

PAP TEST. PERFORMANCE AND LIMITS

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ABSTRACT. Harvesting the smears and the cytodiagnostic interpretation represents the first step in diagnosing the pre-invasive pathology of the cervix. The study lot was made of 1476 patients who came for a specialty consult in two medical units in Iași, in the period of time between 2010 and 2015 and who were harvested Pap smears. The data was statistically processed in order to draw conclusions about the incidence of cervical benign pathology and the usefulness of its detection through this test. If we refer to the whole lot, the cytological results are satisfactory: 83% smears are within normal limits, 10.1% ASCUS, 2.7% L-SIL, 0.8% H-SIL. From all the feminine genital neoplasia, the cervical cancer is the easiest to detect, with low costs, as it benefits from very effective early diagnostic methods: cytology, HPV testing, colposcopy, and biopsy. We estimate that 50-75% of the results that are false negative are due to the harvesting errors.

INTRODUCTION

The cervical-vaginal cytology can be interpreted according to many classifications, starting with Babeș-Papanicolaou and ending with the Bethesda system, but no matter what interpretation way we choose, the quality of the smears and the cytologist's experience play an important role, too (Davies P., et al., 2006). In conclusion we estimate that, due to the fact that the lack of interest and financial possibilities in our country do not allow an organized action of detecting cervical lesions nationwide, there may be a selection of the risk cases by performing a free Pap test to all the patients addressing a state or private specialized medical unit, provided they respect the protocol of harvesting cervical secretions, preparing the smears and reading them (Cox J.T., 2006).

The natural history of cervical cancer shows that the evolution of a pre-invasive lesion can last over 10 years until it turns into a malignant lesion. The detection of these lesions, followed by a correct treatment, leads to their healing in almost 100% of the cases. Thus, we can state that now cervical cancer is curable, as long it is detected early (Vlădăreanu R., 2006).

PURPOSE AND OBJECTIVES

Everyone admits that the first step in diagnosing the pre-invasive pathology of the cervix is the cytological smear. The routine harvesting performed during a specialized consult would be an important accomplishment, with a real diagnostic and prognostic importance.

MATERIAL AND METHODS

We are presenting a study that was performed on a sample of 1476 cases with cervical cancer, in the period of time between 2010 and 2015, who were harvested smears and were performed a Pap test. They were divided into two groups:

Group 1 – 277 patients with cervical cancer who were consulted at the Family planning clinic from Elena Doamna Clinical Hospital of Obstetrics and Gynaecology Iași as they came for contraceptive advice;

Group 2 – 1199 patients with cervical pathology were consulted without being hospitalized at Elena Doamna Clinical Hospital of Obstetrics and Gynaecology Iași.

The data were expressed under a form that allowed them to be centralized in SPSS 18.0 data bases and processed with appropriate statistical functions that will help formulate conclusions referring to the incidence of cervical benign pathology and the usefulness of its detection with this test.

Cervical-vaginal cytology can be interpreted according to many classifications, starting with Babeș-Papanicolaou and ending with the Bethesda system, but regardless of the interpretation way, the quality of the smears and the experience of the cytologist play an important part. The cytologist must be up-to-date, to have the necessary skills and to have the moral and professional qualities that guarantee the quality of their work (Wright T.C.jr., et al., 2002).

The harvesting instruments are recommended to be the Ayre type wooden or plastic spatula (preferably for the xo-cervix and the posterior Douglas pouch) and Cervex-Brush for endo and exo-cervix.

The harvesting conditions must also be respected: prior treatment of inflammatory or local atrophic processes, no sexual intercourse, vaginal douches or digital vaginal examination 48 hours before harvesting. The harvesting should be done after

applying a speculum or two valves (which must be held by a help) showing without traumatizing the cervix (Schneider V., 2000).

The first harvesting is recommended to be done from the surface of the exo-cervix and from the posterior Douglas pouch, in order to avoid an eventual contamination with blood when the brush is used to harvest material from the endo and exo-cervix. Collected secretions are stretched on separate slides for the exo, endo cervix, and the posterior Douglas pouch, then they are fixed by immersing them in 95% alcohol or using spray with polyethylene-glycol (the habit of using air drying can cause cell shrinking). The recommended coloration is Papanicolaou, but the routine one is May-Grumwald Giemsa. (Mc Googan E., et al., 2001). Of course, it is mandatory to register and write a referral note to the lab.

Presently, the use of ThinPrep or Cyto-Rich techniques for preparing the slates in liquid, also called “display in monolayer or thin layer”, which increase the sensitivity and specificity of the Pap test (Badea M., 2002), is not possible on a large scale because of the costs and also because of the lack of cyto-technicians and trained specialists. Some authors consider that the future belongs to automatic slide processing and interpreting (Schneider A et al., 1996; Obaid A.T., 2009; Willis B.H., et al., 2005).

