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Rate of Cervical Intraepithelial Neoplasia in Histopathology After Colposcopy: A study in Colposcopy Clinic of Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka, Bangladesh

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Abstract

Background: *Cervical cancer is the third most common cancer in women, and the seventh overall, with an estimated 530,000 new cases per 100,000 in 2008. More than 85% of the global burden occurs in developing countries, where it accounts for 13% of all female cancers. Overall, the mortality: incidence ratio is 52%, and cervical cancer was responsible for 275,000 deaths in 2008, about 88% of which occurred in developing countries: 53,000 in Africa, 31,700 in Latin America and the Caribbean, and 159,800 in Asia. In Bangladesh, the incidence of cervical cancer is about 17,686 and around 10,364 women die from cervical cancer each year [1]. GLOBOCAN 2002 estimated that more than 80 percent of deaths were from cervical cancer worldwide. However, key reason for continuing high mortality in the developing world is the shortage of efficient, high quality screening programs in those regions [2].*

Objective: *The main objectives of the study to find out the rate of histopathology confirm CIN after colposcopy. Some others specific objective are to find out the sociodemographic characteristics of the patients, to find out the obstetric history of the patients, to find out the different features of cervix on colposcopy and to find out the rate of histopathology confirm CIN.*

Materials and Methods: *This is a cross-sectional study was conducted to find out the rate of histopathology confirm CIN after colposcopy. The period of study was 6 months from December 2012 to May 2013. The study was conducted at the colposcopy clinic of Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka. Women from 20 to 65 years of age with colposcopy diagnosed cervical intraepithelial neoplasia (CIN) were enrolled from the colposcopy clinic of Obstetrics and Gynaecology Department, BSMMU.*

Results: *The cross-sectional study was conducted to find out the rate of histopathology confirm CIN after colposcopy. This study included 100 women who had colposcopic positive CIN cases. During colposcopy examination, the squamo-colomnar junction was seen clearly among 97.0% of the women. Among the women 67.0% had aceto-white area on the cervix and 30.0% women had acetowhite, punctation and mosaicism on their cervix. Colposcopy findings showed that 57.0% of the women had CIN I, 38.0% of them had CIN II, 2% had CIN III, and 3.0% of them had inadequate colposcopy findings. The inadequate findings were described when colposcopists were unable to identify the SCJ adequately. Histopathology findings proved that 54.0% had CIN I, 22% had CIN II, 5% had CIN III and 19% were within normal findings. The rate of histology confirmed CIN after colposcopy showed that among the colposcopy diagnosed 47 CIN I cases, histology confirmed 31 had CIN I, 14 CIN II and CIN III. Among 31 colposcopy diagnosed CIN II cases, histopathology revealed 22 had CIN I, 7 had CIN II and 2 had CIN III. Only two women had CIN III in colposcopy, histopathology proved 1 had CIN II and 1 had CIN III. Furthermore, one women had inadequate colposcopy findings and histopathology proved that she had CIN I ($p>0.301$).*

Conclusion: *This study demonstrated high accuracy and correlation between colposcopy and histology. The usefulness of these two diagnostic procedures as screening tests for preclinical cervical cancer were also assessed. The benefit of colposcopy and directed biopsy was proved helpful to avoid over diagnosis and over treatment of low-grade lesion.*

Key Words: *Cervical Intraepithelial; Neoplasia; Histopathology; Colposcopy*

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I. Introduction

Cervical cancer is the third most common cancer in women, and the seventh overall, with an estimated 530,000 new cases per 100,000 in 2008. More than 85% of the global burden occurs in developing countries, where it accounts for 13% of all female cancers. Overall, the mortality: incidence ratio is 52%, and cervical cancer was responsible for 275,000 deaths in 2008, about 88% of which occurred in developing countries: 53,000 in Africa, 31,700 in Latin America and the Caribbean, and 159,800 in Asia. In Bangladesh, the incidence of cervical cancer is about 17,686 and around 10,364 women die from cervical cancer each year [1].

GLOBOCAN 2002 estimated that more than 80 percent of deaths were from cervical cancer worldwide. However, GLOBOCAN 2008 revealed it as 88 percent and predicted the increases of death as 98% by 2030. A key reason for continuing high mortality in the developing world is the shortage of efficient, high quality screening programs in those regions [2]. Hospital based data revealed that cervical cancer constitutes 22-29% of the female cancer in Bangladesh [3]. Majority of the patients diagnosed with this preventable cancer present in clinically advanced, inoperable stages.

Cervical cancer is preceded by pre-cancerous changes, which represent a continuum of morphologic change beginning with CIN I (mild dysplasia) and progresses through CIN II (moderate dysplasia) and CIN III (severe dysplasia) to invasive carcinoma. They may not invariably progress to cancer and a good number of them may spontaneously regress. The persistence and severity of the pre-cancerous changes influences the progress of the disease. The likelihood of regression of CIN I, CIN II and CIN III is 60%, 40%, 33% respectively and progression to Invasive Carcinoma of Cervix (ICC) is 1%, 5% and greater than 12% respectively. The time interval between infection and development of cervical cancer varies and is apparently more than 15 years [4]. CIN I does not need any treatment. In 80% of these cases become normal within 1 year. They need only follow up and counseling. CIN II and III need treatment and follow up. The treatment for CIN II and III is to remove or destroy the abnormal epithelium from the cervix by Cryotherapy (cryosurgery or freezing), LEEP (loop electrosurgical excision procedure),

