"An investment in knowledge always pays the best interest." Benjamin Franklin

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### TABLE OF CONTENTS

**Nadiia Vysochina, Olha Fedorenko, Valentin Vorona**  
PROBLEMS OF PHYSICAL TRAINING AND SPORTS IN THE ARMED FORCES OF UKRAINE .......................... 04

**Tamar Didbaridze, Shorena Tchiokadze, Nino Khotivari, Maia Janelidze, Amiran Koridze, Vladimer Papava, Liana Koridze Shalva Koridze**  
INVESTIGATION OF HPV-DNA IN CERVICAL SMEAR SAMPLES BY REAL-TIME PCR AND DETECTION OF HIGH RISK HPV TYPES ........................................................................................................... 10

**Tubukhanum Gasimzadeh**  
MODERN CONDITIONS OF ECOSYSTEMS IN THE SHIRVAN REGION CITIES OF AZERBAIJAN ........... 13

**Nino Pirtskhelani, Nino Kochiashvili, Ketevan Kartvelishvili, Nugzar Pargalava, Mamuka Bokuchava, Tea Mukuradze, Levan Makhalidani**  
THROMBOPHILIA GENE MUTATIONS AND VTE DURING PREGNANCY AND POSTPARTUM PERIOD ........................................................................................................................................................................... 20

**Nino Pirtskhelani, Nino Kochiashvili, Ketevan Kartvelishvili, Nugzar Pargalava, Mamuka Bokuchava, Levan Makhalidani**  
INHERITED THROMBOPHILIA AND RECURRENT PREGNANCY LOSS .................................................. 26

**Sayyyara Ibadullullayeva, Sabina Rafiyeva**  
ESSENTIAL OIL FEATURES OF SOME SPECIES OF LAMIACEAE LINNL. FAMILY ................................ 30

**Pashayeva Gunel Bakhsheish kizi, Musayeva Ilaha Ilham kizi**  
ETHNOCULTURAL RESEARCH OF BRIDAL, WIFE AND BRIDAL WORDS IN THE TURKISH LANGUAGES .............................................................................................................................. 34

**Samira Mammadova, Nihad Huseynov**  
QUALITY ASSURANCE IN HIGHER EDUCATION INSTITUTIONS IN AZERBAIJAN ............................. 36

**Safarova Gunel**  
JAFAR RAMZI ISMAIYILZADEH’S BIOGRAPHY ................................................................................. 43

**Nino Pirtskhelani, Nino Kochiashvili, Ketevan Kartvelishvili, Giorgi Dzagnidze**  
BRCA1 AND BRCA2 GENES MUTATIONS AND BREAST CANCER IN WOMEN FROM GEORGIAN POPULATION .................................................................................................................................................. 48

**Tamar Didbaridze, Tamar Shakarashvili, Gela Arabidze, Darejan Chikviladze,Nino Didbaridze, Vladimer Papava, Mamuka Katsarava, Teoline Bokuchava**  
PREVALENCE OF NASOPHARYNGEAL CARRIAGE OF STAPHYLOCOCCUS AUREUS AMONG MEDICAL PERSONAL .................................................................................................................. 52

**Vladimer Papava, Tamar Didbaridze, Avtandil Imedadze, Valeri Kvakhjelidze, Leli Shanidze, Nino Pirtskhelani**  
EFFECT OF VITAMIN D DEFICIENCY ON SEMEN QUALITY .................................................................. 55

**Aytakin Hasanova**  
EXPERIENCE OF THE USE OF INVASIVE METHODS OF PRENATAL DIAGNOSTICS ......................... 57

**Guliko Kiliptari, Merab Sutidze**  
MULTIORGAN FAILURE INDUCED BY THROMBOTIC MICROANGIOPATHY ........................................ 60
PROBLEMS OF PHYSICAL TRAINING AND SPORTS IN THE ARMED FORCES OF UKRAINE

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ABSTRACT

The article deals with topical issues of physical training and sports in Ukrainian Armed Forces. Analyzed the causes and factors that have a negative impact on the effectiveness of the organization and management of the process of physical training of military personnel. Showing solutions to problems.

Keywords. Physical training and sport, Ukrainian Armed Forces, a healthy lifestyle.

Introduction. Physical training of military personnel is an integral part of the general system of education and training of personnel of Ukrainian Armed Forces and other military units of the security and defense sector, established in accordance with the laws of Ukraine, and is aimed at ensuring the physical readiness of personnel for professional activities.

Due to this, the issue of organizing centralized training of personnel in physical culture and sport for the structures of the security and defense sector of Ukraine obtain a special relevance. To solve this problem, the Ministry of Defence of Ukraine is conducting systematic work to improve military education in order to adapt it to the training system of the North Atlantic Treaty Organization (next – NATO) and European Union (next – EU) member countries. Studying the experience of these countries demonstrates the tendency to centralize training of specialists in the field of physical training and sports for the Armed Forces, law enforcement agencies and the combination of the training process with the organization of scientific research.

At the initiative of the Minister of Defence of Ukraine the process of improving the training of military specialists in the specialty “Physical Culture and Sport” began in 2015. In accordance with the Order of the Ministry of Youth and Sports of Ukraine, a working group was established with the participation of scientists and leading experts in the field of physical training and sports of the Armed Forces and law enforcement agencies of Ukraine.

In the same year, at the XVII Ukraine-EU summit, the Supreme Commander-in-Chief of Ukrainian Armed Forces noted that the prospect of EU membership is a strategic guideline for Ukrainian aspirations for further development and a key goal for which reforms are being carried out. For the first time, Ukraine participated in a summit in the status of a state that concluded an association agreement with the EU. For Ukraine, European integration is the path of modernization for the development of various industries. Ukraine's European integration is impossible without security and defense sector reform. Modern challenges and threats caused by the influence of a complex of socio-demographic, political, legal, psychological, technological and economic factors require a systemic response, an adequate transformation of both the entire security sector and the system of Ukrainian Armed Forces in particular. [4]

The aim of the research. Identify and analyze the main issues of physical training and sports in Ukrainian Armed Forces.

Research methods. Analysis and synthesis of data from research and methodological literature and the Internet networks, expert survey, the calculation of the Kendall's coefficient of concordance.

Results. Reforming the system of physical training and sports is determined by the presence of causes and factors that adversely affect the efficiency of the organization and management of the physical training process of servicemen of Ukrainian Armed Forces.

In this regard, one of the ongoing issues to be solved is the improvement of governing documents regulating the functioning of the system of physical training and sports in the Ministry of Defence of Ukraine and Ukrainian Armed Forces in order to implement the requirements of the updated legal acts on the functioning and development of Ukrainian Armed Forces in modern conditions [9, 10].

Equally significant is the consideration of the issue of determining the quantity and quality of specialists of physical training and sports to ensure the organization of the process of physical training and holding sports events with personnel in Ukrainian Armed Forces [5, 7].
It is also worth to pay attention to the lack of a centralized management system for physical training and sports, a violation of the principle of centralization. The result is a parallel operating structures of different subordination. It does not provide the necessary functioning of the system of physical training and sports.

The system of organization of research work in the field of physical training and sports requires improvement. The development and scientific substantiation of the complex (standards) of informative physical and special exercises (receptions) for each category of servicemen is necessary in order to determine the level of their physical readiness to perform combat missions for the intended purpose. Based on the obtained indicators, it is necessary to update the relevant documents [16].

There is a need for the improvement of the organization of physical training in the combat training system in the troops (forces) in accordance with the requirements of conceptual changes in the organization of combat training and taking into account the acquired experience of conducting combat operations in the zone of operations of the combined forces and achieving compatibility with the physical training program of the leading countries of the world [3, 12, 15].

The next ongoing issue is the improvement of the system of retraining, training and advanced training of personnel in physical training and sports. Taking into account, the European integration processes that are taking place in society, the entry into force of legislative acts on the reform and development of Ukrainian Armed Forces. The question arises of personnel preparation in physical training and sports for structures within the security and defense sectors of Ukraine. Physical training is one of the main items of combat training of troops and directly affects the level of combat readiness of Ukrainian Armed Forces, military formations and law enforcement agencies. To solve the problem of training highly qualified specialists of physical training and sports for Ukrainian Armed Forces, other military formations and law enforcement agencies, on January 2, 2018, the Educational and Scientific Institute of Physical Culture&Sports and Health Technologies (next – the Institute) was created as part of the National Defence University (NDU) of Ukraine named after Ivan Chernyakhovskyi [13]. The main task of the Institute is to organize an integrated multi-level (continuous) training system for military specialists of physical training and sports at the tactical and operational-tactical level.

The Institute conducted a licensing of educational activities for the degree of higher education bachelor in the specialty “Physical Culture and Sports” in 2018. The training of masters of the operational-tactical level in the specialty “Provision of troops (forces)” of specialization “Organization of physical training and sports in the troops (forces)” has begun. On the basis of the Institute, there are refresher courses for specialists in the organization and conduct of physical training among the troops. In addition, the Institute carries out training (retraining) and enhanced training of diving specialists. For the preparation of divers fully equipped diving station and diving experts. Currently, NDU of Ukraine is the only higher military educational institution licensed to train divers and have experience in conducting training and diving training with specialists from the security and defense sector of Ukraine.

Just as importantly, the presence of insufficient motor activity of military personnel related to functional duties. Motor activity is a necessary condition for the normal development and functioning of the body. It is not just useful, but vital. A significant part of the military leads a sedentary lifestyle, because they work in offices, headquarters, etc. With a lack of motor activity, the body gradually loses its vitality, becomes sensitive to the negative effects of external adverse factors. In the modern way of life of military personnel is accompanied by a high level of psycho-emotional stress. To correct this condition, it is important to maintain physical activity and use sports and health technology. This may be morning exercise or moderate exercise during the day which requires certain efforts [2, 8, 19]. This problem is due to the fact that a significant number of military personnel do not have the opportunity to visit a sports facility, for lack of time, due to the workload, which is caused by a shortage of personnel in the unit. Therefore, we propose at the beginning of each working day, for 20-30 minutes, to carry out a “Physical workout” and to enter during the working day “Physical culture pauses. Since they will contribute to health promotion, hardening and increase the efficiency of military personnel.

Also, within the framework of cooperation and for the promotion of a healthy lifestyle, it is advisable to provide employees with subscriptions to sports facilities not far from the place of residence of the serviceman, or near the duty station (if there are no sports facilities on the territory or they are unable to cover all personnel), both on working days and on weekends. Thus, the serviceman will choose a convenient time for sports, thereby increasing his physical activity.

It draws attention to no scientifically based motivational system for attracting military personnel to physical training and sports and encouraging sporting achievements, because it is an important means of educating military personnel, strengthening military discipline, striving for victories and working on oneself [20]. The incentive scheme should include a material and additional incentive scheme. To ensure material incentives rewards are used, in the form of material income, consisting of two parts (basic and bonuses).

Material rewards must be competitive. The base salary is a relatively permanent part of the employee's material remuneration, which is revised no more than once every six months or when the position is changed. Stable systematic incentives encourage military personnel to improve their physical performance and constantly work on improving them.

Moreover, the training and material&technical base of physical training and sport requires improvement. The educational and material&technical base of higher military educational institutions and military training units includes a complex of training, material and technical means and equipped educational facilities (areas, terrain, training grounds) designed to provide training for cadets (adjuncts, post-docs, listeners, students, foreign citizens studying in accordance with contracts,
agreements and programs for the training (retraining) of foreign specialists in a specific list of specialties and specializations for training military specialists in accordance with the curriculum and curriculum programs for the training of scientific and pedagogical personnel and for conducting scientific research [1, 6, 17].

The capabilities of military units, higher military educational institutions and military training units are determined by the state of their material and technical base, the level of development of which leads to the scale of training, directly affects their quality and the effectiveness of scientific research conducted. The development of higher military educational institutions and military training units presupposes, above all, the strengthening of the material base for fulfilling it to the requirements of the present.

Among the identified problems above, it is not the last the need to improve the information support system for the functioning of physical training and sports in the Ministry of Defence of Ukraine and the Armed Forces of Ukraine. The formation of modern information support for the physical education of servicemen is inextricably linked with information technologies, the design and use of which should ensure:

- acquisition of knowledge and motor skills;
- development of physical qualities of servicemen;
- health promotion;
- assistance in improving the organizational forms of training and improving the effectiveness of training activities, the full use of the educational potential of physical culture;
- feedback optimization in the coach management;
- creating a strong motivational basis for training and physical development through interactive forms of presenting educational information, objective assessment and analysis of the results of training activities [18, 14].

The need for reorganization of sports institutions of the Ministry of Defence of Ukraine and their cooperation with local executive authorities, public organizations of physical culture and sports and military units has attracted close attention. After analyzing the base of all military schools, units, institutions, we see that not all have the necessary sports facilities, such as a stadium, a swimming pool, grounds and halls of various kinds. The solution to this problem is cooperation with local executive authorities, schools, boarding schools, lyceums and public organizations of physical culture and sports. This is possible to implement with the involvement of their base, will solve the problem of the absence of an object.

To identify the significance of the above problems, we had a survey of experts, which was attended by 210 soldiers from the Army, the Naval Forces (Navy), the Air Force (AF), the Air Assault Forces (AAF) and the Special Operations Forces (SOF) of the Ukrainian Armed Forces. The survey was conducted in the form of an anonymous survey, within two weeks. Respondents were asked to rate on a scale from 0 to 100 points in the most ongoing issues of concern regarding physical culture (tab. 1).

<table>
<thead>
<tr>
<th>Branches of the Ukrainian Armed Forces</th>
<th>Number of respondents</th>
<th>The quality of sports events</th>
<th>Additional classes (sections) under the guidance of a specialist</th>
<th>The presence of physical breaks during the working day</th>
<th>Providing physical fitness</th>
<th>State of sports facilities (grounds)</th>
<th>Concordance rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Army</td>
<td>69</td>
<td>30±2,4</td>
<td>49±3,1</td>
<td>47±0,7</td>
<td>71±6,3</td>
<td>72±4,6</td>
<td>0,71</td>
</tr>
<tr>
<td>Navy</td>
<td>56</td>
<td>20±2,7</td>
<td>35±4,8</td>
<td>46±3,4</td>
<td>68±7,2</td>
<td>63±7,6</td>
<td>0,66</td>
</tr>
<tr>
<td>AF</td>
<td>43</td>
<td>15±3,4</td>
<td>20±3,9</td>
<td>43±4,1</td>
<td>64±3,9</td>
<td>55±5,3</td>
<td>0,74</td>
</tr>
<tr>
<td>LAF</td>
<td>27</td>
<td>28±1,6</td>
<td>48±7,2</td>
<td>78±1,5</td>
<td>78±2,1</td>
<td>41±3,2</td>
<td>0,76</td>
</tr>
<tr>
<td>SOF</td>
<td>15</td>
<td>80±0,8</td>
<td>75±5,4</td>
<td>92±0,6</td>
<td>82±1,1</td>
<td>58±0,3</td>
<td>0,83</td>
</tr>
</tbody>
</table>

Note. p < 0,05
Evaluation expert results of issues of physical culture and sports in the Ukrainian Armed Forces (%)

To determine the consistency of expert opinions and to confirm the correctness of the hypothesis that experts make relatively accurate measurements, they used the Kendall's coefficient of concordance. It was revealed that the opinions of most experts are the same, as evidenced by the high rates of concordance. The analysis of the material obtained revealed that the lowest indicators were obtained on the scale “Quality of sports events” (the majority of individual indicators do not exceed 50 points). This indicates that not enough attention is paid to this issue, which must be taken into account both when organizing sports events and in training specialists.

