-4.[6] Which can attribute to hormonal and nutritional changes or OCP use. Devi R et al, showed the incidence of CIN was higher among low income group (19.5%). Socio economic status had always been playing an epidemiological role in genesis of dysplasia. Vaidya et al had also showed that low socio-economic status had a definite role on the development of dyskaryosis. In this study 80% of CIN I and 50% of CIN II were of low-income group (Table 7).[4]

Poor personal hygiene poor living conditions, unstable marriages and early age at first intercourse are factors associated with both low socio-economic conditions and cervical cancer. Slattery ML et al found out that the odds of women developing cervical cancer was greater in women who were non-smokers than in women who smoked.[7] Pregnancy associations appear to relate to the number of live births rather than to miscarriages or abortions, multi-parity is most pronounced among premenopausal women and oral contraceptive users. Although this study does show a strong relation with parity, Human papillomaviruses types 16 and 18, is significantly associated with number of births and explain the strong relation of parity to risk. This study results indicate the need for further consideration of reproductive factors on cervical cancer risk, with attention given to possible mechanisms of action, including hormonal factors and cervical trauma.[8]

Indications of colposcopy

In reference to the study of Chhabra et al[9] where more than two third of the women were in the reproductive age group. It also collaborates the fact that sexually active women in the reproductive age group have a higher chance of having an unhealthy cervix. In a study conducted by Bukhari MH et al peak incidence of abnormal smears were found during age group of 30-39 years.[10] The sociodemographic parameters and patient profile of this study were very similar to study by

Kärrberg et al, in which had included pregnant women also but found similar results.[11] In a study from Belgaum by Durdi et al, discharge per vaginum and postcoital bleeding were the predominant complaints which was same in the present study.[12] A study by Ranga R et al state main indication for colposcopy as abnormal pap smear (79%), persistent discharge, postcoital bleeding and unhealthy cervix were other indication in 9.3%, 4.1% and 11% respectively.[13] Ale OV et al in contrast to what we found, stated main indication of colposcopy was abnormal Pap smear in 48% cases.[6] But, similar abnormal Pap smear referrals (9.1%) were seen in a study done by Penumali S et al.[14]

Table 8: Comparison of Swede score related parameters with findings of other studies.

Study	Score	Sensitivity	Specificity	PPV	NPV
Swede score					
Strander et al	≥5	79%	95%		
Nessa et al	≥5	83%	24.2%	80%	16.3%
Kuswah et al	≥5	100%	91.30%	82.60%	100%
Present study	≥5 (CIN1+)	88.2%	95.33%	75%	98.08%
	≥5 (CIN2+)	100%	91.63%	52.50%	100%

Table 9: Comparison of Reid score related parameters with findings of other studies.

Study	Sensitivity	Specificity	PPV	NPV
Reid score				
Mousavi et al	74%	90.7%	92%	70.5%
Durd et al	85.2%	99.6%	95.8%	98.3%
Hong et al	91.3%	92.9%	93.6%	90.3%
Pimple et al	74.5%	92.2%	42.9%	96%
Kuswah et al	94.44%	91.48%	80.95%	97.73%
Singla et al	78.3%	90.5%		
Present study				
≥5 (CIN1+)	67.65%	100%	100%	95.11%
≥5 (CIN2+)	95.24%	98.68%	86.96%	99.56%

Table 10: Comparison of lesion size and histopathology.

Study	Chronic cervicitis (%)	CIN1 (%)	CIN2 (%)	CIN3 (%)	SCC (%)	Total (%)
Kuswah et al	24 (36.9%)	22 (33.8%)	6 (9.2%)	10 (15.4%)	3 (4.6%)	65 (100%)
Ranga R et al	44 (37%)	42 (35.3%)	7 (5.9%)	21 (17.6%)	5 (4.2%)	119 (100%)
Present study	214 (86.29%)	13 (5.2%)	7 (2.8%)	9 (3.62%)	5 (2.01%)	248 (100%)

Histology with age and parity

Penumali S et al, who did a study on 220 women and also found 52 (26.64%) and 24 (10.9%) were diagnosed as CIN 1 and CIN2,3. Abdel-Haldi M et al in their study found CIN 1 in 0.08% cases and CIN2,3 in 0.03% cases.[15] Basu P, et al in a study found 611 (2.9%) cases in CIN1, 130 (0.6%) cases in CIN2,3.[16]

Similarly, in a study by Ashmita D et al high incidence of CIN was found among the age group 30-49 years with mean age 41 years which was seen in 19% of cases.[17] Kushtagi and fernands et al in their study showed the prevalence of CIN was higher in women over 30 years.[3] Vaidya A et al showed in his study of >35 years. Shalini et al showed the mean age of patients with cancer cervix was 35 versus 32 in patients with being pathology in cervix.[4] In study of Ashmita D et al, increased incidence of CIN among multiparous women. 20.55 were para 2, 15.7% were para 3 and 15% were para 4 or more.[17] Similar study by Shalini et al showed the mean parity was 4.2, in patients with invasive cancer.[5]

Kushtagi and fernands showed the prevalence of CIN was significantly higher in parity of more than 2.[3] Vaidya et al showed more positive cases of CIN were found with parity more than 4. This might be attributed to hormonal and nutritional changes, OCP uses, almost 11% showed features of CIN.[4]

