RESEARCH ARTICLE

Assessment of Cervical Cytological Data in Albanian Females

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Abstract

Background: Cervical cancer is one of the most common female malignancies with high mortality rates in developing countries. Our purpose was to determine the prevalence of cervical cytological abnormalities by cervical cytology (CC) and the analysis of risk factors in Albanian population. Materials and Methods: A total of 5,416 conventional pap smear tests collected between January 2009 and January 2012 from Tirana University Hospital Obstetrics-Gynecology "Queen Geraldine" were retrospectively analyzed. Results: A total of 258 (4.8%) cases had epithelial abnormalities. The numbers and rates were as follows: atypical squamous cell of undetermined significance (ASCUS; *n*=150 [2.76%]); atypical glandular cells of undetermined significance (AGUS; *n*=8 [0.14%]); low-grade squamous intraepithelial lesion (LSIL; *n*=87 [1.6%]); high- grade squamous intraepithelial lesion (HSIL; *n*=10 [0.18%]); and squamous cell carcinoma (SCC; *n*=3 [0.05%]). Conclusions: The prevalence of cervical cytological abnormality in our study was 4.8%. A larger community-based study may establish the exact prevalence of malignant and premalignant lesions, so as to plan for future screening.

Keywords: Cervical abnormalities - cytology - PAP smear - prevalence - Albania

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Introduction

According to the 2011 Census-Al, the population in Albania was estimated at 2.8 million, the average age of the population increased from 30.6 years in 2001 to 35.3 in 2011, with 48.9%. Female, and female age-group 20-60 years are estimated 864,583. The burden of communicable diseases is decreasing in general terms, but some infections as HIV/AIDS are increasing. Prevalence of HIV/AIDS is low, although the incidence of HIV is increasing. About 90 percent of HIV infections occurred as a result of sexual contact. Most cases of HIV in Albania have been diagnosed among women and men age 25-44.

The epidemiological profile is changing: Levels of cardiovascular diseases, cancer and external causes of death are increasing. In Albania, cervical and breast cancer are most frequented cancer among women of all ages and is the leading cause of cancer death among women (Bray et al., 2012). Currently, cancer accounts 16% of all deaths in Albania and breast cancer is the second leading cause of death in women aged 35–54 after stomach cancer.

Because no national cancer registry has been established in Albania yet, the data on the incidence and mortality rates for cervical cancer more likely represent estimates than a reliable reflection of the current situation (Ferlaya et al., 2013). According to GLOBOCAN 2008, among the female population of 1.6 million, with an estimated 124 cases of cervical cancer, the crude incidence rate was 7.8/100,000 (world age-standardized incidence rate: 7.1/100,000); and with an estimated 49 deaths from cervical cancer the crude mortality rate was 3.1/100,000 (world age-standardized mortality rate: 2.1/100,000) (Arbyn et al. 2011).

In addition, despite the fact that cervical cancer represents the second most common cancer among women age 15 to 44, and most cancers are diagnosed at stage III to IV, only 8% of women that have ever had a routine gynecological exam also had a Pap smear (Morris et al., 2005).

There is no organized cervical cancer screening program in Albania. The Pap smear is offered in some gynecological-obstetrical centers and private clinics in the capital, Tirana. Our purpose was to determine the prevalence of cervical cytological abnormalities in the Albanian population and the detection rate of epithelial abnormalities by CC.

Materials and Methods

A total number of 5416 conventional pap smear tests were done between January 2009 and January 2012 at the University Hospital Obstetrics-Gynecology "Queen Geraldine", located in the capital of the country, Tirana and the results were retrospectively analyzed. Local ethical comity approval has been taken for the study. Conventional samples (CC) were collected and smeared into the slide and immediately fixed with polyethylene glycol. The samples were evaluated on the Laboratory of Pathology, part of the maternity. The results were assessed as "satisfactory for evaluation" or "unsatisfactory for

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evaluation" based on terminology from the Bethesda, 2001; Solomon et al., 2002). Satisfactory results were subdivided as "negative" (including "atypia, favors reactive"), "squamous cell atypia" (atypical squamous cells of undetermined significance [ASCUS] and atypical squamous cells, cannot exclude high-grade lesions [ASCH]), "atypical glandular cells" (AGUS), "low-grade squamous intraepithelial lesion" (LSIL), "high-grade squamous intraepithelial lesion" (HSIL), "squamous cell carcinoma" (SCC), and "adenocarcinoma." The statistical analyses were performed by SPSS software vs. 20.0.

Results

A total number of 5416 samples were retrospectively analyzed Table 1. The mean age of the participants was 42.8 years (13 to 83 years). The age of the patients was 13-83, mean 42.8, std. deviation 10.9. Cytological findings of the smear results are listed in Table 1.