RESULTS AND DISCUSSION

The distribution on age groups shows the following aspects ($p=0.001$):

- lot 1 (277 cases) – cervical pathology appeared mainly in patients aged between 20 and 30 years old (52.7%), followed by the age group 30-40 years old (31.4%);
- lot 2 (1199 cases) – the highest incidence of patients with cervical pathology was found for the age group 30-40 years old (30.5%), followed by the age group 40-50 years old (24.3%) and an incidence of 5.1% for women over 60 years old.

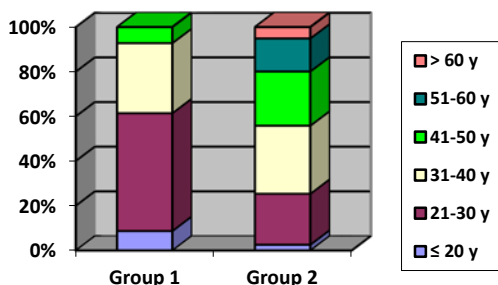


Fig. 1. The distribution of the patients with cervical pathology in study lots depending on age

The mean age was significantly higher for lot 2 (28.98 vs 39.24 y; $p=0.05$).

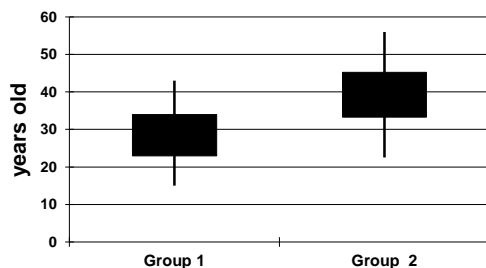


Fig. 2. Mean age of the patients with cervical pathology on study lots

The cases studied did not show significant differences in the social environment, most patients coming from cities and towns (69.7% vs 72.8%; $p=0.783$).

Cyto-bacteriological smears interpretation (CBS). We notice a higher incidence of coccobacillary flora for both study lots, without significant differences depending on the patient's age.

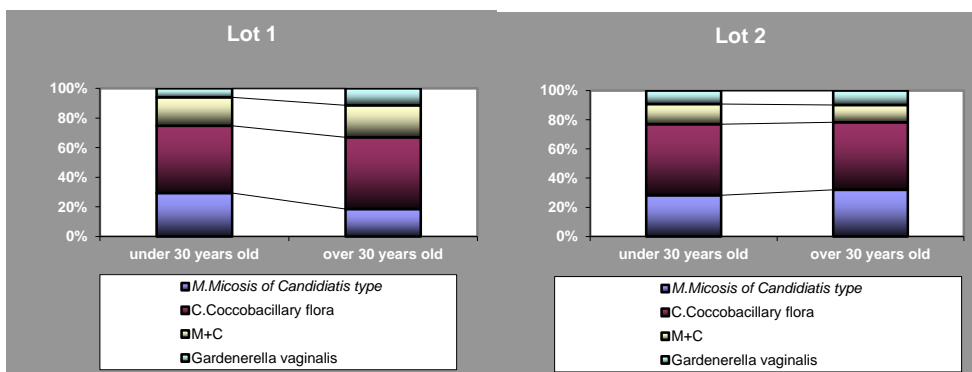


Fig. 3. The distribution of patients depending on the cyto-bacteriological smear

Distribution by cytodagnostic

In group 1, 60% of the patients under 30 years old had a normal smear, whereas the patients over 30 years old showed a predominance of the benign cellular changes (51.4%) ($\chi^2=28.71$; $p<0.001$).

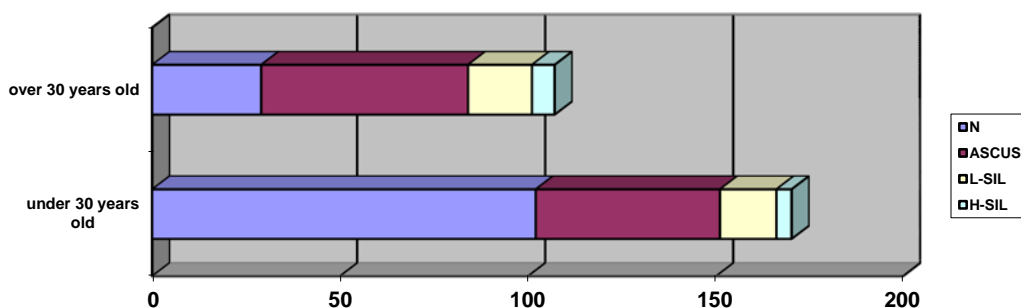


Fig. 3. Distribution of the patients in group 1 by cytodagnostic

In group 2, 47% of the patients under 30 years old had a normal smear, whereas the patients over 30 years old had a predominance of benign cellular changes (51.7%) ($\chi^2=65.55$; $p<0.001$).