Cone biopsy (cold knife cone), Laser surgery (laser vaporization) and Cold coagulation. Cryotherapy and LEEP are two safe, effective, and relatively simple and inexpensive outpatient methods used for the treatment of pre-cancer. At present methods available for cervical cancer screening include cytology-based screening (Paps smear), unaided visual inspection including visual inspection of cervix after application of acetic acid (VIA), visual inspection with Lugol's iodine (VILI), aided visual inspection namely colposcopy and tests for HPV markers. Colposcopy is a binocular magnifying instrument that examines the surface features and vascular pattern of the cervical and vaginal epithelium. It magnifies the view of the surface of the cervix and, in most patients, of the endocervical canal, and allows precise delineation of the size and distribution of the neoplastic epithelium. Colposcopists interpret the result of precancer as Normal, CIN I CIN II, CIN III, or early invasive cancer stage I & II a or cancer stage II b & above. CIN I corresponds to mild dysplasia, CIN II corresponds to moderate to severe dysplasia and CIN III corresponds to severe dysplasia and carcinoma-in-situ. Colposcopy directed biopsies should be taken from the most severely affected areas and sent for histopathological examination.Visual inspection of the cervix after acetic acid (VIA) application is an accepted method of cervical cancer screening at Maternal and Child Welfare Centers (MCWCs), District Hospitals (DHs), Medical College Hospitals (MCHs) and Bangabandhu Sheikh Mujib Medical University (BSMMU). The target group for cervical cancer screening are all ever-married women aged 30 years and above. BSMMU and other 13 medical college hospitals (MCHs) are recognized referral centres to receive screen positive (VIA+ve) women from different service centres. In the referral centres facilities for colposcopy, histopathology and management of precancerous condition of the cervix were made available. Colposcopy became an important part of this prevention programme both for diagnosis and guiding the treatment [5,6]

High grade cervical intraepithelial neoplasia CIN II & III bears a significant risk of developing invasive carcinoma if left untreated [7]. Colposcopy and Colposcopy directed biopsy can accurately assess the topography and morphology of the cervical lesion [8]. The Loop Electrosurgical Excision Procedure (LEEP) is well established for the treatment of CIN. This outpatient surgical procedure to treat CIN is widely used in cervical screening programs in high-income countries [9]. When Colposcopy evaluation is considered satisfactory and invasive disease is not suspected, LEEP can be performed in an outpatient setting under local anesthesia. Histopathology evaluation of the cervical specimen is adequate in over 90% of the cases [10].

II. Objectives

General:
To find out the rate of histopathology confirm CIN after colposcopy
Specific:
To find out the socio-demographic characteristics of the patients
To find out the obstetric history of the patients
To find out the different features of cervix on colposcopy
To find out the rate of histopathology confirm CIN

III. Literature Review

Visual inspection of cervix with acetic acid is an efficient and cost-effective screening technique in Bangladesh to access the women of 30 years and above for the early detection of cervical cancer [5].

The usual approach for diagnosis of cervical intraepithelial neoplasia (CTN) offers initial assessment of VIA positive women by colposcopy and when necessary, biopsy and histology and performance of LEEP at 2nd or 3rd visit on those who have biopsy-proven high grade CIN (CIN II and CIN III). However, this protocol requires two visits for treatment. Management of CIN in developing countries is a real challenge due to failure of treatment when more visits are necessary [11]. Several studies have shown that LEEP on colposcopy diagnosed high grade CIN at the same visit is a safe and effective option for treatment of CIN [12,13]. One of the important role of colposcopy is in guiding the diagnostic biopsy. Fundamentally, the clinicians follow a histologic standard of disease, in which the histologic diagnosis of the colposcopy directed biopsy is considered as the true underlying disease severity and the severity dictates management [14].

Pre-invasive lesions may be treated by cryotherapy (the destruction of cells by extreme cold), laser ablation, LEEP or cold coagulation. Invasive cervical cancers are referred for treatment by surgery, radiation, or both, as well as chemotherapy in some cases [15]. Cervical conization is the treatment of choice for high-grade precancerous lesions. Loop electrosurgical excision procedure (LEEP) is one of the accepted techniques for cervical conization. It has been widely used in gynecologic practices worldwide. This is because the technique allows the collection of specimens for further histopathological and therapeutic diagnosis during the same visit and can be performed in an outpatient setting using local anesthesia [16]. Colposcopy and directed biopsy can be advocated as a method of obtaining an accurate and safe diagnosis in patient with abnormal smears. Only if the upper limit of the transformation zone is not visible then diagnostic cone biopsy should be needed [8].

Cervical Intraepithelial Neoplasia (CIN): The concept of cervical cancer precursors dates back to the late nineteenth century, when areas of noninvasive atypical epithelial changes were recognized in tissue specimens adjacent to invasive cancers [17]. The term carcinoma in situ (CIS) was introduced to denote those lesions in which the undifferentiated carcinomatous cells involved the full thickness of the epithelium, without disruption of the basement membrane. The term dysplasia was introduced to designate the cervical epithelial atypia that is intermediate between the normal epithelium and CIS [18].