These data show that the unsatisfactory rate for the CC technique was 0.9% (*n*=50). The main causes for CC inadequacy were sample obscured by red blood cells and inflammation. Normal cytology results were seen in 5156 (94.31%) of the samples. The most common reported benign result was chronic cervicitis with 2441 cases (45.1% of all samples).

A total number of 258 (4.8%) cases had epithelial abnormalities. The numbers and rates of epithelial abnormalities were as the follows: ASCUS (*n*=150/2.76%); AGUS (*n*=8/0.14%); LSIL (*n*=87/1.6%); HSIL (*n*=10/0.18%); and SCC (*n*=3/0.05%) .

The patients (Table 2) were divided in 4 age-group, 1 (<25), 2(26-35), 3(36-45), 4(>45). The positive diagnosed of cases begins increase by 5.5% at age-group 26-35, to 6.3% at age-group 35-45 with most LSIL stage. Women older than 35 years with abnormal cytology demonstrated increased severity of cervical intraepithelial neoplasia on histology compared with younger women (Pereira et al., 2007; Bhogireddy et al., 2013).

Cervical cancer usually develops slowly. It starts as a precancerous condition called dysplasia. This condition can be detected by a Pap smear and is 100% treatable. It can take years for these changes to turn into cervical cancer. Most women who are diagnosed with cervical cancer today have not had regular Pap smears or they have not followed up on abnormal Pap smear results. The precancerous lesions can evolution in cervical cancer, with the persistent cofactors like as smoking, partners, oral contraception, and the missing of cervical cancer screening, and if precancerous lesions are not treated, they can progress to cancer often in age more than 46 or less (Pereira et al., 2007; Ferlay et al., 2010). The increasing age and abnormal cytology are significantly associated (p-value 0.00123611).

The varying of ICC trends across countries can be largely attributed to two independent factors: *i*) the existence, duration, and quality of screening programmes over calendar time; and *ii*) changes in ICC risk factors, notably sexual behaviour and, hence, the probability of HPV exposure, affecting consecutive generations of women (Plummer et al., 2012).

The age distribution of ICC is influenced by screening practice. In countries with little or no cervical cancer screening, ICC incidence rates rapidly increase until the time premenopausal hormonal changes usually start, at around the age of 45 years (Beerman et al., 2009). In our data, are diagnosed three cases with SCC in mean age 59.3 of years. From 2006-2010, the median age at diagnosis of cervical cancer was 49 years, while the median age at death from cervical cancer was 57 years (Salvatore et al., 2013). Conversely, in screened populations, incidence rates peak at approximately age 35 years, i.e. when the beneficial effect of the removal of precancerous lesions is first observed. In all populations however, ICC incidence is approximately constant after age 45 unless age-specific ICC rates are further distorted by differential effectiveness of screening programmes within different periods and cohorts (e.g. a lower uptake in older cohort) (Salvatore et al., 2013).

Table 1. Cytological Findings of 5416 Conventional Smear Samples

	CC No. (%)	
Satisfactory	5366	(99.07)
Unsatisfactory	50	(0.9)
Normal results	5156	(94.31)
ASCUS	150	(2.76)
AGUS	8	(0.14)
LSIL	87	(1.6)
HSIL	10	(0.18)
SCC	3	(0.05)
Total	5416	(100)

Table 2. Cytology Diagnosis Correlation with Age-Group

Citology Diagnosis	Age-group				
	<25	26-35	35-45	>46	Total
Positive cytology	3.80%	5.50%	6.30%	3.30%	4.80%
Normal	449	1033	1686	1940	5108
AGUS	0	0	0	8	8
ASCUS	9	38	69	34	150
LSIL	9	22	40	16	87
HSIL	0	0	5	5	10
SCC	0	0	0	3	3
Total*	467	1093	1800	2006	5366

*Total without unsatisfactory cases

Table 3. Chi-Square Tests

	Value	df	Asymp Sig (2-sided)
Pearson chi-square	38.614a*	16	0.001
Likelihood ratio	43.39	16	0
Linear-by-linear association	8.549	1	0.003
No. of valid cases	5356		

*a) 14 cells (56.0%) have expected count less than 5. The minimum expected count is .00; b) p-value 0.00123611

Discussion

As cervical smears are not routinely performed in Albania, it is difficult to obtain figures for the prevalence of preclinical disease. According the IARC data, the incidence for Albania is as low as 3.2/100,000 and ASR 7.1/100,000 (Bray et al., 2013).

