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Corelation Between Cytologic, Colposcopic and Pathohistological Findings of Cervical Intraepithelial Lesions

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Aim of this study was to examine the frequency of cervical cancer and cervical intraepithelial lesions of a different degree in women, corelation between cytologically diagnosed CIN I, CIN II and CIN III lesions and colposcopic findings and corelation between cytologic and pathohistologic findings of CIN III lesion. **Material and methods:** Cytologic and colposcopic findings have been analysed retrospectively in 2652 women who went through systematic examinations in Women's Health Care Department at Health Center "Dr.Mustafa Šehovic" Tuzla in period 2008-2011. For 93.2% (N=2475) cytology results were normal. Abnormal cytology result was found in 6.71% (N=178): CIN I in 5.54% (147), CIN II in 0.67% (18) and CIN III in 0.49% (13) of women examined. **Results and discussion:** Colposcopy in women with cytology results CIN I, CIN II and CIN III showed abnormal result in women with CIN I in 29.9% (44/147), CIN II in 61.1% (11/18) and CIN III in 61.5% (8/13). Significant association between abnormal colposcopic and abnormal cytologic findings (X^2=36.30,p<0.0005). Abnormal colposcopic result is twice as often with CIN II and CIN III changes on cervix in relation to CIN I. Byopsy of cervix in 13 women with CIN III pathohistologicaly confirmed the diagnose in 46.1% (4/13), cervix lesion was of higher degree in 30.8%, and in 23.0% (3/13) lesion of cervix was of a lower degree. Abnormal colposcopic image is an indicator for the abnormal cytological result. **Conclusion:** Systematic examination of women represents an efficient way of organized screening and prevention of cervical cancer. **Key words: Cervical intraepithelial lesion (CIN), PAP test, colposcopy.**

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1. INTRODUCTION

Cytology diagnostic of conventional cervical smear, that is "PAP test", has been the basic method of secondary prevention of cervical cancer for the last half century. It is considered to be one of the most efficient screening tests, which is acredited for the significant decrease in cervical cancer morbidity. However, this method carries certain risk of making an error, which has to be calculated and avoidable. There are three basic error sources: area from which the sample is taken, technique with which the sample is taken and processed, interpretation of findings. In order to reduce potential errors, several new techniques have been developed in the last few years and those are: Liquid based cytology (LBC) with the new way of technical preparation of samples,computerized cytological analysis and HPV DNA typization for primary and secondary screening (1).

Conventional PAP test together with colposcopy and histology is still the basic method of secondary prevention of cervical cancer in our country. Cervical intraepithelial lesions of high degree (CIN III), that are cytologically diagnosed are confirmed with histopathological examination and further treatment is conducted according to these findings, while lower degrees of lesions are treated conservatively and monitored as potential risk for cervical cancer.

2. GOALS

To examine the frequency of cervical cancer and cervical intraepithelial lesions of a different degree in women who went through systematic examinations in Women's Health Care Department in Health Center "Dr.Mustafa Šehovic" Tuzla in period 2008-2011.

To examine corelation between cytologically diagnosed CIN I, CIN II and CIN III lesions with the colposcopy findings.

To examine corelation between cytologic and histopathological findings of CIN III lesion.

3. PATIENTS AND METHODS

Cytologic and colposcopic findings have been analysed retrospectively in 2652 women who went through systematic examinations in Women's Health Care Department at Health Center Dr. Mustafa Šehovic Tuzla in period

2008-2011.

Cervical and endocervical smear was taken with a wooden spatula and a brush, which were coloured by Papanicolaou method and findings were clasified by Croatian classification of Bethesda 1988 system of classification, taking into consideration standard criteria of differential cytology (ascus lesions were not analysed). After that, all women went through colpscopy examination with 3% solution of acetic acid and iodine test as well. In this process terminology adopted at VII World Congress of Cervical Pathology and Colpscopy in Rome in 1990. was used. Person who conducted colpscopy wasn't aware of cytology findings. Colposcopy was conducted by two colposcopists with colposcope Olympus OSC 500, and PAP tests were examined with microscopes Olympus CX 400 and Oympus CX 31 by two cytologists. Cervical byopsy was performed in all women (N=13) with the cytological finding CIN III. The examinees were working women of different ages and parity and were classified by the years of examinaton, their age and the degree of cytologic findings.