Epidemiology: Epidemiological studies have identified a number of risk factors that contribute to the development of cervical cancer precursors and cervical cancer. These include infection with certain oncogenic types of human papillomaviruses (HPV), sexual intercourse at an early age, multiple sexual partners, multiparty, long-term oral contraceptive use, tobacco smoking, low socioeconomic status, infection with Chlamydia trachomatis, micronutrient deficiency and a diet deficient in vegetables and fruits. HPV types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59 and 68 are strongly associated with CIN and invasive cancer [19, 20].

Colposcopy: A colposcope is a low-power, stereoscopic, binocular field microscope with a powerful light source used for magnified visual examination of the uterine cervix to help in the diagnosis of cervical neoplasia. The most common indication of referral for colposcopy is positive screening tests (e.g., positive cytology, positive on visual inspection with acetic acid (VIA) etc.). The key ingredients of colposcopic examination are the observation of features of the cervical epithelium after application of normal saline, 3-5% dilute acetic acid, and Lugol's iodine solution in successive steps. The colour changes in the cervix, following the application of Lugol's iodine solution, depends on the presence or absence of glycogen in the epithelial cells. Areas containing glycogen turn brown or black; areas lacking glycogen remain colourless or pale or turn mustard or saffron yellow [2].

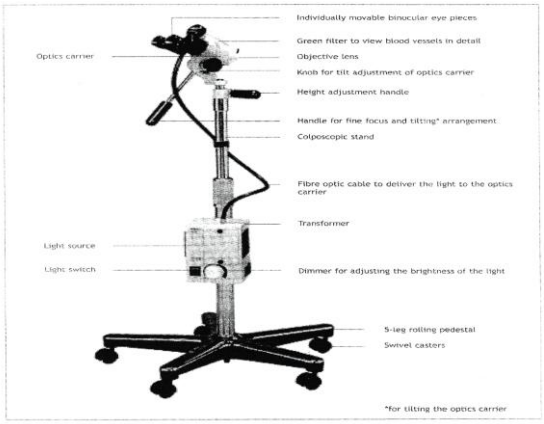


Figure 1: Colposcope (Sellor J W and Sankaranaravanan R, 2003).

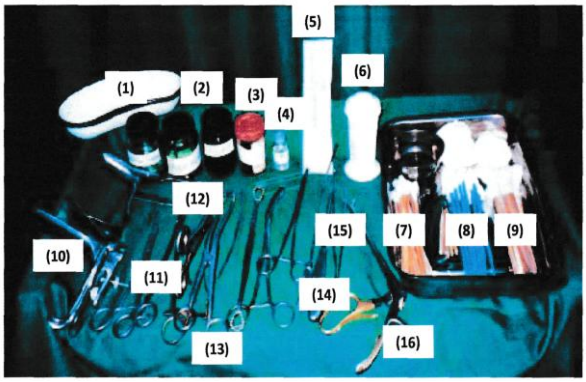


Figure 2: Colposcopy instrument tray (Sellor J W and Sankaranarayanan R, 2003). 1. Kidney tray, 2: Bottles with normal saline, 5% acetic acid and Lugol's iodine, 3: Monsel's solution, 4: Bottle containing formaline, 5: Local anaesthetic syringe, 6: Jar containing alcohol for cervical smear fixation, 7: Cotton-tipped fine swab sticks, 8: Cervical cytology brushes, 9: Larger cotton-tipped swab sticks, 10: Vaginal speculum, 11: Sponge-holding forceps, 12: Vaginal side-wall retractor 13: Endocervical speculum, 14: Endocervical curette, 15: Dissecting forceps, 16: Punch biopsy forceps

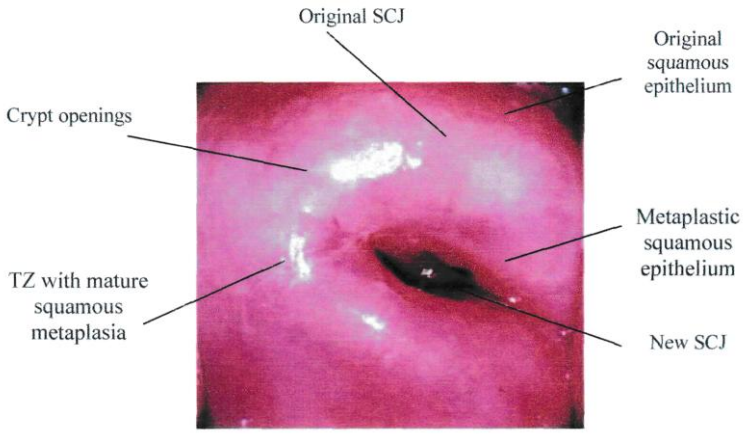


Figure 3: Showing the entire new squamocolumnar junction (SCJ) and the transformation zone (TZ) (Seller J W and Sankaranarayanan R, 2003).

Figure 4.1 - Mosaic fine, regular, smooth surface (LSIL).

Figure 4.2 - Mosaic irregular, uneven (HSIL).