Swede and RCI

The utility of Swede score as a useful marker for predicting the severity of the cervical lesion has also been

demonstrated by Strander et al and Bowring et al, who found that a score of 8 or higher had a specificity of 95% for CIN2 or worse with a sensitivity of 38%, whereas lowering the cutoff to 6 improved the sensitivity at the expense of specificity.[18,19] Lower scores showed high negative predictive values; a score of 3 or less resulted in a negative predictive value of 90%. Like Swede score, this highlights the utility of Reids score also as a useful marker as a predictor of severity of the cervical lesion. Singla et al also found similar results with Reids score cutoff as 4.[20] Sensitivity and specificity were 78.3% and 90.5% to detect low grade lesions, respectively, and for detecting high grade lesions, sensitivity improved to 92.9% and specificity was 86.5% (Table 8 and 9). An assessment of the coefficient of variability (R2 = 0.7753) explained that changes in Swede score explained 77% of the variability in the Reids score similar findings were observed in the studies conducted by Ranga R et al and kushwah S.[13,21] Ranga R et al, demonstrated correlation coefficient (R2) of 0.919 between Swede score and Reid score.

Lesion size

Kierkegaard et al, showed in their study that lesion size larger than 50% (2 or more quadrants) of the visible cervix had an odds ratio of 3.6 (95% confidence interval: 2.1-6.3).[22] This results correlate well with the studies done by Kushwaha et al and Ranga R et al, Kushwaha S and Kushwaha B showed that significant association between lesion size and CIN + lesion (p <0.05). Lesion size >15 mm involving >3 quadrants was present in 14 subjects. On histopathology, CIN II + lesions were seen in 19 subjects, out of whom 8 had lesion of size ≥15 mm. Hence lesion size parameter included in swede score act as a good predictor of high-grade lesions (Table 10).[21,22]

Pap cytology, colposcopy and histopathology

Data suggest that with colposcopy as a screening tool, the rate of false negative cytology could be significantly reduced. Colposcopy enhances cervical screening particularly in women with otherwise negative smears. Correlation between cytology and HPE is poor as far as mild dysplasias were concerned. But the correlation becomes surprisingly good for moderate and severe dysplastic lesions. This indicates the usefulness of colposcopy in diagnosing lesions missed by Pap smear as was seen in a meta- analysis by Olaniyan et al.[3] Most of the women in this study reported no significant finding on the cytology (214, 85.6%). Spectrum of findings on Pap smear varied from low risk lesions like Persistent inflammatory changes (1, 0.4%) and LSIL (8, 3.2%) to high risk lesions like HSIL (10,4%).

Although studies show, Pap test to be equally sensitive to histopathological examination for the early detection of different cervical lesions. However, it is advised to perform biopsy if any abnormalities are detected in Pap smear for correlation and confirmation. Carcinoma cervix is one of the most common cancers in women and it is the most researched disease. The regular screening of population by Pap smear is a cost-effective method for early detection of premalignant and malignant cervical lesions. Correlation of cervical cytology with cervical biopsies has been a common component of continuous quality improvement programme for accreditation purposes.[22] Ashmita D et al in her study showed , pap smear had better specificity (83.3% versus 72.3%) compared to colposcopy and colposcopy had a better Sensitivity (90.24% versus 19.5%) compared to Pap smear (Table 11).[17]

Table 11: Correlation between pap smear, colposcopy and histopathology.

Study	Sensitivity (%)	Specificity (%)	Positive predictive value (%)	Negative predictive value (%)	p value
Correlation of Pap smear with colposcopy					
Ashmita D et al	22.5%	100%	100%	27.9%	0.097
Present study	78%	92%	52%	97%	<0.0001
Correlation of Pap smear with histopathology					
Ashmita D et al	19.5%	83.3%	80%	23.26%	0.329
Present study	82.3%	97.1%	82.3%	97.1%	<0.0001
Correlation of colposcopy with histopathology					
Ashmita D et al	90.2%	72.7%	92.5%	66.67%	<0.001
Present study	67%	100%	100%	95%	<0.0001

CONCLUSION

Colposcopic indices like the Reid score performed well in terms of both sensitivity and specificity and correlates well with histological results in case of cervical disease and evaluation of its severity while swede score also had fairly good sensitivity but low specificity for CIN1+

lesions which eventually improved as the severity of lesions increase to CIN2+ or more. All women of study population with swede score of 8 or more was found to have CIN3 or ICC. So, study recommend doing colposcopy and treating lesion then and there if swede score is 8 or higher. Thus, it is concluded that both scores performed well in this hospital-based study on a selected

population and both the scores can be flexibly used with additional advantage of Swede score for incorporating lesion size. The lower threshold with high sensitivity can be used for screening while the higher threshold with high specificity can be used to screen and treat lesion, making easier for health workers in low resource settings to assess the feasibility of treatment modalities. The study being done on large population eliminates verification bias to an extent but despite the substantial compliance with histologic results, if inter-observer variability is taken into consideration, more research and large studies are needed to assess and improve the diagnostic accuracy of colposcopy.

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