Statistic evaluation of data is done by using x^2 test and the level of significance $p<0.05$ is considered significant.

4. RESULTS

2652 women went through citology and colpscopy examination in Women's Health Care Department at Health Center Tuzla in period between April 2008 and September 2011. The age of these women was between 20 and 60. Majority of the examinees were older than 50 (Figure 1).

In 93.2% (N=2475) cytology results were normal. Abnormal cytology results were found in 6.71% (N=178): CIN I in 5.54% (147), CIN II in 0.67% (18) and CIN III in 0.49% (13) of women. The highest percentage of women with the results CIN I and CIN II were aged between 40 and 49, while the women with

the result CIN III were mostly older than 50 (Figure 2). Statistic evaluation of data didn't show significant connection between the frequency of abnormal cytology result and the age of the examinees ($X^2=11.32$, $p=0.0789$).

Normal colpscopic finding wasn't found in any of the women with the cytology results CIN I, CIN II or CIN III. Abnormal colposcopic result was found in women with CIN I in 29.9% (44/147), with CIN II IN 61.1% (11/18) and with CIN III in 61.5% (8/13). The highest number of unsatisfactory colposcopic findings and mixed colposcopic images has been found with CIN I results. Data processing cofirmed statistically significant association between abnormal colposcopic and cytologic findings ($X^2=36.30$, $p<0.0005$, Table 1), which shows that the abnormal colposcopic result is highly statistically significant for the abnormal cytologic result. Abnormal colposcopic result is twice as often in CIN II and CIN III changes n cervix. Cervix biopsy in 13 women with a diagnose CIN III pathohistologically confirmed this diagnose in 46.1% (6/13), cervix lesion was of a higher degree in

Colposcopic findings	Cytologic findings					
	CIN I	%	CIN II	%	CIN III	%
Normal finding	0	0	0	0	0	0
Abnormal finding	44	29.9	11	61.1	8	61.5
Colposcopic images susp. for cancer	0	0	0	0	0	0
Unsatisfactory finding	10	6.8	2	11.1	0	0
Mixed finding	93 6	3.2	5	27.7	5	38.4
Total	147	100	18	100	13	100

TABLE 1. Corelation between cytologic and colposcopic findings in examinees with the abnormal cytologic result

Pathohistological finding of cervix byopsy	N	%
Dysplasia levis (CIN I)	2	15.4
Dysplasia media (CIN II)	1	7.7
Dysplasia gravis (CIN III)/ Carcinoma in situ (CIS)	6	46.1
Carcinoma planocellulare	4	30.8

TABLE 2. Results of pathohistological findings of cervix byopsy in women with cytological diagnose CIN III

30.8% (4/13) of cytologic findings and in 23.0% cervix lesion was of lower degree (3/13) (Table 2), while normal pathohistological findings with CIN III changes weren't found.

Examining the frequency of pathohistologic diagnosis of cervix byopsy with cytologically diagnosed CIN III hasn't found statistically significant difference (p=0.208) in favor of more frequent occurence of one of four diagnosis (Table 2).

5. DISCUSSION

Systematic examination of women represents organized form of prevention of cervical cancer. It is considered that 50% of women with cervical cancer has never taken PAP or colposcopic examination, and in 21% the last normal PAP test was taken 5 years ago (2). Cytological screening programe for cervical cancer has reduced the disease for at least 20%, and its morbidity for more than 40% (3). At Health Center Tuzla, 2652 women were examined in period between 2008 and 2011. The age of the examinees was between 20 and 60, and the majority of the examined women were older than 50 in 41,5%.