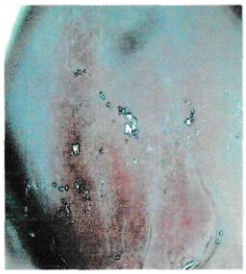


Figure 4.3 : Acetic acid stain: Punchs and fine mosaic - CIN I

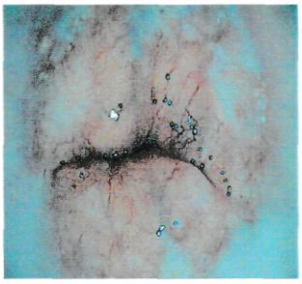


Figure 4.4-Atypica vessels - CIN II.

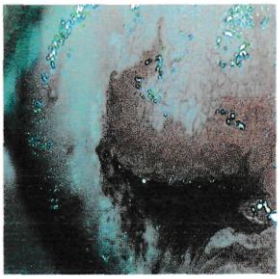


Figure 4.5-Acetic acid stain: mosaic, punches, aceto-white epithelium (upper lip) - CIN III.

Figure-4: Colposcopic appearance of (4.3) CIN I (4.4) CIN II (4.5) CIN III on cervix.

Colposcopy directed biopsy:

After defining the abnormal area, colposcopy directed biopsy is performed with the help of cervical punch biopsy forceps. For clear understanding and correlating the underlying histopathology with colposcopic results, multiple biopsies should be taken. A biopsy from the endocervical canal may be obtained with an endo-cervical curette. The tissues are fixed, labeled properly and then histopathological examination is done.

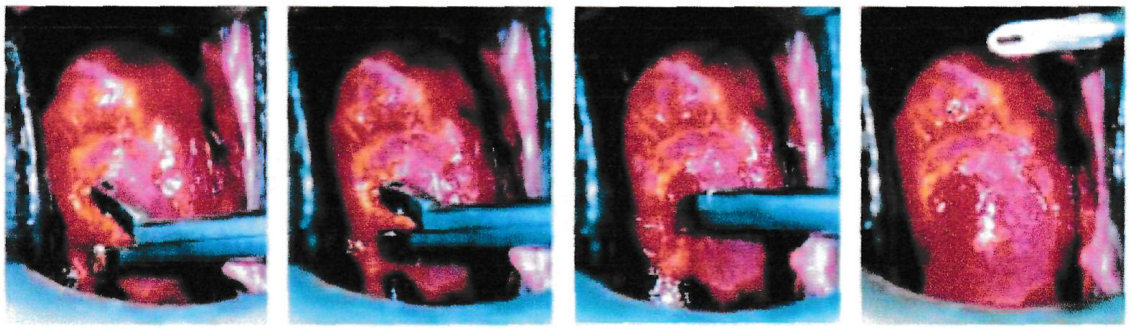


Figure 5: Showing biopsy technique (Seller J W and Sankaranarayanan R, 2003).

Cervicography: Cervicography can be adjuvant to the Pap's test and a photographic screening using 33 mm camera. A film is sent to a laboratory where processing and reporting is done by expert colposcopist.

Schiller's Test: The test is based on the principle that normal squamous epithelium of the cervix contains glycogen, which combines with iodine to produce a deep mahogany brown color. No staining, therefore, indicates abnormal squamous (or columnar) epithelium, scarring, cyst formation etc. and constitutes a positive.

IV. Materials And Methods

Study design: A cross-sectional study was conducted to find out the rate of histopathology confirm CIN after colposcopy.

Study period: The period of study was 6 months from December 2012 to May 2013.

Study place: The study was conducted at the colposcopy clinic of Bangabandhu Sheikh Mujib Medical University, Shahbag, Dhaka.

Study population: Women from 20 to 65 years of age with colposcopy diagnosed cervical intraepithelial neoplasia (CIN) were enrolled from the colposcopy clinic of Obstetrics and Gynaecology Department, BSMMU. Women aged between 20 to 65 years with all grades of colposcopy diagnosed CIN cases were included as study population.

Exclusion Criteria: Women with previous treatment for CIN, pregnant women, post natal period and women who did not give informed consent to take part in the study were excluded.

Sampling technique: The study was conducted to evaluate the relation between colposcopy and histology findings of colposcopy diagnosed CIN cases. The sample size was estimated by using the following formula of cross sectional survey.

Sample size, $n = \frac{Z^2 Z(1-p)}{d^2}$

Here, Z= Standard normal deviate set at 1.96 which is corresponding to 95% confidence interval.

In Bangladesh, so far the prevalence of cervical cancer and CIN has not been established from any population based study. However, data from the hospital statistics indicate that cervical cancer is a major health problem among the Bangladeshi women and constitutes about 22-29% of the genital tract cancer. According to the GLOBOCAN 2008 (cancer incidence and mortality worldwide), 5 years prevalence of cervical cancer is 26.1% (Ferlay J and Shin HR Bray et al 2010, Ostor AG 1993). p= Prevalence of cervical cancer is taken as 26% l-p= 1-0.26= 0.74 d= Degree of precision set at 0.05. Putting the values in the above equation the sample size n was estimated as

$$n = \frac{(1.96)^2 \times 0.26 \times 0.74}{(0.05)^2}$$

=295.65~296

From the above formula the estimated sample size is 296. It was noted that 296 was the required number of sample size if simple random sampling technique was used. But as in this study purposive sampling technique was used and due to the time constrain and availability of patients 100 samples was taken. This was likely to reduce the power of the analysis but was still in the acceptable range for the purpose.

Sample size: 100 women who fulfilled all the selection criteria were recruited in this study.

