The aim of the paper is to present our results on HPV types among adult women diagnosed with invasive cervical cancer and HPV types. All the patients have been diagnosed with CIN 2+. The cross-sectional survey was conducted at the Department of Obstetrics and Gynecology from the County Emergency Hospital Timisoara, Romania, during January 1, 2008, up to December 31, 2010. HPV determination was made using DNA amplification by the Polymerase Chain Reaction (PCR) technique and nucleic acid hybridization detection of 37 anogenital HPV genotypes.

Keywords: HPV infection, incidence of cytological and histological confirmation by biopsy, cervical cancer
of confidence and statistical significance were 95% and 5%, respectively. For testing normality of distribution for numerical values (i.e., the age, actually) the Shapiro-Wilk test was employed. The Mann-Whitney U test and Kruskal-Wallis test were employed as non-parametric alternatives for one-way analysis of variance in case of two or more independent samples, respectively. The Chi-square test and Fisher exact test were applied in testing the association between binomial data (e.g., presence vs absence of a medical condition).

**Results and discussions**

The study sample included 105 subjects, whose general characteristics are presented in table 1. Overall, the percent of the DNA-HPV positives in the studied sample (i.e., among those with a positive cytology, included in study) was 35.2% (37/105), with a 95%CI of (26.3%; 45.2%). Only two subjects were HPV vaccinated, both with HPV16 (single HPV infection), with no history of sexually transmitted diseases, aged 26 and 27, respectively.

Table 2 show the distribution of the HPV positive cases across the High-Risk and Low-Risk HPV types, respectively. The most frequent agent was HPV16, with 16 subjects out of 37 having this type, so leading to a percent of 43.2% with 95%CI (27.5%; 60.4%). The total High-Risk HPV positivity among the DNA-HPV positives was 83.8% (i.e., 31/37), with 95%CI (67.3%; 93.2%). In contrast, the Low-Risk HPV positivity among the DNA-HPV positives was 21.6% (i.e., 8/37), with 95%CI (10.4%; 38.7%).

We investigated a hypothetical relationship between the Pap smear results and the DNA-HPV positivity, but no significant association was found between the two. Similarly, the relationship between the history of cervical cancer and the DNA-HPV positivity was investigated, but did not reach the statistical significance as only eight patients in total had cervical cancer (table 3).
As the sexual behavior changed over the last 20 years in Romania, the possible associations between age and HPV infections were investigated. Table 4 shows the syntheses of the descriptive analysis, together with the statistical testing.

As presence of abnormal changes in the Pap smear was an inclusion criterion for the present study, the observed overall rate for DNA-HPV in the study sample (i.e. among subjects with a positive cytology) was 35.2% (37/105), i.e. lower than values around 55% – 89% found in literature [10].

Although there seemed to be an association between the history of cervical cancer and the DNA-HPV positivity, the statistical significance was not attained most probably due to the overall low rate of subjects with cervical cancer within the study sample (fig. 1-3). This aspect should be considered in sample size calculation when designing further studies.

The results obtained data set is similar to the global data which is contained in the Bega Hospital, except that the prevalence of HPV is high recorded but can not be extrapolated to the general population of Romania Timis or the lot being unrepresentative, HPV type 16 is the most common virus [16]. Multiple HPV infection occurs in younger patients, and a major problem is the vaccination, which at the time the study was not included in the national campaign.

A summary of worldwide available statistics is an important part of our paper, pointing out the importance of HPV testing among women of different ages, to quantify the risk and early diagnose the pre-cancer lesions to avoid the not wanted mortality.

Missing data on HPV cervical cancer screening in our country underlined in our research are an alarm signal for the medical specialists and a trigger to new research screening campaigns.

Assessing the accuracy of diagnostic tests on HPV cervical cancer screening is a continuously updating research domain, due to the fact that there it is not a generally accepted gold standard test for primarily cervical cancer screening in the world. We can conclude that Papanicolau is the routine cytology test for screening, but PCR HPV DNA test wins territory as an additional test, together or replacing the cytology one [17].

A general accepted recommendation of international guidelines for cervical cancer screening in women is that screening should be performed from ages 21 to 65 years with cytology (Pap smear) every 3 years. For women ages 30 to 65 years who want to lengthen the screening interval, screening with a combination of cytology and human papillomavirus (HPV) testing every 5 years is recommended.
In Romania there is a National Centre to Inform about Cervical Cancer, answering the number 08008-00008. Even if here clinical trials on HPV and cervical cancer were not taking place, national media campaigns come to inform us about this topic.

Conclusions
From the patients with conventional Pap smear undertaken in our department in the studied period, there were selected the patients with abnormal changes. The most frequent agent was HPV16, with 16 subjects out of 37 having this type, so leading to a percent of 43.2% with 95%CI (27.5% ; 60.4%). The total High-Risk HPV positivity among the DNA-HPV positives was 83.8% (i.e. 31/37), with 95%CI (67.3% ; 93.2%). In contrast, the Low-Risk HPV positivity among the DNA-HPV positives was 21.6% (i.e. 8/37), with 95%CI (10.4% ; 38.7%). So, we can conclude that the Papanikolau test is the routine cytology test for screening, but PCR HPV DNA test wins territory as an additional test, together or replacing the cytology one.

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References

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