Incidence rates varied according to IARC data researches, with the lowest ASR observed in Finland (ASR=8 per 100,000) and the highest in Uganda (ASR=104). Currently, the incidence rates in developed countries were generally low, with age-standardized rates less than 14.5/100 000. Also, very low rates are observed in China (6.8/100,000) and Western Asia (5.8/100,000); the lowest recorded rate is 0.4/100,000 in Ardabil, northwest Iran (Abdullah, 2007). In Balkan countries, the standardized incidence rate varied from 7.2/105 in Greece to more than 20.0/105 in Romania and Serbia and Montenegro (Arbyn et al., 2007).

In the present study, the detection rates for ASCUS and over lesions were found to be 4.8% (*n*=258). The low prevalence of abnormal smears in Albania, compared with data from other populations, could be due to the health awareness in the women, and that poor people in Albania often avoid hospitalization (Morris et al., 2002).

The varying period and cohort patterns in ICC trends across countries can be largely attributed to two independent factors: *i*) the existence, duration, and quality of screening programmes over calendar time; and *ii*) changes in ICC risk factors, notably sexual behaviour and, hence, the probability of HPV exposure, affecting consecutive generations of women (Bajos et al., 2010; Hank et al., 2013). A long-term increase in prevalence of HPV is presumably the main reason for the rapid increase in cervical cancer death rate in young women from the 1960s to the 1980s, but changes in several other factors could also be relevant. These include age at rust intercourse, number of sexual partners, prevalence of other sexually transmitted diseases, smoking, oral contraceptive use, and parity.

Genital HPV infections are very common, sexually transmitted, and have peak prevalence between ages 18 and 30 years. The overall prevalence of genital HPV infection in the Albanian population was found to be 15.1% and it ranged from 25.2% in women aged <30 years to 13.6% in women aged ≥30 years (Filipi et al., 2010). These figures are very similar to those observed in many other countries. In addition, because HPV can be transmitted by any skin-to-skin contact, condoms are not as effective in preventing HPV infection as they are in preventing other STI (IARC 2005).

Cancer is more common among the women who do not have regular pap tests. SCC is seen 3.9 and 13 times more in a woman screened once in three years and 10 years, respectively, compared with ones screened annually (Kuo et al., 2003). In developed countries such as USA, 85% of women had at least one pap test through their lifetime, but this rate is only 5% in the developing countries (Kule, 2002). The screening coverage among women of reproductive age in Albania is extremely low, probably the lowest in the region: only 3.2% of women 15 to 44 years old reported having ever been screened with a Pap smear, with additional differences observed among women in urban (4.9%) and rural areas (1.8%) (Morris et al., 2002). Altogether, 2.7% of women 15 to 44 years old reported having had a Pap smear performed regularly every 3 years (4.3% of women in urban areas compared to 1.5% of women in rural areas (Polona et al., 2013). Cost of health care, consults by the doctors, lack of perceived need (i.e., no symptoms), were the dominant concerns among these women. These issues kept women far away from routinely cervical screening. All these factors may be the reason of diagnosed SCC in advanced stage in Albania. Syndromes management remains the core intervention in the WHO strategy for delivering prevention and care for people with sexually transmitted infections in resource-poor settings where laboratory testing is not available (http://www.who.int/reproductive-health/docs/stis_strategy.pdf (accessed Sept 19, 2006).

We demonstrated that 50 cases (9%) of 5,416 CC examinations were unsatisfactory. The main causes for CC inadequacy were sample obscured by red blood cells and inflammation. An "unsatisfactory" pap test result (unsats) can be caused by a number of factors, including poor sample collection, obscuring inflammation or blood, use of lubricants, or interpretive errors (Coskun et al., 2008). Although this unsatisfactory category constitutes 1% to 2% of all pap tests, patients with unsats are more likely to have histories of abnormalities and are at increased risk of harboring precancer or invasive cervical cancer; therefore it is important to monitor them closely (Coskun et al., 2008). Liquid-based cytology significantly reduced the proportion of unsatisfactory specimens from 1.1% to 0.3% and eliminated obscuring blood, poor fixation, cytolysis, and insufficient spreading of cells as causes of unsatisfactory results (Colgan et al., 2004).

This paper highlights the abnormalities seen in CC in the Albanian population. Abnormal CC prevalence rate in Albania is lower than that in India and Europe and North America. This might be due to sociocultural differences, lack of screening population-based studies or a lower HPV prevalence. Further studies with larger numbers are required to fully assess the above mentioned factors, especially the role of HPV, to determine the real prevalence of the cervical epithelial abnormalities in Albania, to generate more reliable policies as to plan for future screening. In addition, our study population is comprised of women referred to Colposcopy due to an abnormal Pap test result, thus our results may not reflect differences that would be seen in general population, our findings are consistent with what has been previously reported in the same and other populations.

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