Data collection technique: This cross sectional study was done from December 2012 to May 2013 at the colposcopy clinic, Department of Obstetrics & Gynaecology, BSMMU. VIA+ve women from different VIA centres of Bangladesh attend the colposcopy clinic of BSMMU for evaluation and management. Approximately 270 VIA+ve women attended the colposcopy clinic in the study period. After initial counseling about recruitment standard colposcopic examination of VIA+ve women were performed by colposcopist. Women with colposcopy diagnosed CIN availing Loop Electrosurgical Excision Procedure (LEEP) by single visit or multiple visit were recruited in this study. After taking informed consent and further counseling and recruitment LEEP were performed. Data collection in a pretested questionnaire was implied for women who were treated by LEEP.

Procedure of Colposcopy: The Colposcopy was focused on external cervical at a distance of approximately 10-20 cm from the cervix. Cervix viewed after appling normal saline and cervix was viewed by Green filter to see the vessel patterns. After removing the green filter, 5% acetic acid was applied for at least 1 minute to the cervix. Repeated application may be required throughout the procedure for getting accurate results. Acetowhite areas, margin of acetowhite areas, puctation and mosaicism were observed during colposocpy examination and recorded in the predesigned proforma.

Data analysis: Statistical analyses were carried out by using the Statistical Package for Social Sciences version 16.0 for Windows (SPSS Inc., Chicago, Illinois, USA). Categorical variables was expressed as frequencies and percentages. The results were presented in tables, figures, diagrams. The comparison between colposcopy diagnosis and histopathological findings were analyzed by McNemar test and measures of agreement were performed by Kappa test, which showed in cross tabulation. A p-value <0.05 was considered as significant.

Ethical consideration: Prior to the commencement of this study the research protocol was approved by the Institutional Review Board, BSMMU. The aims and objectives of the study along with its procedure, alternative diagnostic methods, risk and benefits of this study was explained to the patients in easily understable local language and then informed written consent was taken from each patient. It was assured that all messages were informed and records were kept confidential and this procedure was helpful for both the gynaecologist and the patients in making rational approach of the case management.

V. Results

The study was conducted at the colposcopy clinic of BSMMU. During the study period 100 women were recruited. Data are presented and analyzed according to objectives. The findings are presented through tables, graphs and organized as below: Table-1 shows socio-demographic characteristics of the study patients, it

was observed that hundred women had an age spectrum between 21 and 58 years, with mean age of 34.3 (±7.6) years. About half of the women were in 31-40 years age group (48.0%). Majority (57.00%) of women had secondary education and 11.00% had no formal education and 16.00% had primary education. Regarding occupational status, 95.0% were housewife and 4.0% were in services. Among the women, 42.0% were married in 16-20 years and 43.0% were married before 15 years of age. Nearly half (48.0%) were married for 11-20 years and 26.0% were married for 21-30 years. Only 3.5% had post coital bleeding. Nearly two third (64.0%) women had their first child between 16 to 20 years of age and 13.0% were delivered their first child before 15 years of age. More than half (55.0%) of the women had 1-2 children. 39.0 % of them had 3-4 children and 4.0% had no children.

Table-1: Socio-demographic characteristics of the respondents (n=100)

Socio-demographic characteristics	Number of patients	Percentage
Age group		
21-30 years	38	38.0
31-40 years	48	48.0
41-50 years	11	11.0
51 years and above	3	3.0
Education of woman		
Class I-V	16	16.0
Class VI-S.S.C	57	57.0
H.S.C	8	8.0
Degree & above	8	8.0
No education	11	11.0
Occupation of women		
Housewife	95	95.0
Services	4	4.0
Other	1	1.0
Age at marriage (years)		
11-15 years	43	43.0
1 6 - 20 years	42	42.0
21-25 years	13	13.0
26-30 years	2	2.0
Duration of marital life (years)		
01-10 years	18	18.0
1 1 - 20 years	48	48.0
21-30 years	26	26.0
3 1 - 40 years	8	8.0
History of post coital bleeding		
Yes	7	3.50
No	93	96.50
Age of first delivery of women		
Nullipara	4	4.0
11 - 15 years	13	13.0
1 6 - 20 years	64	64.0
21-25 years	12	12.0
26 - 30 years	7	7.0
Parity		
1 - 2 Children	55	55.0
3 - 4 Children	39	39.0
More than 5 Children	2	2.0
Nulipara	4	4.0

COLPOSCOPY FINDINGS:

Table-2 shows the type of squamo-colomnar junction (SCJ) found during colposcopic examination. Among the women in 97.0% of the cases squamo-colomnar junctions were seen clearly. Presenting features of the cervix during colposcopy. Sixty seven percent of the women had aceto-white area on the cervix and 30.0% of them had acetowhite, punctation and mosaicism on the cervix.

Table -2: Colposcopy findings (n=100)

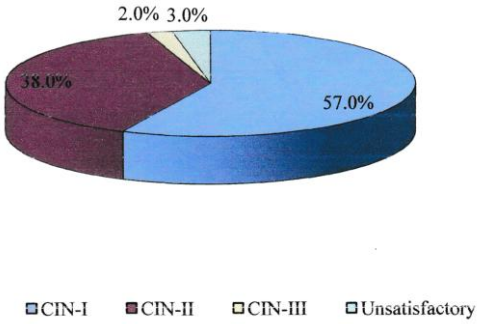
Findings	Number of patients	Percentage
SCJ of cervix at colposcopy		
SCJ seen clearly	97	97.0
SCJ not seen clearly	3	3.0
Features of cervix		
Aceto-white Area	67	67.0
Aceto-white and Puctation	1	1.0
Puctation and Mosaicism	1	1.0

Acetowhite and Mosaicism	1	1.0
Aceto-white, Punctation and Mosaicism	30	30.