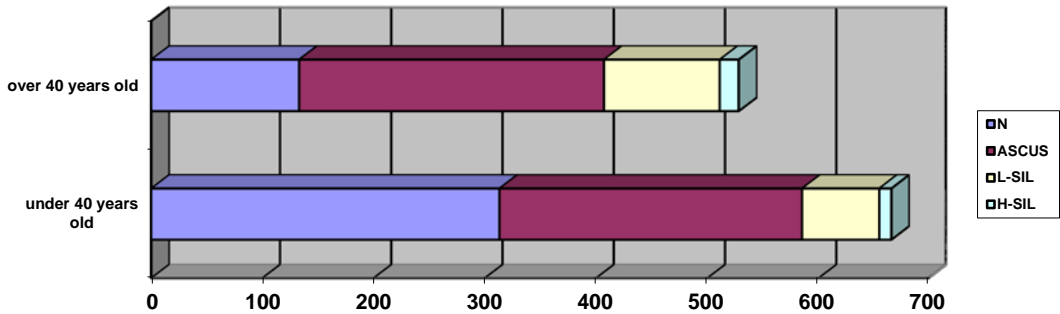


Fig. 4. Distribution of patients in group 2 by cytodiagnostic

The study lot raises a number of comments:

- patients in group 1, who came for a consult regarding contraception or contragestion, in the context of family planning, were young patients who did not show any relevant symptoms, but who were diagnosed with unknown cervical pathology after the consult in 44.8% of the cases (contraception 52.8%, contragestion 36.8%);
- 62.9% of the patients who were consulted for different genital symptoms without being hospitalized (group 2), showed cellular anomalies. The increased frequency might be explained by deficiencies in harvesting and preparing the slides. The fact that only 14.7% of the patients who came for a medical consult were harvested a Pap smear could be explained by patients' lack of interest in having this test done or by the patients' financial shortcomings, as the test must be paid for.

We consider that since the lack of interest and the poor financial possibilities in our country do not allow an organized nationwide activity of detecting cervical lesions, we can make a selection of the risk cases by performing a free Pap test to all the patients who come for a specialized consult in a state or private medical centre, considering they respect the harvesting, preparing the slides and interpreting protocol.

CONCLUSIONS

Based on the cases studied, there are significantly more patients with cervical pathology in the age group 21 to 30 years old and 31 to 40 years old.

The patients with cervical pathology came mainly from the urban area.

The cytological examination showed an increased presence of coccobacillary flora.

For the patients over 30 years old, the benign cellular changes are predominant.

From the feminine genital cancers, the cervical one is the easiest to detect, with low costs, benefiting from effective methods of early diagnostic: cytology, HPV testing, colposcopy, and biopsy. We estimate that 50-75% of the false negative results are due to harvesting errors.

The detection of pre-cancer lesion by screening causes an important decrease of cervical cancer, especially when referring to its advanced forms.

REFERENCES

- Davies P., Arbyn M., Dillner J., et al. (2006)** *A report on the current status of European research on the use of human papillomavirus testing for primary cervical cancer screening.* Int J Cancer, 118(4): 791-796.
- Cox J.T. (2006)** *Human Papillomavirus testing in primary cervical screening and abnormal Papanicolaou management.* Obstet Gynecol Sup, 61(6): 15-25.
- Vlădăreanu R. (2006)** *Obstetrică și Ginecologie Clinică.* Ed. Universitară „Carol Davila” București, 367-371.
- Wright T.C.jr., et al. (2002)** *Consensus Guidelines for the management of cervical cytological abnormalitis.* JAMA, 287(16): 2120-2129.
- Schneider V. (2000)** *Screening errors and reporting.*In: *International Consensus Conference on the fight against cervical cancer.* IUAC. Chicago, 89(6): 529.
- Mc Googan E., et al. (2001)** *Cell preparation methods and criteria for sample adequacy.* IAC Task Force Summary, 42(1):25-32.
- Badea M. (2002)** *Sinopsis de patologii preinvazivă.* Ed. Infomed. București, 35(3): 176-179.
- Obaid A.T. (2009)** *Fifteen years after the International Conference on Population and Development: What have we achieved and how do we move forward?* Int J Gyn Obstetr, 106: 102-105.
- Schneider A., et al. (1996)** *New adjunctive methods for Cervical Cancer Screening.* Obstet Gynecol Clin Amer, 23: 657.
- Willis B.H., Barton P., Pearmain P., et al. (2005)** *Cervical screening programmes: Can automation help? Evidence from systematic reviews, an economic analysis and a simulation modelling exercise applied to the UK.* Health Technol Assess, 9(13):1-236.

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