Also of interest are the data reflecting "Additional classes (sections) under the guidance of a specialist." This is due to the lack of consultants in the specialty "Physical education and sport in the Ukrainian Armed Forces". By 2018, not a single institute of physical culture was created that would solve the problem of staffing the specialists of the Ukrainian Armed Forces and other military formations of the security and defence sectors, since the departments did not solve the problem of a shortage of qualified personnel. The direction "Existence of physical breaks during the working day" needs to be improved. This problem is especially noticeable in educational institutions, where during the break between classes the officers (cadets) do not increase their motor activity, but, on the contrary, many of them are dependent on gadgets.

The respondents' assessment of the state of physical fitness (logistical, financial, medical, agitation, legal) indicates that the majority of military personnel are satisfied with the existing situation, but some of them noted that financial security is not evenly distributed, since each military unit or educational institution received various amounts of funds.

On a scale "The state of sports facilities (grounds)", the average figures were obtained, but in general there has been a positive trend in solving this problem, since recently the sports base of the Armed Forces has been constantly improved.

Another important problem is the fight against the common bad habit - smoking. The results of the survey on this issue are presented in Figure 1 and indicate that this factor is largely manifested among representatives of the Air Force (82%), the Naval Forces (71%) and the Army (68%). Despite the fact that smoking has a destructive effect on the state of health, most military personnel do not plan to get rid of this habit. Unfortunately, the warnings of the Ministry of Health, statistics of cancer and cardiovascular diseases, deterioration of their own health are not convincing factors for smokers.

Significant discrepancies in the figures are presented in the answers to the question "The presence of overweight soldiers" (Figure 2). Sitting work, unhealthy diet, sedentary lifestyle both during the working day and during off-duty time - all this has a negative effect on the state of health and the combat readiness of the serviceman. Most of those who are overweight, did not even think about the fact that overweight is the cause of many diseases.
Figure 2 – The presence of overweight servicemen.
Note: Army – Army Forces; AF – Air Forces; AAF – Air Assault Forces; SOF – Special Operations Forces.

The survey results show that the existing system of organization of physical training and sports in the Ukrainian Armed Forces and other military units of the security and defence sectors, although it has a positive trend, but in general needs to be improved and brought to modern standards for the physical fitness of servicemen.

CONCLUSION. Taking into account the above factors, the existing system of organization of physical training and sports in Ukrainian Armed Forces does not fully ensure an adequate level of physical readiness of military personnel to perform combat training tasks, does not sufficiently induce military personnel to engage in physical culture and sports, to maintain a healthy way of lifestyle, which negatively affects the quality of the educational process training of cadets and students of higher military educational institutions and on the effectiveness of managing the process of physical improvement of military employees. Therefore, the implementation of the above recommendations and proposals will optimize the process of physical training of military personnel.

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INVESTIGATION OF HPV-DNA IN CERVICAL SMEAR SAMPLES BY REAL-TIME PCR AND DETECTION OF HIGH RISK HPV TYPES

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ABSTRACT

Introduction: Human papillomavirus (HPV) is one of the most common causes of sexually transmitted disease in both men and women worldwide and is thought to be the most common sexually transmitted viral disease. HPV continues to be an important topic, as rates of infection appear to continue to be rapidly increasing. Based on their association with cervical cancer and precursor lesions, HPVs can also be grouped to high-risk and low-risk HPV types. Low-risk HPV types include types 6, 11, 42, 43, and 44. High-risk HPV types include types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68, and 70. Included in the high-risk group are some HPV types that are less frequently found in cancers but are often found in squamous intraepithelial lesions (SILs) (1).

Material and Methods: We retrospectively studied cervical specimens of 391 women aged from 23 to 65, who were tested for HPV infection with pap-smear and in cases of abnormal results (CIN1, ASCUS, HSIL-CIN2/CIN3) DNA extraction from specimen was done by extraction kit for DNA (Bioron Diagnostics) and Realine HPV HPC screen Fla-Format (BIORON) and a qualitative assay kit of high carcinogenic risk types of HPV: 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68.

Results: In our results cervical cytologic abnormalities were diagnosed as follows: 60% was CIN1, 30% atypical squamous cell of undetermined significance (ASCUS), and 10% high-grade SIL (HSIL-CIN2/CIN3). In 49 women (12.5%) was detected high-risk HPV types: HPV31 in 12 cases (24.4%), HPV16 in 10 cases (20.4%), HPV52-6 cases (12.2%), HPV51-5 cases (10.2%), HPV56, 59 and 33- for each one case (8.1%), HPV18-2 cases (4%).

Conclusion: Atypical squamous cells of undetermined significance (ASCUS) are a cervical cytologic finding category suggestive but not definitive of squamous intraepithelial lesions. ASCUS remains an incompletely described entity and accounts for even 5%-10% of reported Papanicolaou (Pap) smears. The management of women with such cytologic findings remains controversial. Persistent infection with a high-risk HPV genotype is known to be a major carcinogenic factor, the various high-risk HPV genotypes have different carcinogenic potentials. An understanding of the genotype-specific aspects of HPV infection would facilitate the development of better strategies to prevent and manage cervical cancer.

Keywords: Cervical cancer, DNA, HPV, women, Pap-smear.
INTRODUCTION

Approximately 100 types of human papillomavirus infection (HPV) have been identified, at least 40 of which can infect the genital tract. Most HPV infections are self-limiting and are asymptomatic or unrecognized(1).

Human papillomavirus (HPV) is one of the most common causes of sexually transmitted disease in both men and women worldwide and is thought to be the most common sexually transmitted viral disease. HPV continues to be an important topic, as rates of infection appear to continue to be rapidly increasing(2).

More than 200 types of HPV have been recognized on the basis of DNA sequence data showing genomic differences. Eighty-five HPV genotypes are well characterized. An additional 120 isolates are partially characterized potential new genotypes HPVs can infect basal epithelial cells of the skin or inner lining of tissues and are categorized as cutaneous types or mucosal types. Cutaneous types of HPV are epidermitrophic and target the skin of the hands and feet. Mucosal types infect the lining of the mouth, throat, respiratory tract, or anogenital epithelium(3,4).

Based on their association with cervical cancer and precursor lesions, HPVs can also be grouped to high-risk and low-risk HPV types. Low-risk HPV types include types 6, 11, 42, 43, and 44. High-risk HPV types include types 16, 18, 31, 33, 34, 35, 39, 45, 51, 52, 56, 58, 59, 66, 68, and 70. Included in the high-risk group are some HPV types that are less frequently found in cancers but are often found in squamous intraepithelial lesions (SILs) (5).

HPV has been implicated in 99.7% of cervical squamous cell cancer cases worldwide(2) Adenocarcinomas of the cervix are also related to HPV, but the correlation is less pronounced and is age dependent (3). In women younger than 40 years, HPV was present in 89% of adenocarcinomas, whereas in women aged 60 years and older, HPV was observed in only 43%(6).

Human Papillomavirus (HPV) is the most common cause of cervical cancer. Cervical cancer being the second most common cancer after lung cancer, affecting women of different age groups; has a prevalence of about 20% in young sexually active women. Among different types of HPV, HPV16 and HPV18 are the major strain causing this cancer and is sexually transmitted had been unnoticed for decades. Keeping in mind the multiple risk factors related with cervical cancer such as early age sexual activities, teenage pregnancies, smoking, use of oral contraceptives, having multiple sex partners, hormone replacement therapies and various other unknown factors lead to the onset of the disease. Awareness for various diagnostic procedures such as Pap smears screening prove to be an effective way in eradicating the oncogenic potential of HPV(7,8).

Cervical cancer as the most prevalent cancer in women in the coming years is the main cause of death, especially in young women. Its ratio varies all over the world, but a significantly high ratio has been seen in the western countries. By statistical and geographical analysis it proves to be higher in Native American women than in Caucasian women. It was also found common in Hispanic and African American women. According to the World Health Organization (WHO) statistics, there are approximately 500,000 new cases registered each year out of which 250,000 cases are fatal(9,10). This alarming situation in the coming years for papillomaviruses has lead molecular virologists worldwide to go deep into pathogenesis and bring out solutions to its therapeutic potential(11). According to the most recent reports, in the United States of America (USA) women are prone to this infection twice than men in all regions of the world including USA and the prevalence of HPV is much higher in women than men. The reported overall prevalence rate of HPV in women irrespective of races was 17.9%, while men showed a comparably lower rate of 8%. African Americans had the ratio of 20 to 29% as Caucasians and their prevalence rate was known to be about 12.5%. People who had multiple sex partners during their lifetime were on a higher risk of HPV infection as the frequency of HPV was seen to be 20.1% compared 7% in those patients who had only one sexual partner throughout their sexual lives(12,13).

The aim of this study was to evaluate the cytology laboratory findings using cervical Pap smear, HPV DNA extraction and typing for high carcinogenic risk types.

Material and Methods:

We retrospectively studied cervical specimens of 391 women aged from 23 to 65, who were tested for HPV infection with pap-smear in cases of abnormal results(CIN1,ASCUS, HSIL-CIN2/CIN3) DNA extraction from specimens were done by extraction kit for DNA(Bioron Diagnostics) and Realline HPV HPC screen Fla-Format(BIORON) and a qualitative assay kit of high carcinogenic risk tipes of HPV: 16,18,31,33,35,39,45,51,52,56,58,59,66,68. We placed epithelial cells specimens from the mucosa of cervical canal into a test tube solution of Realline DNA using sterile brush. We removed excess liquid by pressing the swab against the wall of a tube. After we plased the tube into a heating block and incubated for 15 minutes at 98°. Positive and negative controls were used for each reaction.
Results: In our results cervical cytologic abnormalities were diagnosed as follows: 60% was CIN1, 30% atypical squamous cell of undetermined significance (ASCUS), and 10% high-grade SIL (HSIL-CIN2/CIN3). In 49 women (12.5%) was detected high-risk HPV types; HPV31 in 12 cases (24.4%), HPV16 in 10 cases (20.4%), HPV52-6 cases (12.2%), HPV51-5 (10.2%), HPV56, 59 and 33— for each one 4 cases (8.1%), HPV18-2 (4%).

Conclusion: Atypical squamous cells of undetermined significance (ASCUS) are a cervical cytologic finding category suggestive but not definitive of squamous intraepithelial lesions. ASCUS remains an incompletely described entity and accounts for even 5%-10% of reported Paapanicolau (Pap) smears. In our study was 30%, HPV genotyping is changing from being a supporting method used to help prevent cervical cancer to a main method that also assists in managing pre-existing cervical lesions. Although persistent infection with a high-risk HPV genotype is known to be a major carcinogenic factor, the various high-risk HPV genotypes have different carcinogenic potentials. An understanding of the genotype-specific aspects of HPV infection would facilitate the development of better strategies to prevent and manage cervical cancer.

REFERENCES

MODERN CONDITIONS OF ECOSYSTEMS IN THE SHIRVAN REGION CITIES OF AZERBAIJAN

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ABSTRACT

Ecological assessment of plant-soils cover and river water of Shirvan zones (territory of East and West part of Great Caucasus, Steepe plateau, Kur plain, Kur-Araz lowland and Gobustan) of Azerbaijan is interested from scientific-theoretical and practical urgency. The mountain and flat zones of area are rich by plant diversity and by mineral waters of medical and resort value. The main reason for environmental pollution in cities is related to human activity and industry-related and transport wastes. As shows results of research that in all major cities around the world, environmental pollution has a constant growth dynamics over the past few decades. Therefore, the preservation and restoration of the biodiversity of urban and industrial facilities entering the territory of Shirvan should be taken into consideration.

Keywords: plant-soil cover, rivers, ecological assessment, Shirvan, Azerbaijan

The protection of nature in the Azerbaijan Republic is regarded as an important state concern and, therefore, Azerbaijan an active participant in many international environmental conventions. Number of organizations around the world (United Nations Cultural Heritage Program, United Nations Environment Program and Development Commission, UNESCO Cultural Heritage Program, European Environmental Policy Institute, FAO Conventions on PGR, etc.) states have made concrete proposals to prevent further aggravation of environmental problems. Biodiversity is seriously damaged in the case of technogenic wastes [UNESCO, 2011; FAO Convention on PGR, 2001].