COLPOSCOPY DIAGNOSIS

Figure-6 shows the distribution of colposcopy findings results show 57% of women had CIN I, 38.0% had CIN II, 2.0% had CIN III and 3.0% had inadequate colposcopy findings where SCJ could not visualized after adequet efforts.

Figure-6: Distribution of Colposcopy findings (n=100)



HISTOPATHOLOGICAL FINDINGS

Figure-7 shows the distribution of histopathologv findings, 54,0% of women had CIN I, 22.0% had CIN II, 5.0% had CIN III and 19.0% had normal histopathological result.

Figne-7: Distribution of histopathological findings (n=100)

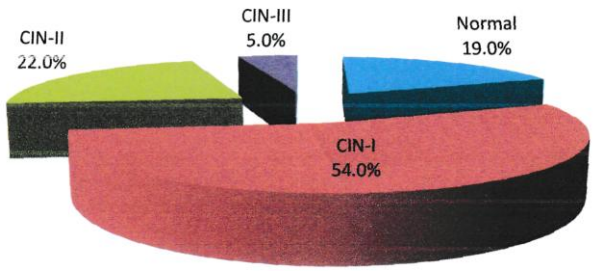


Table 3: Distribution of the histopathology findings (n=100)

Histopathology	Frequency	Percentage	95%CI	
			Lower	Upper
Positive	81	81.0	72.5	89.5
Negative	19	19.0	-	-

Positive histopathology level was found in 81.0% cases with 95% confidence interval 72.5% to 89.5%.

Table 4: Comparison between colposcopy diagnosis with histopathology findings (n=100)

Colposcopy diagnosis Total	Histopathology findings	
	Positive	Negative
	(n=81)	(n=19)
CIN 157 CIN II 38	47 31	10 7
CIN III 2	2	0
Inadequate colposcopy 3	1	2
findings (CIN I/II)		

A total of 100 colposcopy positive cases, out of which 81 cases were histopathologically positive and 19 cases were negative. On the other hand colposcopy diagnosed 57 CIN I cases, histology confirmed 47 cases had positive and 10 cases were negative. Among 38 colposcopy diagnosed CIN II cases, histopathology revealed 31 cases had positive and 7 cases were negative. Only two women had CIN III in colposcopy diagnosis

and histopathology proved two cases were positive. Furthermore, three women had inadequate colposcopy findings, histopathology proved one positive case and two cases were negative.

Table 5: Relation between colposcopy diagnosis and histopathology findings (n=81)

Colposcopy diagnosis	Total	Histopathology findings			P	Kappa
		CIN I	CIN II	CIN III	Value	Value
CIN I	47	31	14	2		
CIN II	31	22	7	2	0.301[ns]	0.033
CIN III	2	0	1	1		
Unsatisfactory (CIN I/II)	1	1	0	0		
Total	81	54	22	5		

ns=not significant

P value reached from McNemar test

Table-5 shows the relation between colposcopy diagnosis and histopathology findings. Among the colposcopy diagnosed 47 CIN I cases, histology confirmed 31 had CIN I, 14 CIN II and two CIN III. Among 31 colposcopy diagnosed CIN II cases, histopathology revealed 22 had CIN I, 7 had CIN II and two had CIN III. Only two women had CIN III in colposcopy diagnosis, histopathology proved one had CIN II and one had CIN III. Furthermore, one woman had unsatisfactory in colposcopy diagnosis, histopathology proved one had CIN I.

VI. Discussion

Cancer of the cervix is one the most common diseases affecting women after the fourth decade of life. It is the most common Gynaecological malignancy and is a significant cause of death in women in Bangladesh as well as all over the world. In most developed countries, screening programmes for early detection of pre-clinical cervical cancers have proven to be very useful and have contributed to improved results of treatment. But in our country high mortality rate due to lack of proper and efficient screening programmes. The current study was carried out to find out the rate of histopathology confirmed CIN after colposcopy. In this study 100 cases were included purposively. Among the 100 women, the age spectrum were between 21 and 58 years, with mean age of 34.3 (±7.6) years and 48.0% women were in 31-40 years age group. The study showed that 57.0% of women had secondary education and 11.0% were illiterate and 16.0% had primary education. Majority (95.0%) of the women was housewife and 4.0% were in services. Among the women, 42.0% were married in 16-20 years age group and 43.0% were married below 15 years. Several studies have identified a number of the risk factors that contribute to the development of cervical cancer precursor and cervical cancer [19, 20]. In this present study majority of the patients were married before the age of 15 years which is a risk factor for cervical cancer precursor. Moreover, 48.0% were married for 11 - 20 years and 26.0% were married for 21-30 years.