Four cervical cancers (0.15%) and six CIS/CIN III (0.22%) were found. 6.7% (N=178) out of 2652 cytological exam-
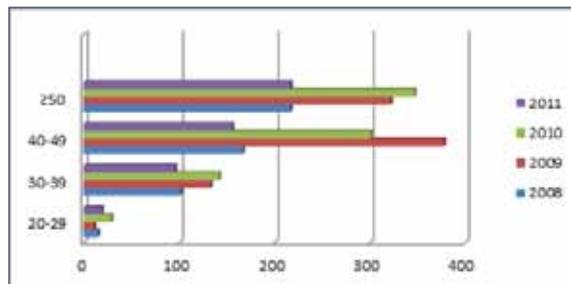

FIGURE 1. Age structure of women who were systematicaly examined in period 2008-2011
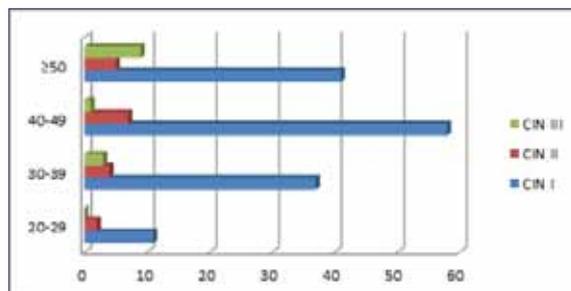

FIGURE 2. Abnormal cytologic result in relation to the age of women

inations (PAP tests) were found abnormal: CIN I in 5.5%, CIN II in 0,67% and CIN III in 0.49%. Big national programe, National Breast and Cervical Early Detection Programe (NBCCEDP) records 3.8% of cytological abnormalities: 2.9% CIN I and 0.8% CIN II and CIN III (4). Abnormal cytological finding was two times more often in our examinees in relation to the cited study. Australian studies record significant increase of CIN I in ten years period, from 0.6% in 1978 to 5.6% in 1988 (5). High frequency of CIN I lesion in mature women was recorded in a study conducted at Hospital Virovitica where CIN I lesion was found in 8.5% of mature women (6). CIN I and CIN II lesions are most frequent in women between 40 and 49 years of age, while CIN III lesions are most frequent in women older than 50. It is also known that CIN I most frequently occurs between 35 and 40 years of age, but nowadays can be found in persons under the age of 15 (7). Studies made in Vojvodina from 1988-2007 showed frequency of cervical cancer in two age groups: I group from 45 to 49 years of age (13.2%) and II group from 55 to 59 (13.5%) (8), which shows that more difficult lesions occur in women above 45. Considering that examined women in our study who were mostly older than 50 were "healthy", that is, without complaints or any symptoms, the number of cancer and CIN III lesions found was very high.

Questioning reliability of colposcopic examination in women with changes on cervix, normal colposcopic result wasn't found in women with citology results CIN I, CIN II, CIN III. Abnormal colposcopic findings was found with CIN I in 29.9%, CIN II in 61.1% and CIN III in 61.5% in women with abnormal cytologic findings. Abnormal colposcopic result was two times more often in women with CIN II and CIN III in relation to women with CIN I findings. Results given show that colposcopic results of abnormal changes on cervix is highly statistically significant in relation to cytological findings which indicates to high level of reliability of colposcopic examination.

Studies of colposcopic-cytologic corelation of findings in Columbia show the accuracy in 77% of lesions of high degree, percentage of accuracy of colposcopic-cytologic corelation in our research is somewhat lower and is 61,1% in CIN II lesion and 61.4% in CIN III lesion.

Analysing cytologic-histologic corelation of findings with a high degree of CIN III lesions, diagnose was confirmed in 46,1% of the examinees, cervix lesion was of higher degree in 30.8%, while in 23.0% the degree of lesion was lower. Possibility of cytology in differentiating certain degrees of intraepithelial lesions is directly proportional to a degree of a lesion. Cytologic classification of atypia of cervix epithel states diagnostic accuracy of 26%-81% for CIN III (9). Examining the accuracy of colposcopy,cytology and byopsy on 151 with an early cervical neoplasia proved by byopsy Matsuura and ass. have found in 1996. that diagnostic accuracy of citology was 52%, colposcopy 66% and byopsy 66%. Our research shows the accuracy of citology in 76.9% and colposcopy in 61.4% with lesions of high degree (CIN III).

With this study we can conclude that sistematic examination of women represents an efficient way of organized screening and prevention of cervical cancer.

Women aged 40 and 50 are those who are most at risk and must obligatory be included in screening for cervical cancer. Colposcopy examination is very important in the assesment of cervix condition and abnormal colposcopic image indicates abnormal cytological result.

For a reliable evaluation of the degree of the lesion, combination of diagnostic procedures of colposcopy, PAP test and pathohistological examination has shown to be justified.

Conflict of interest: none declared.

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