Article 39 of the Constitution of the Azerbaijan Republic adopted on November 12, 1995, states: "Everyone has the right to live in a healthy environment." [Constitution of AR, 1995]. The total area of flat and mountain part of Shirvan makes 748 thousand hectares. The main cities of the region (with the same name with administrative districts): Gobustan, Hajigabul, Kurdamir, Ujar, Zardab, Goychay, Yevlakh, Agdash, Agsu, Shamakha, Ismayilli. The basic anthropogenous factors of biogeocenosis changes are drainage and flooding of territories; agricultural land development, set of agrotechnical actions for increase of soils fertility, cutting down of woods and bushes, building of roads and industrial targets. The region climate is non-uniform: climate is damp in high-mountainous and middle-mountainous parts, in foothill-hilly - droughty, warm, in low-flat – dry and warm. The exposure soil to different level of erosion is one of characteristic ecological problems of our Republic. But real disaster of land management in Republic and in the world is the water erosion (31% of land) and wind erosion (defilation) which actively influence 34% of surface land. Relief of the territory plays an important part in erosion process and intensively influences to erosion process and gradually changes under its influence. At the result of agricultural activities 30 th. ha of land cover destructed, but 40% of land cover exposed to erosion processes, result of wrong land reclamation work shows its negative influence, in results underground water level and salinization of arable land increases. In arable regions of the country more harm gives irrigational erosion. In appropriation of mountain mass under not follow antierosional activities washout of the soil will decrease which shows negative influence on productivity and often causes take out of the plant from agricultural cultivation. Very often antierosional processes causes washout of the 100 t/ha soil, especially in irrigation season. Mountain and plain regions of Azerbaijan exposed to irrigational erosion. At the result of wrong irrigation activities productivity of the land decreases. Research works shows that total territory of lands exposing to erosion is 31444,7 th. ha in our Republic, which means 36,4% territory of Azerbaijan. Problem of salinization and alcalination are the most important problems. Nowadays approximately 37000 th. ha soils from all existing land (8641506 ha) in Azerbaijan exposed to degradation. Soil salinization is wide spread in Azerbaijan. 60% of Kur-Araz plain occupying 2,2 million ha territory consists of average and full saline soil. Generally in the territory of our Republic total area of average and full saline soil is 1,3 mln ha. Uncalculated actions and lack of experience, people carried out irrigational activities without consideration of soil type and hydrological condition which consequence become salinization and swamping of great territories have been showed results of observation. That is why these lands considered useless from the point of view of land reclamation and ecology. Knowing its negative dynamics is necessary to take otherwise actions, such as taking certain ecothic measures (derange, washout, chemical melioration, necessary administrative and legal activities and etc). In the way of struggle against erosion, salinization and alcalination which became one of the important ecothic problems for our soil and plant cover, complex measures are needed to be carried out.
According to scientists, the waste of gas-chemical complex, in particular, can cause influence not only on plant resources but also the upper respiratory tract and cardiovascular system of the population living in the same area [Alehin, 2010]. Safarli in results of analyzing the anatomic changes of coniferous plants in contaminated areas for the Ganja city notes that elder pine (Pinus eldarica Medw.), as well as evergreen cypress (Cupressus sempervirens L.) and to create green zones reduces the influence of man-made wastes [Safarli, 2004]. Trees can be used because they are resistant to pollutants.

However, according to Q.M. Ilkun, the distribution of the plants into groups is as follows: white acacia, hawthorn, rose, white vein, lilac, peppermint (balm, canada), green germs; gaseous-resistant plants: juniper species (siberian and common), brown, oak, different types of lambs, large leafy and hairy linden, common bird frogs, types of poppy (white, black, large fruits), apple, and fluffy; gaseous and relatively stable plants: virginia sequentially, fluvy grapevines, hornbeam, horse chestnut, cypress maple, cranberry lime, walnut, chinchilla; gaseous-clean less-resistant plants: odor species (East and Siberian), white pine species (white and rye), ordinary peanuts; the species of candles (ordinary, banks, and veymut) were evaluated during gas-clean plantations [www.modern.az, 2011; Ilkun, 1978]. However, annual, biennial and perennial grasses are spread in those areas, and they are not as long-lasting, adaptable.

Ecological assessment of soils of Shirvan zones (territory of East and West part of Great Caucasus, Steepe plateau, Kur plain, Kur-Araz lowland and Gobustan) of Azerbaijan is interested from scientific theoretical and practical urgency. Also interested assessment of conditions of river waters in regions. The mountain zone of area is rich by mineral waters of medical and resort value. 7 basic rivers proceeding in region: Kur, Goycachay, Turunchay, Girdimanchay, Agsuchay, Pirsakhatchay, Gozuchay, their chemical, bacteriological structure influences an ecological condition of a soil-vegetative cover of Shirvan. Pollution of the rivers occurs both superficial and sewage where get a waste and products of live ability of the person. The springs rich basically by sulphur and hydrocarbonates are used as a source of medical and potable water. The mountain part is located at height of 700-3000 m above the s.l. Soil resources of region differ by variety. Deterioration of physical and chemical properties of soils are observed, has amplified water and wind erosion. It inseparably linked with a soil erosion, salification, chemical pollution and as a whole soil degradation. Development of degradation processes of the soils depends on an overexploitation, unstable agriculture and irrigation, destruction of woods, biodiversity pauperization. These processes are caused by factors of political, economic character, absents of special knowledge, internal both regional conflicts and natural factors. The basic industries of region are food-processing industry, processing local agricultural production (winemaking, fruit growing) and light industry (sewing, carpet weaving).

Taking all this into account, our main goal - the study of the biodiversity of polluting sources in Shirvan region of Azerbaijan.

MATERIALS AND METHODS

The program covers 2008-2017 years. The material was collected by comparative method, a large number of biometric measurements on the ontogenetic state of plants have been spent.

Objects have been subjected to pollution-affected areas. Herbaries were collected from polluted areas, numerous photographs were made and studies were conducted in semi-stationary mode.

The scientific results of researches on these species allow to analyze the results of the "human-nature-ecological situation" triplet relationships, and also provide a basis for substantive development of measures on the basis of plant reaction.

On pure and polluted areas, annual growth of stems at the end of vegetation was taken to account for and marked by 10 samples of different sizes annual sprouts, their length, diameter and number of leaves were accurately measured, and the average length of the stems was determined [Ilkun, 1978]. Plant life activity indicators (PLI) were determined by the following formula based on V.Alekseyev's [1989] method:

\[
PLI = \frac{100n_1+70n_2+40n_3+5n_4}{N}
\]

there: \(n_1, n_2, n_3, n_4\) - number of healthy, weakened, serious weakened and drying plants; 100, 70, 40, 5 - coefficient of life activity of healthy, weakened, severe weakened and drying plants; \(\%\); \(N\) - quantity of total plants in stasio.

At the time of the survey, those with a 100-80% ratio were considered "healthy", 79-50% "weakened", 49-20% "severe weakened", 19% and lower "complete destruction".

Ecological assessment of soils and river water is carried out by generally accepted methods [G.Mammadov, 2007; Pimenova, 2011].
RESULTS AND DISCUSSIONS

Centuries ago, people were dependent on the vegetation environing them. However, gradual biodiversity has undergone some changes under the influence of the widespread development of the industry, and, as a result, the forests have been rapidly cut down, extensive plowing has been done in the areas where different vegetative groups are spread, exploitation of minerals, building of factories, in the vast area, the green plant cover, which is the protective wall of nature, has reached its limit of destruction. Therefore, the preservation and rational use of natural resources in modern times has become one of the global challenges.

Based on statistical data, the pollution areas in Shirvan zone and the degree of contamination were recorded in the study (Diagram 1, 2).

As shown from diagram 2, the amount of substances thrown into the atmosphere (about 3923) is about 1.5 times higher than the maximum allowable concentration for cities (2391). This, above all has the negative influence on biodiversity. Particularly, industrial enterprises lead to the endangered and destruction of vegetation in surrounding areas.

It is known that most environmental problems for mankind are directly related to the soil cover. That is why environmental assessment of soils have great importance.

G.Sh. Mammadov [2007] notes that the factors influencing on the ecological assessment of soils can be given not only by correlation coefficients, but also by a special assessment scale.

G.Sh.Mammadov used his own research materials, as well as materials of other researchers in the field of salinization, solonetization, structural and aggregate content of soils, as well as scales on climatic parameters when drawing up special assessment scales in terms of the degree of revealing of individual soil characteristics of Azerbaijan [Mammadov, 2007].

Three groups of data on the environmental conditions of soils were used in the assessment of soils:
1. Soil factors (attributes and properties not selected as a criterion for bonitation - pH, waterproof aggregate, density, etc.)
2. The main bonitet ball, found on the basis of evaluation criteria for soils.
3. Environmental factors that form the soil and its fertility (the height of the territory, the amount of precipitation, \( \Sigma T > 100 \), Md, etc.)

Soil types of the Mountain Shirvan in comparison with the soils of the Flat Shirvan are surrounded by a higher ecological potential. The ecological score in the area of Shirvan Mountain ranges from 81-91 (average 87 ball). In comparison with it in the Shirvan Plain bonitation ball fluctuates within the 74-86 limits (the average - 79 ball). In general, the Shirvan soils have a high ecological potential again from an ecological point of view. The average ecological score for the soils of the territory is 83, which is a reliable guarantee for the possibility of obtaining high yields to a sufficient extent. Results of our research have been presented on picture 1.
Kura is the largest river in Transcaucasia. Kura is the main river of Azerbaijan and Georgia Republic and flows into the Caspian Sea, flows through the territory of three countries: Turkey, Georgia, Azerbaijan. The length of the Kura is 1364 km, the area of the basin is 188 thousand km². The ecological status of the Kura is regarded as bad. The river has significantly degraded due to the regular discharge of untreated industrial and domestic waste. According to the data for 2008, the content of harmful substances in the river exceeds the maximum allowable by 2-9 times, which was also confirmed by the results of our analyzes of the water content.

Pirsagat river is a river flowing on the Azerbaijan territory. It originates on the southern slope of the Main Caucasian Range. Passes through the territories of Ismayilli and the Shemakha cities and the Salyan district. It flows into the Caspian Sea, forming a dry delta. The Pirsagat reservoir is formed on the river. The length of the river is 199 kilometers, and the area of the basin is 2280 km².

Goychay river - a river in Azerbaijan, flows along the Gabala, Ismayilli, Goychay and Ujar districts. The length of the river is 113 km, the catchment area is 1770 km². The average water discharge near the town of Goycha is 12.9 m³/s. It starts at the foot of the Babadag mountain. In the area of the Goychay city is divided into numerous branches and canals and is widely used for irrigation. Merging with the waters of the Turianchay spillway forms Karasu, the left tributary of the Kura river.

The quality of water is determined by physical (temperature, smell, taste, color, transparency, electrical conductivity) and chemical (hydrogen index (pH), total mineralization (dry residue), stiffness, acidity, alkalinity, oxidizability, microelements, ionic composition, radioactive substances.) indicators. Date is compare with norm of state standards for river water [Sanpim]. Rate of chemical reactions, the degree of corrosive water aggressiveness, the toxicity of pollutants, and much more may change depending on the pH value. In river waters, pH is usually in the 6.5-8.5 range. As shown from the table, the water in rivers refers to alkaline, with the exception of water in the rivers - Pirsakhat river and Gozluchay river. In terms of rigidity - to medium hard. High magnesium content can also be isolated (table 1:2).

Thus, in samples of river waters there are alkali, calcium and magnesium salts, etc. In this water you can swim, but drink better after boiling.
## Territory and speed of the current of the 7 main rivers of the Mountain and Flat Shirvan

<table>
<thead>
<tr>
<th>№</th>
<th>River name</th>
<th>Territory of samples taken</th>
<th>Time for 100m spaces</th>
<th>Speed of the river</th>
<th>m/sec</th>
<th>km/sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kura river</td>
<td>Zardab city</td>
<td>135sec (2min 15sec.)</td>
<td>0.74</td>
<td>2.66</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Goychay river</td>
<td>Zardab city</td>
<td>100sec. (1min 40sec.)</td>
<td>1.00</td>
<td>3.60</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Turyanchay river</td>
<td>Ujar city</td>
<td>85sec. (1min 25sec.)</td>
<td>1.18</td>
<td>4.24</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Girdiman river</td>
<td>Agdash city</td>
<td>50 sec</td>
<td>2.00</td>
<td>7.20</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Akhsu river</td>
<td>Akhsu city</td>
<td>75 sec (1min 15sec.)</td>
<td>1.33</td>
<td>4.79</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Pirakhat river</td>
<td>Agsu city</td>
<td>60 sec (1 minute)</td>
<td>1.66</td>
<td>5.98</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Gozluchay river</td>
<td>Shamakha city</td>
<td>85sec (1min 25sec)</td>
<td>1.18</td>
<td>4.24</td>
<td></td>
</tr>
</tbody>
</table>

## Analysis of the water of the seven main rivers of the Shirvan region

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Results of analysis of river waters</th>
<th>State standard norms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor: at 20°C (ball)</td>
<td>0 0 0 0 0 0 0</td>
<td>till 2 ball</td>
</tr>
<tr>
<td>Color: at 20°C (ball)</td>
<td>0 0 0 0 0 0 0</td>
<td>till 20°C</td>
</tr>
<tr>
<td>Taste: at 20°C (ball)</td>
<td>0 0 0 0 0 0 0</td>
<td>till 2 ball</td>
</tr>
<tr>
<td>Turbidity: by standard scale</td>
<td>3.6 4 4.3 4.3 9.4 28.0 16.0</td>
<td>till 1.5mg/l</td>
</tr>
<tr>
<td>Ph</td>
<td>8.8 8.2 8.8 8.2 8.2 7.6 6.0-9.0</td>
<td>6.0-9.0</td>
</tr>
<tr>
<td>Ammonium</td>
<td>0 0 0 0 0 0 0</td>
<td>max 2</td>
</tr>
<tr>
<td>Nitrite</td>
<td>0 0 0 0 0 0 0</td>
<td>max 3.3</td>
</tr>
<tr>
<td>Nitrates</td>
<td>1.0 0.6 0.9 0.6 0.9 0.3 0.1</td>
<td>till 45.0 mg/l</td>
</tr>
<tr>
<td>Total hardness</td>
<td>8.0 4.6 5.0 5.4 7.0 6.0 5.4</td>
<td>7.0mg/ekv/l</td>
</tr>
<tr>
<td>Chlorides</td>
<td>40.0 13.0 13.0 12.0 13.0 15.0 11.0</td>
<td>till 350.0</td>
</tr>
<tr>
<td>Alkalinity</td>
<td>3.2 2.8 3.0 2.8 3.6 4.8 4.4</td>
<td>10mg/l</td>
</tr>
<tr>
<td>Iron</td>
<td>0 0 0 0 0 0 0</td>
<td>0.3mg/l</td>
</tr>
<tr>
<td>Calcium</td>
<td>80.0 52.0 64.0 64.0 80.0 76.0 60.0</td>
<td>30-140mg/l</td>
</tr>
<tr>
<td>Magnesium</td>
<td>48.64 24.32 21.88 26.75 36.48 26.75 29.18 10-85mg/l</td>
<td></td>
</tr>
<tr>
<td>Bicarbonates</td>
<td>195.2 170.8 183.0 170.8 219.6 292.8 268.4</td>
<td>non-standardized</td>
</tr>
</tbody>
</table>

* 1- Kura river; 2- Goychay river; 3- Turyanchay river; 4- Girdiman river; 5- Akhsu river; 6- Pirakhat river; 7- Gozluchay river

Biodiversity has been completely destroyed at the expense of technogenic wastes, and some perennial herbs and primitive debris (dump) crops have been disseminated on the spot. Pollution-affected areas have been identified as being exposed to environmental pollution in the Shirvan region. The life activity indicators of some of the grains present in technogenic contaminated areas by city park (for example, H.Aliyev city parks) in Mingechevir towns of Yevlakh districts have been determined in accordance by the methodology (Table 3).