During colposcopy examination, the squamo-colomnar junction was seen clearly among 97.0% of the women. Among the women 67.0% had aceto-white area on the cervix and 30.0% women had acetowhite, punctation and mosaicism on their cervix. To determine the overall accuracy of the colposcopic impression and to compare our results with other studies published, we used the cervical biopsy result as standard values because all specimens were histologically analyzed. The colposcopic aspects of the lesions were compared with histology results of colposcopy directed LEEP biopsy specimen to find out the rate of histopathology confirm CIN after colposcopy.

Colposcopy findings showed that 57.0% of the women had CIN I, 38.0% of them had CIN II, 2% had CIN III, and 3.0% of them had inadequate colposcopy findings. The inadequate findings were described when colposcopists were unable to identify the SCJ adequately. Histopathology findings proved that 54.0% had CIN I, 22% had CIN II, 5% had CIN III and 19% were within normal findings. The colposcopic findings revealed that 10% had CIN I, 34% had CIN II and 34% had CIN III. Histology findings were: 10% had CIN I, 20% had CIN II and 60% had CIN III [21]. Another study showed the colposcopic accuracy as 89% which agreed exactly with histology in 61% of the cases. The overall results were nearer to this study [22].

In this study, the comparison between colposcopy diagnosis and histopathology findings were performed among 100 colposcopy positive cases, out of which 81 cases were histopathologically positive and 19 cases were negative. On the other hand among colposcopy diagnosed 57 CIN I cases, histology confirmed 47 cases as having CIN I and 10 cases were negative. Among 38 colposcopy diagnosed CIN II cases, histopathology revealed 31 cases had CIN II and 7 cases were negative. Only two women had CIN III in colposcopy diagnosis, both of them had the same during histopathology. Furthermore, three women had inadequate colposcopy diagnosis and histopathology proved one had CIN I and two cases had normal findings. The colposcopy method incurred fewer false negatives, giving a general accuracy rate of 81% in this study whereas it was about 98.3% in the same type of study [23]. The relation between colposcopy diagnosis and histopathology findings in this study showed that among the colposcopy diagnosed 47 CIN I cases, histology confirmed 31 had CIN I, 14 CIN II and CIN III. Among 31 colposcopy diagnosed CIN II cases, histopathology revealed 22 had CIN I, 7 had CIN II and 2 had CIN III. Only two women had CIN III in colposcopy,

histopathology proved 1 had CIN II and 1 had CIN III. Furthermore, one women had inadequate colposcopy findings and histopathology proved that she had CIN I ($p>0.301$).

Colposcopy become an important part of cervical cancer prevention programme in Bangladesh both for diagnosis and guiding the treatment [5,12]. High grade cervical intraepithelial neoplasia CIN II-III bears a significant risk of developing invasive scarcinoma if left untreated. Colposcopy and Colposcopically directed biopsy can accurately assess the topography and morphology of the cervical lesion [8]. When interpreting values from different studies we might take into consideration that the performance and accuracy of colposcopy depends largely on the training, experience, and skills of the colposcopist .This limitation can be minimized by developing expertise through extensive training and increasing experience on colposcopy [24], in a 100 patients study the correlation between Reid's Colposcopic Index and histologic results from biopsy showed that they had good correlation with histology. In this study the colposcopy and histology findings were statistically nonsignificant which indicates that the findings were almost similar. Prospectively evaluated the colposcopic impression in 282 patients and compared them to the histology. They subsequently recommended a minimal proficiency level of 80% for colposcopic accuracy to show proof of colposcopic competency [25]. In this study attempt was taken to find out the rate of histopathology confirmed CIN after colposcopy which helped to identify women with high-grade intraepithelial lesions and considered as the true precursors of invasive cancer.

This study demonstrated high accuracy and correlation between colposcopy and histology, comparable with results from similar studies in the literature.

VII. Conclusion

This study demonstrated high accuracy and correlation between colposcopy and histology. The usefulness of these two diagnostic procedures as screening tests for preclinical cervical cancer were also assessed. The benefit of colposcopy and directed biopsy was proved helpful to avoid over diagnosis and over treatment of low-grade lesion.

VIII. Recommendations

The study was initiated with the main objective to evaluate the relation between colposcopic and histologic findings of colposcopically diagnosed Cervical Intraepithelial Neoplasia (CIN) cases. Making recommendations to reduce the incidence and mortality of cervical cancer must consider the prevention strategies available as well as effective utilization of technologies. Colposcopy is a specialised technique that needs braining and constant practice. There is therefore, an urgent need to develop further, local expertise on colposcopy and this can be done by referral of all patients with abnormal screening findings for colposcopy to experienced individuals so that sufficient cases with significant colposcopic findings can be used for teaching others. Colposcopy need to acquire the skill by handling adequate numbers cases with significant findings and constantly correlating cytologic, colposcopic and histopathologic findings. However, it is extremely important that changes from conventional methods of diagnosis and management of cervical intraepithelial neoplasia are made or locally destructive methods employed based on colposcopic evaluation until one's own accuracy and skill in the technique would be evaluated.

LIMITATIONS OF THE STUDY

During the study various limitations were faced some of which influenced the standard and validity of the study. Some of the limitations are as follows: This study was a hospital-based study and sample size was selected purposively. The sample size was small that might not be true representative of population under study (that is cervical cancer patients of the society). Limited time was available for study. Patient with colposcopy negative were excluded from the study, therefore the test of validity could not be calculated.

