



## Screening of Pap smear and Cellular Abnormalities frequency

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### ABSTRACT

**Background:** Cytological screening for cervix with Papanicolau (Pap) smears has been used since the last century in many regions of the world. Cervical smear can be considered as one of the important diagnostic roles for detection of cervical abnormality including inflammation, intraepithelial lesions and even malignancy. Nearly all cervical malignancy are coming following intraepithelial cellular abnormality. The aim of this study is to check the number of females doing Papanicolaou (Pap) smear screening and their proportion with the cellular abnormalities frequency.

**Objectives and Methods:** The study used was retrospective applied on 206 females records from July 2020 to July 2021 in Azady teaching hospital in Kirkuk. I focused on many variables including patients age, menopausal status and either within reproductive age or not, and abnormal changes in the smear. After analyzing data I presented them mainly as percentages; to assess associations, and the chi-square test used.

**Results:** By using cervical smear cytology to determine cervical cellular abnormalities including intraepithelial lesions and either of low or high grade, ASCUS, or even cervical malignancy, and frequency and the relation with females age and menstrual status. The percentage of cases with epithelial cell abnormalities was 3.3% of the total number. The highest percentage from the abnormal findings was 1.8% for atypical squamous cells of undetermined significance (ASCUS), and the lowest percentage was 0.3% for high-grade squamous intraepithelial lesions (HSILs), and no cases of cervical malignancy.

**Conclusion:** Cervical smear (pap) screening done for female in an acceptable percentage. Benign cytological changes were the most findings in the largest number of cases, low grade intraepithelial lesions were more than high grade lesions, and no cervical malignancy detected.

### Keywords:

Pap smear, cellular abnormalities, cervical malignancy.

### Introduction

Cervical squamous cell malignancy is still considered as the most common malignant neoplasm occur in female genital tract in most of the countries and the most frequent tumor occur in female in many of them.<sup>1</sup> The estimated number is more than one million women with cervical malignancy currently, most of whom do not take treatment that could prolong their lives or cure them, or even have not been diagnosed.<sup>2</sup>

Secondary prevention of cervical cancer depend on more than the laboratory test. It is important to establish a cervical smear screening programme for specific age groups including childbearing and postmenopausal age groups. This helps in the detection of asymptomatic women with cervical lesions, including different levels of cervical intraepithelial neoplasia or even cervical malignancy, also it can help to create a links

between all stages of care and management, including diagnosis with screening and treatment of a positive results female, with follow-up the patients prognosis.<sup>2</sup>

Dr. Papanicolau, who start cervical Pap smear, realized that it is important to have a method that should be cheap and easy that could be done for the early detection of cervical changes and cancer.<sup>2</sup>

In developed countries where health care is progressed and also cervical screening programmes are considered to be important and used commonly, cervical malignancy are not so high and aggressive like those in developing countries.<sup>3</sup> Cervical carcinoma

## Methods

The study used was retrospective study of 206 females records from July 2020 to July 2021 in Azady teaching hospital in Kirkuk. During sample collection smear put on the slides and fixed immediately before they become dry using ethyl alcohol of 95% solution or spray fixative, and each slide labeled in pencil with name of patient and code number.

The cervical smear obtained by scraping the circumference of the cervical os, ectocervix and endocervix, and putting them on three different slides and fixed immediately before dry, then after fixation all steps of staining process completed. All the slides were examined by histopathologists and the results reported and their relation with patients ages and menstrual status were studied

## Results

In this study 206 patients were taken who underwent a Pap smear test from July 2020 to July 2021. The female range of age in the study was 20–71 years, child bearing age and menopausal age (mean  $\pm$  standard deviation (SD) = 37  $\pm$  9). The cases that result in a positive intraepithelial changes or lesions were 3.3% of all cases or samples. Intraepithelial changes or lesions occurred in child bearing age and non-menopausal women in 7% and 2.8% respectively. The median age of the women in this study that result in positive

appear most often in the older age groups but also occur with increased relative frequency in young age females. There are many factors affecting the appearance of cervical tumor, these factors include early marriage, multiparity, and low economic level with a high incidence of cervical carcinoma. Nearly all cervical malignant neoplasia are develop from a stage of intraepithelial neoplasia (CIN).<sup>4,5,6,7</sup> Cervical cytology screening can be useful in saving women lives as it can detect early abnormal cervical epithelial cells changes, so decrease the numbers of aggressive carcinoma and decrease death rate.

intra-epithelial lesions was 45 years with an age range of 20–60 years.

## Discussion

Cervical pap smear is consider as a simple and not expensive test to evaluate the cervical status as it show almost all cellular types including normal and non-neoplastic cells, inflammatory changes, ASCUS, intraepithelial lesions of both low and high grades, and even cervical malignancy.

Almost all cervical malignancy developed from intraepithelial abnormal cells or lesions. The cellular changes of intraepithelial lesions show many cytological features similar to that of the invasive stage. These changes include nuclear enlargement as high N/C ratio, nuclear pleomorphism and hyperchromasia with cellular pleomorphism and irregularity.

The intraepithelial neoplasia (CIN) present as one of the three grades: 1- mild dysplasia or CIN I, 2- moderate dysplasia or CIN II, and 3- severe dysplasia or CIN III. Whereas the term squamous intraepithelial lesion (SIL) subdivided into low and high grades. The low grade lesion (LSIL) which represent CIN I, while the high grade lesion (HSIL) which represent CIN II and CIN III.

In low grade squamous intraepithelial lesion or CIN I the smear cytology show large size cell (squamous type), nuclear enlargement three times larger than the nuclei of intermediate cell

type, nuclear hyperchromasia and inconspicuous nucleoli.

In high grade squamous intraepithelial lesion that represent both CIN II and CIN III the smear cytology show squamous cells smaller in size than squamous cells in LSIL, appear either as single cells, sheets of cells or syncytial pattern – like aggregates, with larger nuclei and high N/C ratio, nuclear pleomorphism and hyperchromasia and generally absent nucleoli.

In squamous cell carcinoma the smear cytology show cellular and nuclear pleomorphism with irregular nuclear membrane that appear as single cells or cellular aggregates (less common), dense nuclei with nuclear coarse granular chromatin.

In developing countries the mortality rate from cervical malignancy is high mainly because lack of or low effective control measures in these countries as shown in many reports.<sup>4,8,9</sup> The high incidence rate mainly due to low health educations, in effective health care centers and low rate screening programs.

In developed countries mostly in the last several decades the rate of incidence decreased due to the increase use of programs of cervical cytologic screening, which lead to detection of any cervical abnormality and treating them before changing to tumor or neoplastic stage.

### Conclusion

The numbers of females who underwent cervical pap smears was in a good and acceptable range during this study comparing to the total number of patients who visit the gynecology department in Azady teaching hospital in Kirkuk. The most frequent cervical abnormality detected in this study was ASCUS and no malignancy was found.

A cervical screening program in other hospitals within the city and in primary health care centers in the surrounded areas are recommended to include almost all women

within reproductive age and post –menopausal groups for the screening programs.

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