### Table 3

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Plant Life Indicators (HFG)%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Park in Mingachevir area</td>
</tr>
<tr>
<td>1. Agropyrum cristatum</td>
<td>100</td>
</tr>
<tr>
<td>2. Cynodon dactulon</td>
<td>88</td>
</tr>
<tr>
<td>3. Medicago sativa</td>
<td>80</td>
</tr>
<tr>
<td>4. Eragrostis arundinacea</td>
<td>85</td>
</tr>
<tr>
<td>5. Hordeum bulbosum</td>
<td>100</td>
</tr>
<tr>
<td>6. Koeleria phleoides</td>
<td>90</td>
</tr>
<tr>
<td>7. Malva sylvestris</td>
<td>84</td>
</tr>
<tr>
<td>8. Phragmites communis</td>
<td>100</td>
</tr>
<tr>
<td>9. Festuca sulcata</td>
<td>80</td>
</tr>
<tr>
<td>10. Poa trivialis</td>
<td>80</td>
</tr>
<tr>
<td>11. Lolium persicum</td>
<td>85</td>
</tr>
<tr>
<td>12. Paliurus spinacristi</td>
<td>85</td>
</tr>
<tr>
<td>13. Milium vernale</td>
<td>87</td>
</tr>
<tr>
<td>14. Sesleria pheoides</td>
<td>90</td>
</tr>
<tr>
<td>15. Stipa szovitsiana</td>
<td>84</td>
</tr>
</tbody>
</table>

As shown from table, there were 15 species by 100-80% coefficient - “healthy” plants, 2 species - *Phragmites communis* and *Agropyrum cristatum* - by 56-69% coefficient are “weakened”, 5 species by 49-20% - “severe weakened”, 7 species by 19% coefficient are “completely destroyed”.

Carpet (*Medicago sativa* L.), barley (*Hordeum bulbosum* L.), catwalk (*Phleum paniculatum* Huds.), broomgrass (*Bromus Scop.*), pinweed (*Erodium L. Herit*), lumber (*Festuca sulcata*), Jerusalem thorn (*Paliurus spinacristi* Mill) and others are mainly and typical for the territory of the parks, but species are found rarely or seriously damaged around industrial centers.

The role of greenery in environmental refining, the creation of specific microclimate conditions, the prevention of technogenic pollutants, and the improvement of morale and psychological state of people are evident. The main reason for environmental pollution in cities is related to human activity and industry-related and transport wastes. As shows results of research that in all major cities around the world, environmental pollution has a constant growth dynamics over the past few decades. Therefore, the preservation and restoration of the biodiversity of urban and industrial facilities entering the territory of Shirvan should be taken into consideration.

### OFFERS

1. Elder pine should be widely used as tolerant species under using greenhouses in technogenic contaminated areas;
2. In addition to a number of agrotechnical measures to increase the resistance of these species to technogenic waste, they should also be used the auxin and plenty of water regime to increase their physiological tolerance against stress factors;
3. To take concrete recultivation measures to ensure that the territory is subject to succesion (vulnerability). Salsola species developed in the wild in the most susceptible condition of large-scale fertile soils have been observed in results of field research. Therefore, learning biological characteristics of the Salsola species we advisable to apply this plants in biology recultivation. Sailor species, *Tamarix ramosissisa*, *Artemisia fragrans* and *Cynodon dactylone* should be used for crops in on the protective strip of industrial enterprises. Also *Alhagi pseudoalhagi* as indicators of polluted soils and plants resistant to technogene pollution should be used in biology recultivation.
4. Planting such bushes and trees as *Elaeugnus agustifolia*, *Salix australis*, *Olea europea*, *Tammarix raossissima* and others as a protective strip outside of industrial enterprises and for gardening have been recommended.

5. To carry out activities to educate the population of the region to conserve biodiversity, protect and rationally use plant resources, soil and river waters in the region.

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THROMBOPHILIA GENE MUTATIONS AND VTE DURING PREGNANCY AND POSTPARTUM PERIOD

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Abstract

Thrombophilia is associated with alterations of hemostasis as well as complex physiological adaptation. Pregnancy and postpartum period in women have increased risk of venous thrombosis (1.2- to 1.4-fold higher than 1000 women's). Thrombophilia and pregnancy's women's venous thromboembolism's risk is 48% higher with inherited thrombophilia. Venous thromboembolism's risk is increased significantly and maximum in the postpartum period. Conducted research aimed to evaluate the relation of inherited thrombophilia (Leiden V factor (FVL), prothrombin G20210A and MTHFR C677T gene's mutations) and pregnancy and postpartum period's venous thromboembolism. We performed 40 Georgian women's (with venous thromboembolism and various pregnancy's history) and 100 control group's (women without any inherited thrombophilia) genetic analysis and their analysis showed that FVL mutation was found in 9 cases (22.5% in control group) (P=0.0051). In other words, MTHFR G20210A and MTHFR C677T heterozygous mutation and FVL heterozygous mutation in pregnant women was higher than the control group (p=0.0173). MTHFR gene's heterozygous mutation is found in 14 (35%) pregnant women's and 24 (24%) cases showed hyperhomocysteinemia (p=0.0785). In other words, MTHFR mutation's patients had higher homocysteine concentration in plasma; patients with inherited thrombophilia and MTHFR mutation's women had increased risk of venous thromboembolism's. Perform the research's results, we conclude that inherited thrombophilia's mutation's analysis is needed in all Georgian women.
ABSTRACT

As a part of complex physiological adaptations, normal pregnancy is associated with extensive changes in hemostasis. Women during pregnancy and puerperal period have higher risk of venous thromboembolism (VTE) (1.2 to 1.4 per 1000 deliveries). Inherited thrombophilias accounts for almost half (48%) of the VTE risk seen in the pregnant and postpartum period. The risk of VTE is increased to varying degrees and is the highest during puerperium. The aim of the study was to evaluate the association of inherited thrombophilia (Factor V Leiden, Prothrombin G20210A and MTHFR C677T gene mutations) and venous thromboembolism in women during pregnancy and postpartum period. 40 Georgian pregnant women with VTE and different pregnancy complications and 100 controls (women with three or more uncomplicated pregnancies) were genotyped by PCR analyses. FVL mutation was found in 9 cases, for a prevalence 22.5% (6% in control) (p=0.0051). Both Prothrombin G20210A heterozygote mutation and MTHFR C677T homozygote mutation were seen in 5 cases, prevalence 12.5% (1% in control) (p=0.0173). Relationship between VTE and studied mutations was significant statistically. MTHFR heterozygote mutation was seen in 14 (35%) cases in patients and 24 (24%) cases in control group (p=0.0785). This is the first study in Georgian population and based on our data, women in our population with inherited thrombophilia are at increased risk of developing VTE during pregnancy and postpartum period. Taking into consideration received results, also the effectiveness of timely started adequate treatment, it's reasonable to investigate thrombophilia gene mutations in all Georgian women with pregnancy complications.

Keywords: Inherited Thrombophilia, gene, mutation.

INTRODUCTION

The hemostatic system plays a critical role in both the establishment and maintenance of pregnancy, and the dynamic balance between coagulation and fibrinolysis maintains a normal placental circulation. The main reason for the increased risk of VTE in pregnancy is hypercoagulability. The hypercoagulability of pregnancy, which has likely evolved to protect women from the bleeding challenges of miscarriage and childbirth, is present as early as the first trimester and so is the increased risk of VTE. Other risk factors include a history of thrombosis, inherited and acquired thrombophilia, certain medical conditions, and complications of pregnancy and childbirth [1]. Inherited thrombophilias are a group of genetic disorders of blood coagulation resulting in a hypercoagulable state, which can be associated with complications such as VTE. Pulmonary embolism is the leading cause of maternal mortality in developed countries and accounts for 20% of pregnancy related deaths in the United States [2,3]. The risk of pulmonary embolism and deep vein thrombosis, collectively known as venous thromboembolism, is increased during pregnancy and is further increased by the presence of inherited or acquired thrombophilias. It is a major cause of peripartum morbidity and mortality worldwide. The risk of venous thromboembolic events (VTE) is high during pregnancy due to both physiologic changes of pregnancy and the additional impact of the inherited thrombophilias. The overall rate of venous thromboembolic events in pregnancy is 200 per 100,000 deliveries [4]. Although the relative risk of VTE is 5 times higher in pregnant women than in nonpregnant women of similar age [5]. The absolute risk remains low. The main risk appears to occur in the postpartum period where the incidence increases almost 2.5-fold and is estimated at 500 per 100,000. The majority of these events are deep vein thrombosis as opposed to the more deadly pulmonary embolism. Venous thromboembolic events remain a leading cause of death which has been estimated to range from 1.2 to 4.7 per 100,000 pregnancies. Inherited thrombophilia contribute further to an increased predisposition to thrombotic events. The overall impact of the inherited thrombophilia is low in the nonpregnant population. Fifty percent of the patients with thrombosis during pregnancy will be found to have an underlying thrombophilia [6]. The aim of the our study was to evaluate the association of inherited thrombophilia (Factor V Leiden, Prothrombin G20210A and MTHFR C677T gene mutations) and venous thromboembolism in women during pregnancy and postpartum period (Deep and superficial venous thrombosis/pulmonary embolism).

MATERIALS AND METHODS

40 Georgian pregnant women with a history of VTE (patients’ groups with Deep Vein Thrombosis/Pulmonary embolism, superficial venous thrombosis and Postpartum Thrombosis) and different pregnancy complications during pregnancy or the puerperium and 100 controls (women with three or more uncomplicated pregnancies) were genotyped by PCR analyses.

Factor V Leiden G1691A, prothrombin gene G20210A and MTHFR gene C677T mutations were detected by the molecular-genetics methods, which implied the following stages:

I. Extraction of genomic DNA: The genomic (nuclear) DNA was isolated from the peripheral blood leukocytes by a commercially available DNA extraction kit (Pronto Diagnostics).

For the detection of mutation in the extracted DNA, was used Pronto ThromboRisk kit (Pronto Diagnostics, Israel) [6], which detects Single Nucleotide Substitution by a single nucleotide primer extension reaction, followed by Enzyme Linked Immuno-Sorbet Assay (ELISA). The PRONTO Product line is for in vitro diagnostic use and is accredited to the
highest international quality standards of production including GLP/GMP, EN46001, ISO 9001 and ISO 13485 and is CE certified.

II. Identification of mutation stages in genomic DNA
1. DNA amplification by Polymerase Chain Reaction (PCR), Gene Amp PCR System 9700 (AppliedBiosystems) and Pronto ThromboRisk Amplification Mix;
2. Detection of amplified DNA by gel-electrophoreses
3. Wild type and mutation-positive allele detection by a single nucleotide primer extension reaction using Gene Amp PCR System 9700 (AppliedBiosystems) thermocycler;
4. Wild type and mutation-positive allele detection by Enzyme Linked Immuno-Sorbent Assay (ELISA);
5. Date detection by photometer-reader.

Statistical analysis was performed on SPSS v.21 statistical software. Fisher's exact test and Pearson’s chi-squared ($\chi^2$) test were used to assess inter-group difference, Odds ratio (OR) and 95% confidence interval were used to evaluate the strength of the association between the inherited thrombophilia and the risk of developing pregnancy complication. The difference between the groups and the risk of pregnancy complications were considered to be significant when $p<0.05$.

RESULTS

We investigated 40 Georgian women with different complications during pregnancy and postpartum period (deep venous thrombosis, superficial venous thrombosis and ischemic stroke) and 100 controls. Mutations were detected in 14 (35%) cases of Patients and in 2 (2%) cases of control group (Figure N1).

1) 21 patients had isolated deep venous thrombosis: 18 during pregnancy and 3 in postpartum period;
   a) From 18 patients FVL (homo) was detected in 1 case, FVL (hetero) in 1 case, Prothrombin (hetero) in 3 cases, FVL/Prothrombin in 1 case, FVL/Prothrombin/MTHFR (hetero) in 1 case, MTHFR (homo) in 1 case, MTHFR (hetero) in 4 cases;
   b) From 3 patients MTHFR (homo) was detected in 1 case and FVL/MTHFR (hetero) in 1 case;

2) 12 patients had isolated superficial venous thrombosis: 9 during pregnancy and 3 in postpartum period;
   a) From 9 patients FVL heterozygote mutation was detected in 2 cases, FVL/MTHFR (hetero) in 1 case, MTHFR (homo) in 1 case, MTHFR (hetero) in 3 cases,
   b) From 3 patients FVL heterozygote mutation was detected in 1 case, MTHFR (homo) in 1 case, MTHFR (hetero) in 1 case,

3) 5 patients had combined DVT and SVT during pregnancy: MTHFR (hetero) was detected in 3 cases;

4) 2 patients had Ischemic Stroke in postpartum period. In one patient was detected MTHFR homozygote mutation.

Figure N1. Distribution of Mutations in Patients and Control Group
Figure N2. Distribution of Thrombophilia Gene Mutations in Patients with VTE During Pregnancy

Figure N3. Distribution of Thrombophilia Gene Mutations in Patients with VTE During Postpartum Period
FVL mutation was found in 9 cases, for a prevalence 22.5% (0% in control) \((p=0.0051)\). Both Prothrombin G20210A heterozygote mutation and MTHFR C677T homozygote mutation were seen in 5 cases, prevalence 12.5% (1% in control) \((p=0.0173)\). Relationship between VTE and studied mutations was significant statistically. MTHFR heterozygote mutation was seen in 14 (35%) cases in patients and 24 (24%) cases in control group \((p=0.0785)\). Relationships between VTE (during pregnancy and postpartum) and FVL and MTHFR mutations were significant. Relationship between VTE (during pregnancy and postpartum) and Prothrombin mutation was weak (see table).