References:

[1]. Ferlay J, Shin HR, Bray F et al. GLOBOCAN 2008: cancer incidence and mortality worldwide. IARC Cancer Base. No. 10 Lyon, France: IARC Press; 2010. http://globocan.iarc.fr.
[2]. Sherris J, Wittet S, Kleine A, Sellers J, Luciani S, Sankaranarayanan R, Barone M et al. 'Evidence-Based, Alternative Cervical Cancer Screenin Approaches in Low-Resource Settings' International Perspectives on Sexual and Reproductive Health'2009;35;3:147-151.
[3]. Akhter PS, Uddin MM, Sharma SK. Patterns of malignant neoplasm-A three year study. Bangladesh Med J 1998;27:29-32.
[4]. Ostor AG. Natural history of cervical intraepithelial neoplasia: a critical review. Int J Gynecol Pathol 1993; 12: 186-192.
[5]. Ahmed T, Ashrafunnessa, Rahman J. Development of a visual inspection programme for cervical cancer prevention in Bangladesh. Reprod Health Matters. 2008; 16:78-85.
[6]. Basu P, Nessa A, Majid M et al. Evaluation of the National Cervical Cancer Screening Programme of Bangladesh and the formulation of quality assurance guidelines. J Fam Plam Reprod Health Care 2010; 36: 131-134.
[7]. Kang W D, Jeong M, Kim S, Nam J H, Park C S, Choi H S. Singnificance of human papillomavirus genotyping with high-grade cervical intraepithelial neoplasia treated by a loop electrosurgical excision procedure. Am J Obstet Gynecol, 2010; 203 :71-76.
[8]. Kirkup W and Shirley H. The accuracy of colposcopically directed biopsy in patients with suspected intraepithelial neoplasia of the cervix. Br J Obstet Gynaecol 1980; 87:1-4.

[9]. Rema P, Suchetha S, Thara S, Fayette J M ,Wesley R, Sankaranarayanan R. Effectiveness and safety of loop electrosurgical excision procedure in a low-resource setting. Int J Gynecology & Obstetrics 2008; 103:105-110.
[10]. Sanu O, Pal A, George S. A pilot study comparing efficacy of a cervical intraepithelial neoplasia excisor with loop electrosurgicla excision procedure. European J. of Obstertics & Gynecology and Reproductive Biology 2010; 151:91-95.
[11]. Kattukaran A, Kekre A, Jose R, Seshadri L. See & treat protocol for evaluation & management of cervical intraepithelial neoplasia. Indian J Med Res. 2002; 116:106-10.
[12]. Nessa A, Hussain M A, Rahman J N, Rashid M H, Muwonge R, Sankaranarayanan R. Screening for cervical neoplasia in Bangladesh using visual inspection with acetic acid . Int J Gynecol Obstet 2010:111:115-118.
[13]. Darwish A and Gadallah H. One-step management of cervical lesions. International Journal of Gynecology & Obstetrics 1998; 61: 261-267.
[14]. ACOG Practice Bulletin. Management of abnormal cervical cytology and histology. Obstet Gynecol 2005; 106:645-64.
[15]. American Cancer Society. Cancer Facts & Figures 2006. Atlanta: American Cancer Society; 2006.
[16]. Wright TC, Gagnon S, Richart RM, Ferency A. Treatment of intraepithelial neoplasia using the loop electrosurgical excision procedure. Obstet Gynecol 1991; 79: 173-8. 2.
[17]. William J. Cancer of the uterus: Harveian lectures for 1886. HK Lewis London, 1888.
[18]. Reagan J W, Seidermann I L & Saracusa Y. The cellular morphology of carcinoma in situ and dysplsia or atypical hyperplasia of the uterine cervix.Cancer, 1953, 6: 224-235.
[19]. Bosch FX, Manos MM, Munoz N, Sherman M, Jansen AM, Peto J, Schiffman MH, Moreno, V, Kurman R, Shah KV. Prevalence of Human papillomavirus in cervical cancer: a worldwide perspective. J, Natl Cancer Inst 1995; 87: 796-802.
[20]. Ferlay J, Shin HR, Bray F et al. GLOBOCAN 2008: cancer incidence and mortality worldwide. IARC Cancer Base. No. 10 Lyon, France: IARC Press; 2010. http://globocan.iarc.fr.
[21]. Maziah AM, Sharifah NA, Yahya A. Comparative study of cytologic and colposcopic findings in preclinical cervical cancer, Malays J Pathol, 1991; 13:105-108.
[22]. Olaniyan OB. Validity of coloposcopy in the diagnosis of early cervicl neoplasia-a review. Afr J Reprod Health 2002; 6(3): 59-69.
[23]. Ancuta B, Anca P, Surlin V, Iliescu D, Schenker M, Luminita C. Correlations between colposcopy and histologic results from colposcopically directed biopsy in cervical precancerous lesions. Rom J Morphol Embryol 2012; 53:735-741s
[24]. Boonlikit S. Correlation between Reid's colposcopic index and histologic results from colposcopically directed biopsy in differentiating high-grade from low-grade squamous inrraepithelial lesion at Rajavithi Hospital, Med Assoc Thai, 2011; 94:S59-S65.
[25]. Stafl A, Mattingly RF. Colposcopic diagnosis of cervical neoplasia, Obstet Gynecol, 1973,41:168-176.

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