**Table.** Distribution of Factor V Leiden, Prothrombin G20210A and MTHFR C677T gene mutations in studied groups.

<table>
<thead>
<tr>
<th>Mutations</th>
<th>40 Patients</th>
<th>100 Controls</th>
<th>(\chi^2)</th>
<th>(p)</th>
<th>OR (odds ratio)</th>
<th>95% CI (Confidence Interval)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FVL</td>
<td>9 (22.5%)</td>
<td>0 (0%)</td>
<td>24.046</td>
<td>0.000</td>
<td>60.6190</td>
<td>3.4305 to 1071.1632</td>
<td>0.0051</td>
</tr>
<tr>
<td>Prothrombin</td>
<td>5 (12.5%)</td>
<td>1 (1%)</td>
<td>9.211</td>
<td>0.002</td>
<td>14.1429</td>
<td>1.5965 to 125.2867</td>
<td>0.0173</td>
</tr>
<tr>
<td>MTHFR (homo)</td>
<td>5 (12.5%)</td>
<td>1 (1%)</td>
<td>9.211</td>
<td>0.002</td>
<td>14.1429</td>
<td>1.5965 to 125.2867</td>
<td>0.0173</td>
</tr>
<tr>
<td>MTHFR (hetero)</td>
<td>14 (35%)</td>
<td>24 (24%)</td>
<td>3.160</td>
<td>0.075</td>
<td>2.0833</td>
<td>0.9197 to 4.7193</td>
<td>0.0785</td>
</tr>
</tbody>
</table>
CONCLUSION

According to our previous studies, which are the first studies in our population, Leiden mutation, especially its homozygous form and double/triple heterozygous/homozygous carriage of the thrombophilia gene mutations is possible to consider as an independent risk factor of development of recurrent thrombosis in the Georgian population[7] and this results also shows that women with inherited thrombophilia are at increased risk of developing VTE during pregnancy and postpartum period. According to our results, there is the prevalence of thrombophilia gene mutations in patients compare to control group. From studied different groups of patients, DVT is the most frequent complication and studied mutations are also more distributed in this group. Taking into consideration received results, also the effectiveness of timely started adequate treatment, it’s reasonable to investigate thrombophilia gene mutations in all Georgian women with pregnancy complications.

ACKNOWLEDGEMENTS

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INHERITED THROMBOPHILIA AND RECURRENT PREGNANCY LOSS

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Abstract

Aim of the study was to determine the frequency of selected genetic defects (Leiden Factor V mutation, prothrombin G20210A and MTHFR C677T) in the patients and controls. Methods: 166 patients and 100 controls were genotyped. Results: 152 women had spontaneous abortions and 48 suffered from recurrent pregnancy loss. Among them, 34 patients had both, spontaneous abortion and recurrent pregnancy loss. Vascular risk factors were evaluated in 106 patients (63.8%), and in 28% of the controls. Significant differences were found in the frequency of Factors V, P, and MTHFR heterozygous and homozygous mutations between patients and controls. Vascular risk factors were significantly higher in patients than in controls, but no statistical differences were found in the frequency of the mutations in the group of patients with recurrent pregnancy loss. Conclusion: The frequency of selected genetic defects in patients with recurrent pregnancy loss was higher than in controls. Recurrent pregnancy loss is a serious problem and needs attention by obstetricians.
Inherited thrombophilia, which is caused by the mutations throughout genes, often is associated not only with thrombotic complications, but also with recurrent pregnancy loss (RPL). Given the fact that the process of implantation, trophoblast invasion, and subsequent functioning of the placenta depends on balanced interaction of pro-coagulant and anticoagulant mechanisms—in the case of existence of inherited thrombophilia—increases the risk of vascular complications in placenta which can ultimately cause pregnancy complications [6]. According to statistical data compared to non-pregnant individuals, pregnant women are at fourfold higher risk of thromboembolism development (Ischemic stroke, myocardial infarction) [3,4], fivefold increased risk of venous thromboembolism (deep vein thrombosis, pulmonary embolism) during pregnancy (gestation). As for postpartum period, the risk of thrombotic complications in this case is twenty times higher [2]. Purpose of the study was to establish the role of point mutations of genes controlling blood coagulation Factors II (prothrombin) and V (proaccelerin) as well as methylenetetrahydrofolate reductase (MTHFR) – enzyme participating in metabolism of homocysteine (prothrombin G20210A; FV Leiden - 1691G/A and MTHFR -677C/T), i.e. inherited thrombophilia in the pathogenesis of pregnancy complications (miscarriage and stillbirth).

MATERIALS AND METHODS
166 patients with RPL and 100 healthy controls (age 20–45) were genotyped by PCR. Factor V Leiden G1691A, prothrombin gene G20210A and MTHFR gene C677T mutations were detected by the molecular-genetics methods, which implied the following stages:
I. Extraction of genomic DNA: The genomic (nuclear) DNA was isolated from the peripheral blood leukocytes by a commercially available DNA extraction kit (Pronto Diagnostics).
For the detection of mutation in the extracted DNA, was used Pronto ThromboRisk kit (Pronto Diagnostics, Israel) [1], which detects Single Nucleotide Substitution by a single nucleotide primer extension reaction, followed by Enzyme Linked Immuno-Sorbent Assay (ELISA). The PRONTO Product line is for in vitro diagnostic use and is accredited to the highest international quality standards of production including GLP/GMP, EN46001, ISO 9001 and ISO 13485 and is CE certified.
II. Identification of mutation stages in genomic DNA
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2. Detection of amplified DNA by gel-electrophoreses
3. Wild type and mutation-positive allele detection by a single nucleotide primer extension reaction using Gene Amp PCR System 9700 (AppliedBiosystems) thermocycler;
4. Wild type and mutation-positive allele detection by Enzyme Linked Immuno-Sorbent Assay (ELISA);
5. Date detection by photometer-reader. Statistical analysis was performed on SPSS v.21 statistical software. Fisher’s exact test and Pearson’s chi-squared ($\chi^2$) test were used to assess inter-group difference. Odds ratio (OR) and 95% confidence interval were used to evaluate the strength of the association between the inherited thrombophilia and the risk of developing pregnancy complication. The difference between the groups and the risk of pregnancy complications were considered to be significant when $p<0.05$.

**RESULTS**

152 women had miscarriages and 48 stillbirth out of 166 investigated patients. Among them, 34 patients had both pathologies. At least single mutation was detected in 106 cases (63.8%), while it was found only in 28% in control group. FVL hetero and MTHFR homozygous forms of mutations were significantly higher in patients than in control groups 15.7/0% ($\chi^2 = 18.85$, $p<0.0001$) and 16.9/2% ($\chi^2 = 13.79$, $p<0.001$) respectively (See table).

**Table.** Statistical evaluation of mutation frequency in groups of patients with pregnancy complications and healthy control

<table>
<thead>
<tr>
<th>Gene mutations</th>
<th>patients with pregnancy complications N=166</th>
<th>healthy control N=100</th>
<th>Chi square ($\chi^2$)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factor V Leiden</td>
<td>Abs 0.16 Mean 0.42 Std 0</td>
<td>Abs 0.00 Mean 0.00 Std 0</td>
<td>18.85</td>
<td>0.0001</td>
</tr>
<tr>
<td>Protrombin Gene</td>
<td>14 0.08 Mean 0.28 Std 4</td>
<td>4 0.04 Mean 0.197 Std 1.94</td>
<td>0.163 (F 0.211)</td>
<td></td>
</tr>
<tr>
<td>MTHFR Gene (Homozygous)</td>
<td>28 0.17 Mean 0.38 Std 2</td>
<td>2 0.02 Mean 0.141 Std 13.79</td>
<td>0.0002</td>
<td></td>
</tr>
</tbody>
</table>

Different combinations of triple and double hetero and homozygous forms of FVL/PTH/MTHFR mutations (6 cases) were found only in patients. According to mutation carriage, no statistically significant difference was detected between patients with miscarriages and stillbirths. However, in the case of thrombophilia, positive correlation was found between advanced maternal age and pregnancy loss. According to our data there was not found significant statistical differences between patients with miscarriage and stillbirth (See figure).

**Figure.** Hetero/homo carriage of FV Leiden, Prothrombin (PGM) and MTHFR mutations in patients with miscarriages and stillbirths and in Healthy controls
CONCLUSION

Since distribution and role of inherited thrombophilia in development of pregnancy complications in Georgian population has not been conclusively established yet, most women with RPL are not tested for these mutations. According to our previous studies, which are the first studies in our population, Leiden mutation, especially its homozygous form and double/triple heterozygous/homozygous carriage of the thrombophilia gene mutations is possible to consider as an independent risk factor of development of recurrent thrombosis in the Georgian population [5] and we also confirm a significant role of inherited thrombophilia in development of recurrent pregnancy loss (miscarriages and stillbirth), especially in advanced maternal age (<30). We suggest genetic analyses to women with RPL. It might potentially prevent miscarriages and stillbirth, as serious pregnancy complications in Georgian Population.

REFERENCES

ESSENTIAL OIL FEATURES OF SOME SPECIES OF LAMIACEAE LINDL. FAMILY

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ABSTRACT

Data of study and analysis of the essential oil features of 7 species of Lamiaceae spread in the flora of Azerbaijan (Origanum vulgare L., Salvia virgata Jacq., Thymus hyemalis Lange, Satureja macrantha C.A.Mey., Zizifora seryllacea Bieb., Mentha longifolia (L.) Huds and Melissa officinalis L.). Lamiaceae family species in the biodiversity of Azerbaijan are mainly grown in the stony-gravely rocks and debrises have been presented in manuscript. These species are also found in the forests and forest glades. They are represented by more than 250 species in the flora. 33 of them are spicy plants. Essential oils have been extracted from the plants on different phases (Origanum vulgare 03-06%, Salvia virgata 0,22-0,31%, Thymus hyemalis 1,03-1,50%, Satureja macrantha 0,8-1,10%, Zizifora seryllacea 0,23-0,43%, Mentha longifolia 2,76-3,06% and Melissa officinalis 0,17-0,20%), their physical-chemical constant signs and quality and quantity composition depending on ecological conditions have been determined. Essential oil has been removed from the leaf at most during the flowering phase for all species except Zizifora seryllacea.

Key words: Lamiaceae Lindl., essential oils, component composition, physical-chemical constants

The essential oils are non-toxic substances that have been used in the different areas of science and culture such as medicine, cosmetics, religious-therapeutic, spirit-psychological etc. for many years. These substances are used by the people spontaneously or consciously for 1000 years. Even the essential oils are extracted with any methods and technology, they don’t lose their quality if are maintained for a long time (years), continue to be safe and effective. Essential oils from the plants in the 40s of the last century, studied ways to use them in the industry was extracted by azerbaijani scientists. I.Hajiev [1943]. N.L.Gurvich not only extracted essential oils from the plants, but also applied them [1968]. At that time, a school was established to study essential oils. E.R.Ahmadova [1984], S.Mishurova [1988], N.P.Mehdiyeva [1988], S.C.Mustafayeva [1989], S.A.Mammadova [1991], S.C.Ibadullayeva [2007], F.Y.Gasimov [2011], Z.A.Mammadova [2000; 2012] etc. scientists extracted essential oils from many species, studied their component composition and researched their ways to use. Among them, the representatives of Lamiaceae family take one of the main places. More than 70% of the species belonging to the family are essential oils. Considering all these, we aimed to study the essential oils of Lamiaceae Lindl. spicy species of Lamiaceae spread in the flora of Azerbaijan.

Material and methods. The research was carried out in Greater Caucasus (GC), Lesser Caucasus (LC) and Nakhchivan AR in 2013-2017 years. Output rate of the essential oil was defined by the Ginsberg Method [Ginzberg, 1932]. Essential oils were dried with anhydrous sodium sulfate. Determination of physical and chemical constants of the essential oils meet the State Standards. [Persidskaya et al., 1981], component composition of the essential oils was carried out by gas-liquid chromatography method. Quantity of the component composition was calculated by the internal normalization method of the areas of peaks [Stolyarov et al., 1978].

Experimental part. Lamiaceae family species in the biodiversity of Azerbaijan are mainly grown in the stony-gravely rocks and debrises. These species are also found in the forests and forest glades. They are represented with species more than 250 in the flora. 33 of them are spicy plants. Essential oils of the 7 species belonging to them are determined. Essential oil species of Lamiaceae family are divided into some groups as shown results of research: 72-75% of the species found in stony-gravely lands are representatives having pleasant odor. 39-42% of the species are grown in the forest ecosystems. Essential oil in the plants grown in mesophyll life are more collected in flowers and seeds. Essential oils of the studied Lamiaceae species are whitish-yellow and greenish-yellow, light moving fluid and liquid. Essential oils are collected on the surface part of the plants maximally (leaf and shrub), and relatively little in seeds and flowers. Samples were taken from the plants for determination in different years, various phases. In comparison, different quantitative composition of the essential oils was determined (Table 1).
Table 1
Extraction of essential oils of Lamiaceae species depending on the ecological conditions at different phases (2013-2017)

<table>
<thead>
<tr>
<th>S. №</th>
<th>Names of the plants by Latin language</th>
<th>Collected area</th>
<th>On phases in the whole plant</th>
<th>Quantity of essential oil by %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Origanum vulgare L.</td>
<td>Sheki</td>
<td>Leaf</td>
<td>0,30±0,016</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LC, Goygol</td>
<td>Leaf</td>
<td>0,6±0,074</td>
</tr>
<tr>
<td>2</td>
<td>Salvia virgata Jacq.</td>
<td>Nakhchivan AR</td>
<td>Flower</td>
<td>0,22±0,017</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nakhchivan AR</td>
<td>Leaf</td>
<td>0,31±0,022</td>
</tr>
<tr>
<td>3</td>
<td>Thymus hyemalis Lange</td>
<td>Nakhchivan AR</td>
<td>Flower</td>
<td>1,03±0,027</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Julfa district</td>
<td>Leaf</td>
<td>1,50±0,046</td>
</tr>
<tr>
<td>4</td>
<td>Satureja macrantha C.A.Mey.</td>
<td>Guba</td>
<td>Seed</td>
<td>1,08±0,020</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nakhchivan AR</td>
<td>Leaf</td>
<td>1,10±0,028</td>
</tr>
<tr>
<td>5</td>
<td>Zizifora seryllacea Bieb.</td>
<td>Nakhchivan AR</td>
<td>Flower</td>
<td>0,23±0,018</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gubа</td>
<td>Flower</td>
<td>0,43±0,043</td>
</tr>
<tr>
<td>6</td>
<td>Mentha longifolia (L.)Huds</td>
<td>Guba</td>
<td>Flower</td>
<td>2,76±0,107</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Nakhchivan AR</td>
<td>Leaf</td>
<td>3,06±0,155</td>
</tr>
<tr>
<td>7</td>
<td>Melissa officinalis L.</td>
<td>LC, Goygol</td>
<td>Flower</td>
<td>0,117±0,009</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Absheron, cultivated</td>
<td>Leaf</td>
<td>0,20±0,016</td>
</tr>
</tbody>
</table>

Essential oil was extracted from 7 species and change of their essential oil quantity with percent was observed depending on ecological conditions. Quantitative and certain qualitative changes have also occurred in the component composition of the essential oils in different organs of the plants as shown from table. For example, main components of the essential oils of Salvia virgata species are camphor and thuyone. Ratios of these substances change depending on the ecological conditions: 0.47-16.46% in camphor, 19, 90-64, 54% in thuyone. Similar research was also done in the quantity of ketones depending on development degree of the plant, very little change 6.34–8.65% was found. It should be noted that, aldehyde prevail in the essential oil of the flower group, and ethers in the leaves. Timol (up to 53.3%), linalool (1.6%), cuminaldehyde from aldehyde (1.86%) and ketones are main components of Satureja macrantha species and prevail in the second place (34.46%). From the ketones mostly are pulegone 13.4%, menthone etc.

Main composition of the essential oil of Mentha longifolia species is ketones (mainly carvone 54.2%). Besides, from terpene hydrocarbons (40-45%) pinene, Phellandrene and free acids (capronic, caprylic acids) were determined. Phenols 23.9% is main component of Origanum vulgare species, from them timol 50%, terpene, sesquiterpene, caryophyllene etc. were determined.

Additional information is given about the composition of the essential oils of the species in the table 2. We have been able only to use the witnesses substances during the identification of substances. Unidentified (15 to 25 peaks) substances are not available.
Component composition (by %) on class combinations of the essential oils in different development phases of some species

* Some ingredients have not been identified because they do not have co-identifiers.

### Table 2

<table>
<thead>
<tr>
<th>Components of the essential oils</th>
<th>Melissa officinalis</th>
<th>Thymus hymalis</th>
<th>Zizifora seryllacea Bieb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface part</td>
<td>Flower</td>
<td>Surface part</td>
<td>Flower</td>
</tr>
<tr>
<td>Terpene hydrocarbons</td>
<td>30,4</td>
<td>3,1</td>
<td>0,1</td>
</tr>
<tr>
<td>Camphor</td>
<td>-</td>
<td>-</td>
<td>0,1</td>
</tr>
<tr>
<td>Aldehyde</td>
<td>0,2</td>
<td>0,16</td>
<td>-</td>
</tr>
<tr>
<td>Ketones</td>
<td>7,5</td>
<td>5,2</td>
<td>30</td>
</tr>
<tr>
<td>Phenols (timol; carvacrol)</td>
<td>4,2</td>
<td>8,0; 3,2</td>
<td>1,5</td>
</tr>
<tr>
<td>Alcohol (terpene)</td>
<td>25,6</td>
<td>50,7</td>
<td>20,8</td>
</tr>
<tr>
<td>Complex ether</td>
<td>28,5</td>
<td>30,7</td>
<td>34,1</td>
</tr>
</tbody>
</table>

As seen in the table, Complex ethers are predominated in *Melissa officinalis* species, main components are citral up to 60%, citronellol 0,49%, myrcene-geraniol, cineole. Thus, synthesis of the essential oil in the same species may be in different directions within the vegetation period and may cause to reduce and increase of the components of different class combinations (alcohols, aldehyde, ketones).

There are components that reminds lemon, mint fragrance in the essential oils of *Lamiaceae* species. Essential oils of these plants are transparent, more lightweight substances than water. To define the physical-chemical properties of the species, their specific weight \( D_{20}^{20} \), refraction factor \( n_{20}^{20} \), acid number (a.n), ester number (e.n), ester number after acetylation (e.n.a.a.) have been determined.

Color difference and physical and chemical constants of the oils have been studied that, they are provided in the table 3.

As seen in the table, The ester number is higher than the acid number, and being the ester number high in the essential oils shows they have free alcohols and complex ethers formed from the fatty acids and aliphatic alcohols.

### Table 3

<table>
<thead>
<tr>
<th>Species</th>
<th>Specific weight ( D_{20}^{20} )</th>
<th>Angle of reflection ( n_{20}^{20} )</th>
<th>Acid number</th>
<th>Ester number (e.n.)</th>
<th>Ester number after acetylation</th>
<th>Color of the essential oil</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Origanum vulgare</em></td>
<td>0,964</td>
<td>1,4980</td>
<td>0,94</td>
<td>7,6</td>
<td>54,88</td>
<td>dark yellow</td>
</tr>
<tr>
<td><em>Salvia virgata</em></td>
<td>0,9227</td>
<td>1,1456</td>
<td>6,25</td>
<td>46,75</td>
<td>202,48</td>
<td>yellowish</td>
</tr>
<tr>
<td><em>Thymus hymalis</em></td>
<td>0,8954</td>
<td>1,4740</td>
<td>5,82</td>
<td>25,60</td>
<td>236,22</td>
<td>lemon-pink</td>
</tr>
<tr>
<td><em>Satureja macrantha</em></td>
<td>0,9328</td>
<td>1,5027</td>
<td>6,26</td>
<td>50,26</td>
<td>194,82</td>
<td>light yellow</td>
</tr>
<tr>
<td><em>Zizifora seryllacea</em></td>
<td>0,9213</td>
<td>1,4755</td>
<td>2,05</td>
<td>16,70</td>
<td>53,36</td>
<td>yellow</td>
</tr>
<tr>
<td><em>Mentha longifolia</em></td>
<td>0,925</td>
<td>1,4871</td>
<td>1,05</td>
<td>31,35</td>
<td>195,06</td>
<td>green-yellow</td>
</tr>
<tr>
<td><em>Melissa officinalis</em></td>
<td>0,8074</td>
<td>1,4656</td>
<td>6,28</td>
<td>70,64</td>
<td>230,75</td>
<td>light yellow</td>
</tr>
</tbody>
</table>
**Conclusion.** Essential oils of *Mentha longifolia*, *Melissa officinalis*, *Origanum vulgare*, *Salvia virgata* and *Thymus hyemalis* commonly used as a fragrant-spicy plant belong to the *Lamiaceae* family are collected in the leaves and the maximum reach in the flowering phase. Collection the plant as addition for medicinal and aromatic tea is desirable in the flowering phase.

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ETNOCULTURAL RESEARCH OF BRIDAL, WIFE AND BRIDAL WORDS IN THE TURKISH LANGUAGES

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ABSTRACT

Structural - semantic and functional evolution research of the ceremony lexems, comparative study of ethno linguistic factors are the most important issues. Because the development way of lexical layer in any languages are closely linked in phonetical, lexical, grammatical structure, in addition the geographical environment, cultural and economic ties, life, customs and traditions. The ceremonies of Turkish families into the same ethnic communities in different geographical areal are naturally similar. And it is natural and normal. But despite of these similarities, the traditions of the peoples of Turkish origin, religious beliefs and ceremonies have different aspects. In the vocabulary of Turkic-speaking countries have different terms, or derivates of the same terms (versatile). In the background of these processes ethno-linguistic analysis of ceremony terms is one of the important factors

Keywords: lexics, ritual (ceremony) vocabulary, etymology, origin, turkish languages.

INTRODUCTION

The features of ceremony lexics can be determined not only by semantic features, but at the same time there may be determined by some phonetic processes. In this point of view, the peripheral phonetic features of the lexical units are very important especially in their explanation of the etymological structure.

The most important element of the wedding ceremony, the bride's term almost all of Turkish languages kept its phonetic and semantic features of, also it has been included as part of the common vocabulary. In explanatory dictionary of the Azerbaijani language the word bridal is given in 4 meaning: 1. The girl who is going to be married 2. the son's wife for mother – in – low and father – in – low 3. Very fancy, beautiful, chic one 4. Doll – it is about someone pleasant [1, p. 230].

There are following derivates in the Turkish language: To marry means the girls’s leaving her father’s home, dear bridal “galinbajı” (the name given by her relatives, only relatives may call her ), “galinbardaghi” (syrup drinking vessel), “galinbarmaghi” (grape varieties), “galingaytaran” (sandals), “galingormasi” (going to see bridal) and etc. [2, p.274].

There are bridal beetle, the flashlight of bridal, bridal’s music, bridal’s bird, bridal dress, bridal finger and etc. derivates in the Turkish languages.

If we review the etymology of the word, in the etymological vocabulary of the Turkish language the root meaning of the word is “to come” word (gelmek), “bridal” (kel-i-n), this word is explained as the young woman who comes from somewhere. There are following derivates in the Turkish language:

Gelinboghan, gelinbojeghi, gelinfeneri (bridal’s lamp), gelinhavasi (bridal’s music), gelinkusu (bridal’s bird), gelin (bridal), gelinparmaghi (bridal’s finger) etc. The meaning of the word is given as “teen-ager girl” in Turkman language vocabulary [3, p.462].

METHODS

Comparative and critical methods had been used in the article.

RESULT

The word of bridal (gelin) created from the verb to come (gelmek). Bridal means kelin in Gazakh language, kelin in Girghiz language, kiilin in Khakas language, gelin in Turkmens language. The word bridal – gelin is turkis origin word. Almost it is the main element of wedding ceremony in Turkish languages, it had not lost its fuctional quality, it had not changed its meaning, its stucture and sound formula had not changed.

The word wife (arvad) is one of the ceremony terms. Linguistics’ thoughts about the origin of this word is different. Generelly, there are many different moments regarding the origin of first element of this word – ar. So, the explanation of
functional semantic lexem in different languages is given in the ethimology vocabulary of the Turkish languages. Ar means to shame in Arabian language, area means empty field in Latin, ar means rising in Turkish, but we should mention that, the meaning of the word changes after adding the suffix. Depending on the suffix the meaning of the word is changed.

The word "husband" (ər-in Azerbaijani) is used 2 meanings in the Azerbaijani languages. 1. a man who is an official husband of the woman. 2. Brave one. Your father wants to marry you in other man (U. Hajibayov) [1, p.282].

If we review the "Oguznname", we will be witness to the fact that the word is used to be brave and courage. Among the Oghuzes it is necessary to earn a nickname for heroism. There is such a proverb "Brave man is remembered by his nickname". Since it is necessary to show heroism for the husband, the brave man of the Oghuzs, and to earn a nickname [5, p. 163].

"Ar" means join, connection, conjunction in Indian – European languages. The same meanings are in possible in Turkish languages. Using of in different languages, especially in Indian – European languages create some difficulties to say origin of lexical unit.

One attractive moments is the word "arva (tare)". The root of this word is ar, too. The different explanation of this word (arva) is given variously in ethimology vocabulary of the Turkish languages. The following meaning are given in the vocabulary: a magic, to magic, conjuring, exorcism, bewitch, to damn and other meanings [2, p.168-169].

In lexems abra-arba-arva the root ab-av means magic, conjuring in Mongolian language. When we research in lexical level of the word, we can face with semantic features of the word. Thus, "orpo" means orphan in fin-ugor language, it means tare ("arva") in Vengerian language, there is a term урьва in Mardovian language. The father –in – low calls the bridal in Mardovian language. The term арафты is used in marit language. This word means a young woman.

CONCLUSION

Summarizing of this information we can explain the semantic relations of the meaning so: in any way when a young woman is going to be marry, she feels herself alone, alien, without any one, away from her parents and relatives (family members). This feeling is normal and acceptable (especially, if she does not have other relative relations). Of course, the demands of the time, period and realities play an important role. The word wife – arvad in Turkish language, avrad in Gagauz language, arvad in Azerbaijani, ovrat in Arabian means a married woman, who has a husband.

We should reminder that there is a verb "ur" in the Turkish language, it means to to be born, to multiply and it is turkish origin verb. Other meaning of this word can be an example "urkachi", "urug" means a generation, a clan, relative relationship, child. The word combination "torukka ver" means to marry.

The word "urvatdi" means respected, respectfull, prestigous one among the relatives and neighbours. A woman is a respected one in the family. Perhaps, due to her respect in the family, this term had been created. This word is used in the dialects of Lachin and Shusha regions of dialectological vocabulary of Azerbaijan language.

While reviewed the ethimology, miphology roots, semantic – structural formula the word wife (or woman) - Arvad we should take into account the mentioned facts, and we came in a conclusion that, the large meaning of the word is a woman. So, to born, to increase of generation belong to the woman, to magic, to attract is also belong to the woman. These features belong to every woman. We should not forget that prototukish language is a common language with Shumer language. In result we can say that, the word is turkish origin word in all meaning spheres.

REFERENCES

QUALITY ASSURANCE IN HIGHER EDUCATION INSTITUTIONS IN AZERBAIJAN

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ABSTRACT

The concept of quality in teaching and learning process has gained a higher degree of public significance in higher education over the past few decades. This is due to several factors, first of all, to the undeniable reality of constant pursue by the developing nations to bring their social life standards close to those of the well-established democracies. Education often opens the list of the spheres where change and reform is considered most vital.

It is challenging also because education is ever changing and ever evolving. The concept of academic quality, which has become a top agenda in quite a number of developing countries, in particular, in the post-Soviet nations, started its migration from Europe, where the context in which higher education operates has changed due to a number of factors. Among them is growing globalization and anti-globalization tendencies, increasing market elements in the European approach to education, growing interference of the European Union in higher education as well as the pursue to maintain the quality of European higher education in a constant competition with American education system. Chasing quality is also in place in the United States, where the concept of quality education is currently caught up between two major tone-setting tendencies: freedom and accountability.

While the concept of academic quality assurance has become a popular educational agenda issue in the world, and is often placed in the context of the so-called “Bologna Process”, some caution is probably necessary to take so that the concept is not devalued to become a definition for a mechanical tool for and arbitrary measuring of random processes or superficial tendencies. Nor should it be allowed that quality in education becomes tantamount to a technical, business-like deprived of any kind of emotional coloring. Some recent literature discusses academic quality assurance as a phenomenon that ends an era associated with enthusiasm and that begins an era more characterized by realism in the field. But progress in education always takes a certain degree of enthusiasm. Many educational problems especially in the developing world cannot be solved if such factors as enthusiasm, dedication, risk, sacrifice etc. are not in place. So maybe procedures should be developed in the framework of quality assurance to measure such non-quantifiable factors.

The sphere of education is one of the most discussed topics in the post-Soviet Azerbaijan society, whether in the context of promoting the government’s state-building and democratization endeavors, of describing challenges the country is confronting in the transition period, or as part of the criticism of the government for insufficient efforts to solve the burning problems in the most vital areas of the society. In fact today education in Azerbaijan is a true challenge, an unsuccessful handling of which will drastically impact the future of Azerbaijan as a nation. And truly, education, especially the higher education is the most vivid sign, and a brightest example of how difficult, and how painful the transition period has been for Azerbaijan. The difficulty of the transition period, aggravated with specific political and social issues, has put a strongest imprint on education.

If we want to look at the indicators, they can range from the old Soviet teaching mentality to insufficient computers in classrooms, or from a ridiculous for the XX century degree of centralization of the education system to free-vole initiatives of private Universities running after recruiting as many students as possible to the detriment of essential principles of quality education.

For the recent 2 or 3 years the first steps have been taken to start reforming higher education in Azerbaijan. Many Universities have successfully been placing specialists and experts from West, particularly, from the USA.

INTRODUCTION

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embassies and the US State Department in developing countries have been partnering with local Universities to design the reformation process in higher education, to ensure a smooth transfer to the credit system, and to facilitate the democratization process at Universities. The programs financed by the European Union such as TEMPUS and ERASMUS+KA 2 can be a good example. These programs are also based on to reform in education system – teaching and learning process, development and improvement of quality of teaching and learning.

Based on the overall proved theory standing behind internationally developed principles and guidelines for educational quality assurance, as well as on my immediate empiric observations, I would like to present major factors (both extra-educational and educational) that stand as current challenges to quality assurance and quality control in higher education of Azerbaijan.

Environmental Scanning (Legal and economic factors)
Quality measures, as created in individual cases or as a good-will initiative of the Ministry of Education or Universities, is still vulnerable and subject to disruption or degradation. First and foremost, it is connected with the socioeconomic status of the teaching personnel.

Poor quality results, in the long run, in the demoralization of the society. We should ensure that students perceive education in Azerbaijan as real acquisition of knowledge and skills rather than as a simple period of transition to Turkey, Europe and USA. This is of course also a problem of many other countries who, for example, have recently joined the European Union; students from these smaller countries have a strong tendency to transfer to larger European countries and in many cases not to come back. This has a negative effect, both quantitative and qualitative, on the student contingent of these Universities.

But in many cases, students leaving Azerbaijan for other countries are not motivated by more opportunities to change the environment or to gain a broad world experience. They look forward to an atmosphere where they will be treated as normal students with privileges that the society grants to the studentship and to gain genuine knowledge.

Economic difficulties are also reflected in the tendency to perform multiple jobs at various Universities. So even if Universities take a severe step to create a new sound resource pool, they do not succeed, because very few of those who show integrity and professionalism can fully dedicate themselves to one workplace. Men are especially difficult to catch for permanent positions.

Sustainability of the educational quality also depends on legal accountability and legal support. A law on education needs to be in place in order to support the education reforms legally. The legal framework is also necessary to clarify the status of the post-graduate and doctoral education.

Autonomy of Universities
Quality assurance expects an institution to develop a balanced governing structure designed to promote institutional autonomy and flexibility of operation. Lack of autonomy affects Universities in many ways: creating or raising their own funds, financially encouraging good performance, concluding contracts or agreements for rendering or receiving services, recruiting personnel outside the established by the Ministry of Finance, staff schedule.

Most seriously, this manifests itself in the restriction of Universities to offer flexible programs and to compete in the market by offering diversified curricula. Some 20 to 30% flexibility allowed in curriculum design will make programs less competitive. Curricula should be developed depending on the philosophy, mission and strategy of that higher education institution. This makes it difficult to consider comments from the professors and students and possible constant review of the programs. Without this a quality output is difficult to enforce since this depends on constant evaluation and improvement.

The concept of accountability has produced a tendency to bring certain curriculum components into commonality in particular in relationship with general education requirements. This, according to the opinions of many, eases the mobility of students within the US and creates a higher degree of accountability on the side of the Universities in their strategic program building.

Efforts should be made to prepare the Universities for carrying out the admission process up to the world standards. Currently, admission and placement of students to Universities is carried out by a central government agency, which, in an ideal case, would act, as its worldwide counterparts, in the capacity of a test service institution. This is explained as a transitory measure to enhance transparency of the student admission processes at Universities. However, Universities should start developing a sound approach to the admission process where they would be competing for best students, who are a major driving force on the way to ensuring academic quality.

Internal Communication
Communication is a major problem and is a most urgent issue to solve. Autocratic communication and a directive approach still exist at the level of Universities. I put it in the context of education today, but unfortunately it is an overall societal problem. In Azerbaijan, unfortunately, the problem still remains at many levels and in many spheres. Administrators have not quite learned how to communicate with their personnel in order not to debase their personality. Of course, there are exceptions. But there should be a kind of “communication framework” developed and entrenched as part
of academic culture. I would just like to give some hints on how this affects the teaching process. Wrong communication discourages and hinders good, dedicated performance and a diversified approach to teaching, thus damaging the image of a teacher or professor in the whole. At many Universities, old Soviet type of disciplinary measures are applied to check (not to review) professors’ activities, such as interrupting the teaching process to check whether the professor has stepped into the classroom with his or plan ready, whether he or she has marked absences at the beginning of the class, or whether they really teach, and not just waste time, while implementing interactive technology. Scolding teachers in front of the students, sometimes without any good reason, is not an exception. This takes place particularly at private Universities, at some of which the founder’s behavior is no different from that of an old feudal in relationship to his subjects. This brings to a constant flow of resources from these Universities, lack of commitment on the side of the teachers, who often quit on the process and walk out in the middle of a semester. Imagine for a minute sustained quality under the pressure to replace this professor.

At its depth, the reasons for wrong communication are bound with the lack of a context of trust. And therefore this happens more at the level of private schools, whose founders need this trust more to protect their personal property. Unfortunately, except for a few cases, private University founders are mostly motivated by protecting their business rather than promoting genuine education in the country.

Strategic Communication (Public Awareness)

If students are to learn desired outcomes in a reasonably effective manner, then the teacher’s fundamental task is to get students to engage in learning activities that are likely to result in their achieving those outcomes… what the student does in determining what is learned is more important than what the teacher does (Shuell, 1986).

More should be done by the Universities to reach public in order to convey the changes at the Universities brought about by the Bologna process and/or quality assurance initiatives. General public awareness of how Universities function or should function is still at the level of the pro-existing Soviet perceptions. The parent factor is one of the major elements at Universities. Parents often manifest a high degree of involvement in the student-University relationships - but often when problems arise in the course of the study of their kids.

And any new problem that arises beyond the typical, in relation with the student's academic success, is perceived as a fault and failure by the University. For example, the implementation of the credit system requires a novel approach to the solution of the failure problem, such as retaking the course instead of the retaking of the test (which was the usual case before), which may put the student 1 semester and sometimes 1 year behind. Retaking a course should also involve additional charge on the side of the students. But many Universities cannot go ahead and implement it. It is a great risk to apply this rule to the students who do not pay for their education (since free payment is not something that is based on a scholarship which is extended according to the merit of the student for a particular time during his studies, but instead, which is decided as an official status that the student has gained based on his admission score, charging a non-paying student for an additional course would be perceived as the violation of his or her rights). On the other hand, it would not be fair and honest to apply this only to the fee-paying students as this by itself would present discrimination.

Free schedule and elective courses presuppose free grouping against what existed as fixed student groups. Sometimes concerns as minor as "why my kid is often distracted from his/her group, why cannot he/she stay in one group" could be brought as complaints. The transfer to the credit system is still confusing to many, and it is not unusual to see parents who perceive it as an opportunity to get a bank credit to cover the tuition fee.

Building public awareness is gaining public support which is very important for the advancement of the Universities. It would ease the process of developing fund-raising strategies by involving alumni and, when possible, donors. It would also change the direction of University-parent relationships and would encourage the parents for a different kind of participation. Strategic communication within the Universities is extremely necessary since it would create a corporate spirit and a higher degree of involvement. Communicating is educating, which would have an incredible impact on the overall quality factor.

Strategic Planning at Universities

Strategic planning in higher education would be able to become a driving force for improving academic quality. Strategic planning is something that would allow administrators to plan their actions based on not only internal but also external (as shown above) factors.

A well planned strategy means a well-designed educational management, a broad view on University advancement, a dynamic approach to the solution of the problems, a higher degree of collaborative participation, elevated University-student relations, a vision on employability of graduates, forethought on the competitiveness of the programs, and a social value that the University delivers through its programs and research. A good strategy planning cannot miss any of these points.

Strategic planning is a new concept. Although it has already taken its way from the United States and has migrated to other countries, it still may be new for many European Universities. In fact, significant historical differences in the evolution of higher education institutions between Europe and USA present a challenge to European Universities in their strategic planning and management endeavors. The analysis of the plausibility of Strategic Planning in Europe provided by...
Taylor, Amaral and Machado in “Planning for Higher Education” (Vol.35, #2, 2007), provides information on the restrictions for European countries to implement effective strategic planning. The example of 10 European countries manifests that the process is fully underway only in a few cases. The main reasons are shown to emerge from the understanding of the market concept in these countries. "In Western Europe", as is discussed, where the state is the main resources provider, the "market" appears more obviously a rhetorical construction than an ideological concept. Even in countries like the UK where Thatcher revolution has introduced all the ingredients of market rhetoric, no real market for higher education has been allowed to emerge."

Presently, strategic planning within higher education focuses mainly on the United States. It has gained a strong attention recently as a solid mechanism ensuring sustainable quality. Strategic planning models have repeatedly been shown to work well and to be generally valid, although some institutions worldwide have failed in their attempts to effectively implement it. It would be an effective way to start implementing quality assurance with in many post-Soviet countries, including Azerbaijan. Benefits can already be predicted. Strategic planning, once undertaken, would legitimate efforts towards enhancing quality. Since it is strategic, it would focus on internal and external environment analysis, and would have to address the University's mission and vision. Strategic planning in fact would enable the initiators of reform to look at the problems at their very root, and to develop tactics to eradicate them. It would make quality assurance and control procedures sustainable rather than ad hoc.

What kind of risks does this involve in Azerbaijan? Among the most serious would be: lack of good leadership and concerted action, failure to communicate, insufficient participation and shared governance, lack of resources, resistance to change, and inadequate understanding of the process itself.

Evaluation procedures

Quality assurance is based upon a principled judgment of the performance quality accomplished as a constant review process, and a rigorous application of requirements. Review process should be a well-organized one, which would involve a self-analysis, internal reviews and informed external peer reviews.

The existing review and promotion system does not enable University administrations to reveal good potential and basis for encouragement since it is mainly based on quantitative parameters such as the length of service, the number of published articles etc. The publication sources are taken into consideration only by the Supreme Assessment Committee in the case of awarding academic degrees. Few Universities consider more than just the number of articles for promoting purposes.

Evaluation is also factual rather than analytical. While the fact of availability of an academic degree is taken into consideration for promotion, it is eventually confirmed or awarded not by Universities, but by the Supreme Assessment Committee. The Universities are not positioned to take an analytical approach to academic degrees but are simply to accept the fact.

Certain steps have been taken by some institutions to establish a higher degree of rigor for increasing quality of education. But they still have a random nature and are mostly done on an ad hoc basis.

Evaluation must be meaningful and useful for the faculty member and for those who conduct it. In order to be meaningful, the evaluation must have outcomes; in order to be useful, it must provide the faculty member with feedback that is sufficiently clear to allow for improvement when necessary. This means that no evaluation can be efficient unless it is systematic.

Evaluation must be conducted in the context of an agreed upon set of activities and expectations. But evaluation should not be carried out a faculty member’s merits outside his/her environment. It should be designed to reveal the degree to which a faculty member or an administrator makes contribution to the functioning of his/her department/unit and of the University as a whole. It should also be a fare process, which also looks at to what extent a faculty member's workload allows him/her to do it.

One of the most important goals of evaluation should be aimed at making the teaching personnel happy at their work place and building a “trust atmosphere”. Without these two the learning outcomes will not improve. For example, certain procedures should be in place to review the specific "behind-the control" cases, which interrupt the quality delivery at higher educational institutions beyond the control of the performer, such as illness, childbirth, illness of immediate family members, loss of relatives or other events, which would disrupt a flow of action in normalcy. If there were certain rules established to protect professors from a rating drop in the cases when they cannot perform due to such serious problems, there would be a system, which would enable to apply certain standards to resolving such cases. Definitely, this does not mean that the reasons are not taken into consideration when failure occurs due to similar circumstances. However, the existence of established procedures would certainly produce a systematic rather than an individual approach to the problem, and would create an assurance among the teaching personnel of their protection from “force-major” events.

Such assurance also controls the quality of the teaching process in a better way, since it protects from a rushed "cover-up" for a non-performance, or poor performance, period.

For example, the evaluation process at many US Universities takes an account of a procedure according to which a faculty member may request to “stop the tenure clock” (for up to one year) when circumstances exist that interrupt the
First, there is a process bound with a lack of effectiveness in the University of Architecture and Construction, Sumgayit State University, Azerbaijan State Pedagogical. Two motives are behind accreditation initiatives. Two motives are to measure the degree of attractiveness more students and more donors. That impedes the implementation of the credit system, which hinders full control of the quality.

Nakhchivan University, Odlar Yurdu University, Azerbaijan University. One indicator of this is the grading scale. There are certain elements in the context of implementation of the credit system, which hinders full control of the quality. Although the credit system is on the surfaces level is expressed quantitatively (as the number of hours, number of credits etc.), there is quality behind any numbers. While the implementation of the credit system is underway, it is performed mainly at the quantitative level, sometimes simply by assigning credit numbers to subjects. A deeper thought should be given to how these numbers are come up with, and to what their carrying value is. One indicator of this is the grading scale, which makes much less rigorous requirements for excellence: in a 100-scale, "A" stands between 86 and 100. This produces over 70% "honour" students, etc., there is quality behind any numbers. While the implementation of the credit system is underway, it is performed mainly at the quantitative level, sometimes simply by assigning credit numbers to subjects. A deeper thought should be given to how these numbers are come up with, and to what their carrying value is. One indicator of this is the grading scale, which makes much less rigorous requirements for excellence: in a 100-scale, "A" stands between 86 and 100. This produces over 70% "honour" students - an indicator, directly contradicting accreditation expectations.

Accreditation challenges
Academic quality assurance is bound with eventual accreditation of Universities by recognized accrediting bodies. The Ministry of Education has created an accrediting body, which is obligatory for all Universities.

Real, world standard and principled accreditation would be the most obvious indication of quality. In this transition period, quality in education cannot be reliably measured by local accrediting procedures. First, there is a process bound with lack of experience in the field. The Ministry of Education is recognizing the fact, and is making true efforts to involve international expertise, both for the purpose of training local experts and for the purpose of creating and implementing the procedures. First of all, it is necessary to define academic standards and quality, which should be recognized internationally. The entire process should have started with this step.

Lack of experience in the field is also manifested by the inefficiency of the measures for assessing quality. For example, critical, analytical self-assessment, which would be far from simple narration, is not part of the process yet. It would not be sufficient to simply report on "who is doing what"; self-assessment would be bare reliable if it answered the question of "why we are doing so" and "how do we know that we are doing right".

11 universities of Azerbaijan prepared self-assessment report in the frame of ERASMUS+EQAC project. They are: Azerbaijan University of Architecture and Construction, Sumgayit State University, Azerbaijan State Pedagogical University, Azerbaijan University of Technology, Azerbaijan University of Tourism and Management, Ganja State University, Mingachevir State University, Nakhchivan University, Odlar Yurdu University, Azerbaijan University. Report is based on Leadership, planning, support, performance evaluation and improvement in the universities [11].

A reason for sustained poor outcome by some Universities is motivation behind accreditation initiatives. Two motives are dangerous: the assumption that it is a formal process, and the University should just go through it in order to comply with its reporting obligation; and an attempt to create a public image and thus to recruit more students and more donors. That local accreditation could not be relied upon is also due to the missing context of trust in higher education. However, although this is a harsh reality, and not only in Azerbaijan, no procedures have been created to measure the degree of formality by Universities while complying with the required procedures. With this in mind, a certain place should be allotted to accountability within accreditation. Accountability should provide an assessment of an institution's effectiveness in the fulfillment of its mission, its compliance with the requirements of its accrediting association, and its continuing efforts to enhance the quality of student learning and its programs and services.

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Accreditation is not merely logical without the Universities' real capabilities to fund sound, marketable research, to build its library, a computer pool, or to sustain a well-trained personnel.

International level (international projects) “Support to the Ministry of Education of the Republic of Azerbaijan for Further Adherence of the Higher Education System to the European Higher Education Area” is Twinning project implemented in Azerbaijan and funded by the EU. The overall objective is to enhance Azerbaijan’s higher education through closer integration with the European Higher Education Area (EHEA). The focus is on implementing the EHEA principles of quality enhancement, improved accreditation of higher education institutions, policy dialogue as well as international cooperation and mobility. The wider framework is the EU-Azerbaijan European Neighbourhood Policy Action Plan. The Action Plan includes higher education sector reforms and European support for the reform within the Azerbaijan’s reform program.

The project has three partners. These are the Finnish Education Evaluation Centre (FINEEC), the Estonian Higher Education Quality Agency (EKKA) and the Ministry of Education of the Republic of Azerbaijan. In addition to the Ministry of Education the beneficiaries include Azerbaijan higher education institutions and university students and in the final analysis the society and economy as a whole. The project implementation started 1st of September 2015 and it will last until the end of August 2017. The project is funded by the European Union with a budget of 1,3 Million Euro.

Objectives of the project:
The legal and normative framework for Higher Education is reviewed and concrete recommendations for adapting legislation relevant to Quality Assurance and the Higher Education sections of the Azerbaijan Qualification Framework in Azerbaijan are developed.

The coordination and networking capacity of the Ministry of Education and relevant stakeholders is enhanced on the basis of good practice examples in the EHEA. The AzQF sections relevant for higher education are developed in line with the EHEA Qualification Framework in cooperation with Higher Education Institutions. A roadmap for the full implementation of the framework in higher education is developed. Standards and Guidelines for Quality Assurance in Higher Education in Azerbaijan are developed Higher Education Institutions [7].

Local level. We can give some examples from local universities. They are one of the partners in Quality Assurance ERASMUS+EQAC project. At Ganja State University, following offices, committees and groups have been concerned quality assurance related issues:

- The Office of Strategic Analysis, Evaluation and Monitoring have recently been created within the Department of Innovation. The office will offer recommendations to the university administration by preparing recommendations for the creation of stimulating mechanisms for development of the university human resources. In addition, it will try to add modern specialties to the collection of university programs, and work on creating specialties based on international educational programs. Improving work with graduate students and creating alumni information database. It learns need for specialists in different parts of the region and based on that information improves admission strategy to the university.
- Monitoring Groups for Quality Assurance in Teaching and Discipline monitors the lessons aiming to improve the quality of teaching. It also monitors the labor discipline of professors, teachers, lab assistants and technical staff as well as teaching processes.
- Committee for Quality Assurance in Ethical Issues has been created to monitor professor-teacher and students in terms of ethical behavior in the workplace. This committee monitors and tries to improve academic research and intellectual property issues.
- Working Group for Quality Assurance in Teaching and Learning aims to assure that new approaches are applied in teacher preparation. It also works on preparation of human resources for future modern specialties that will be created at the university [9, p.334].

 Till 2015, the organization didn’t evaluate the performance and the effectiveness of the quality management system and the organization hasn’t retained any appropriate documented information as evidence of the results in Sumgayit State University. Also there hasn’t been any analysis, internal audit and evaluation. In 2015, we can see a few changes. Because Evaluation and quality control division was established in SSU. Great success of the university is establishment of Quality Assurance center in 2018 in the frame of ERASMUS+EQAC project. As a result of the project, work plan and statement document were designed based on ESG standards in 2019 [10, p.357].

RESULT

In 2016 Baku Business University presented its ERASMUS+project titled “Establishment of Quality Assurance Centers in Azerbaijan universities”. In 2017 the project was selected for funding by the European Union. 11 Azerbaijan universities are partners of this project. It means that they will have a chance to benefit from this project. European partners are Middlesex University of the UK, University of Royal Technologies of Sweden, SMK University of Social Applied Sciences of Lithuania, Alicante University of Spain. At the trainings at the University of Royal Technology, SMK University of Lithuania, Middlesex University in London and Alekante University of Spain partner developed their knowledge and ability on Quality Assurance, Evaluation and Assessment process. Trainings are also based on learning outcomes, developing of education programs, Bloom Taxonomy as well. Bloom’s Taxonomy was created in 1956 under the leadership of educational psychologist Dr Benjamin Bloom in order to promote higher forms of thinking in education, such as analyzing and evaluating concepts, processes, procedures, and principles, rather than just remembering facts (rote learning). It is most often used when designing educational, training, and learning processes [8].

The specific objectives of the project are:

- Make a comparative analysis of current QA practices
- To develop framework for quality assurance mechanisms in Azerbaijan higher education institutions.
- To increase awareness on modern quality assurance tools and policies
- To develop and establish common Quality Assurance System - ISO 9001.
- To create online platform and user service charter
- To enhance Quality Assurance Culture
- To train quality assurance related administrative and academic staff
- Develop a Model of Principles, Priorities, Guidelines and Procedures for internal management of QA for partner HEIs
In order to achieve these objectives systematic activities and implementation strategy was designed. A strong and articulated quality assurance plan is needed, as the compliance with EU standards is key for the success of the project. Taking up the wider objectives of Establishing and improving the Quality Assurance Centers in Azerbaijan HEIs, the project will support the exchange of knowledge and experience by increasing the exposure of the universities to European education standards, ESG. Improving the qualification of staff in Azerbaijan will raise the quality of administration at the universities by assuring the quality on the one hand and the development of international cooperation in the larger society on the other.

References:

JAFAR RAMZI ISMAYILZADEH'S BIOGRAPHY

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ABSTRACT

The main purpose of the research is to systematically study and present to the public the biography of literary scholar, translator, poet Jafar Ramzi Ismayilzadeh, who repressed and lived in exile for 21 years and 2 months in Siberia. During the research the literatures written in Azerbaijani and Jafar Ramzi's personal archives have been used. In the study, we concluded that, Jafar Ramzi is one of the literary critics who have a unique place and weight in our literature and extensive investigation of his life, presentation to the world of science, detection of his contributions to our literature, identification of their scientific-theoretical significance have a major importance. The issues discussed in the article, obtained results can be considered as necessary sources for writing articles and textbooks for young researchers, philologists, and doctoral students, seminars and practical exercises held at bachelor and master degrees of humanitarian faculties of higher education. It is also possible to use the article in the writing of new literature history at the same time.

Keywords: madrasa, education, school, teacher, arrest, exile, repression.

INTRODUCTION

Poet, translator, literary critic, teacher Jafar Balaami oglu Ismayilzadeh was born on April 9, 1905 in the village of Mardakan in Baku. Jafar Ramzi's parents were uneducated. His father used to wrap his handkerchief at home along with farming. His father, because of lack of cultivation fields leased out from others to plant with condition to pay half of the product. There was a horse and a cow in their backs. Although her mother was a housewife, she was working day and night in sown area and helping her husband. Despite having 12 children in the family, most of them died when they were small.

Jafar Ismayilzadeh entered the 4-year elementary school founded in 1913 by Haji Zeynalabdin Tagiyev in Mardakan settlement. While studying in the first grade, Jafar, who did not know any other book except alphabet, as he himself mentioned did not go to school because of measles disease, during this time he has repeatedly read the book "Arvan's ashug", collected by the bayatis, the lads, the bride and groom's words bought by his father with the advice of his neighbor Mirzaga and memorized its poems. This first book he read except the textbook awakened interest for book on himself. From that time Jafar started to buy books with collecting 10-15 cents given by his father on the festivities, from his neighbor, a few years older than him Ishaq Imamahammad oghlu Mahammadzade that he brought from the city and sold it at a very high price. 32 books were collected. Among these books there were Jafar Bunyadzadeh's "Kashkul" (1914), M.S.Ordubadi's "Unfortunate millionaire" , U.Hajibeyov's "Arshin mal alan", "O olmasın, bu olsun", Nemat Bassir, "Two Naked ", F.Kocharli's "Gift to children", Akhundova's "The Charm of the Assembly" , A.Muznib's "Turkish ghazals" and others.

During studying at the 4- year school Jafar learned the Koran in the evenings from his neighbor Ahmed Mirzoyev. At the request of that time, after reading the Koran, it was necessary to read Persian. That is why his father takes him to the madrasa in the yard of the old mosque. Jafar goes to both the madrasa and H.Z.Tagiyev's 4-year school. Jafar learns Arab and Persian language both in madrasa and from his uncle Hadji Dadash Karbalayi Abbasgulu. He graduated from the same school in 1917. In 1918, when his 72-year-old father died, the family situation became aggravated. His mother, Tubi Abbasgulu wounded his family by spinning the wool. In 1920, Jafar's younger brother died.

After graduating from school due following the February, October, and April 28 revolutions to one another Jafar could not come from Mardakan to the city to continue his education. Jafar Ramzi worked in the youth cores's library in Mardakan in Baku. Jafar Ramzi's parents were uneducated. His father used to wrap his handkerchief at home along with farming. His father, because of lack of cultivation fields leased out from others to plant with condition to pay half of the product. There was a horse and a cow in their backs. Although her mother was a housewife, she was working day and night in sown area and helping her husband. Despite having 12 children in the family, most of them died when they were small.

After the April revolution, in September 1922, Jafar was taken Baku by her eldest sister Zeynabkhanim's husband, Aliyev Baba, to continue her education. Four-year elementary school graduates used to enter Baku Darulmuellim located in the building of the Institute of Manuscripts. It was required two years else to study, to access Darulmuellim. Having examined Persian and Arabic knowledge, they accept him in the second reserve group. So, he was a year ahead. Jafar continued to collect books here too. By 1935 he had collected over 7,000 books. He read most of the historical books in his books. These books helped him to learn more about the past.

I Memories about Mushfig

In 1923, Jafar Ramzi entered Darulmuellim. In 1923-1925, in the first and second classes, he studied at the same school with Mikayil Mushfig. Jafar at “a”, Mushfig at “b” class, then Mushfig went to night school №12. Among them was created...
friendly attitude, as they study in the same school. Jafar Ramzi described his friendship with Mushfig, his beautiful human qualities in his article "My memories about Mushfig" published in the "Literature and Art" newspaper so: "My friendship with Mikayil Mushfig started from this school. He was also a poetry enthusiast, and I too. We used to read interesting poems that coincided in the books to each other. Although Mikayil Mushfig was 3 years older than me, he saw life, period better than me, and he thought better of me. I now remember some of her advice and read her mercy. He used to give me an advice alone. An Arab scholar says that to say deficiency between a man is to humiliate him" [3, 18].

It is also clear from these lines that Jafar Ramzi valued Mushfig's good human qualities highly and showed great affection for him as a friend. At Darulmuellim taught mostly the educators that studied in Turkey, so the students had perfectly mastered the Turkish language. As a textbook from literature was used Ismail Hikmet's four-volume "Turkish Literature History". After graduating darulmuellim in 1927, physicians did not advise him to continue his education because of illness, therefore Jafar Ismayilzadeh acted as a language and literature teacher at the 7-year school in Mardakan. Jafar organized a literature association while working at the school and collected the 6-7th graders as a member here. Jafar Ramzi worked at this school until 1929.

Jafar Ismayilzadeh continued his education at East faculty (Eastern studies) of the Darulfun located in the building of the southern part of present Azerbaijan State Pedagogical University in September 1929. Here, in addition to Azerbaijani (Turkish) and Russian literature, Arabic, Persian and French were taught. Teacher of Arabic language, professor Yaruar, teacher of Persian language, scientist Mirza Mohsen Ibrahim, teacher of Turkic languages, professor B.Cobanazadeh, professor of Turkic history Ubedulin taught them. Demiricizade, Jafar Khandan and Hussein Natiq also studied with Jafar. In 1930, the two-year institute of teachers was united here and the school was named after Lenin's Higher Pedagogical Institute. Arabic, Persian and French were removed from the program. The majority of teachers - B.Chobanzade, Ubedulin, A.Sherif, H. Zeynalli, A. Taghizadeh, N.Hasanzade, S. Shamilo, director M.Bayramov have become victims of the admiration of personality and were shot. A.Nazmi and some of the other teachers and graduates died in dungeons and camps without torture and the rest were exiled. Mikayil Mushfig also studied at the Pedagogical Institute with Jafar Ramzi, Mushfig graduated there in 1931 and Jafar in 1932.

II Cooperation with Hussein Natig

Jafar Ramzi acquainted with Hussein Natig at the Pedagogical University and established friendly relations. Even Hussein Natig used to read his revolutionary poetic poems him. However, in September 1934, he has relied on his relationship with him. Because Jafar wanted to marry a woman named Akima. Hussein Natig told Jabbar Ramzi that he had materials shaded Akim Sultanova's dignity, but when Jafar wanted these materials Hussein Natig refused to give them. This results with the end of their friendship. As being student at the Pedagogical University Jafar Ismayilzadeh wrote little poems about Lenin's death, homeland, mother, and so on. and read them his friends, but did not give them to print because he thought he wrote badly.

Besides studying Jafar also worked as a teacher at secondary schools in Baku. After graduating from the Lenin Pedagogical Institute in 1932, his appointment was given to the pedagogical school in Gazakh by the Ministry of Education. From September 1, 1932 to January 15, 1933, for 5 months he worked there, then returned to Baku because of his illness.

As they study in the same school, Jafar worked as a teacher in the same district with Mushfig. So, in 1934-1935, Jafar taught literature in the 8th and 10th grades of the Turkish Saray school No. 21 and Mushfig at school No. 18. in October district. They often met in poetry councils and made literary conversations.

Jafar Ramzi was raised in a religious sense as his relatives and believed in religion. His belief in religion continued until 1924-1925. However, after starting to study he has come to the conclusion that religion is a fantasy. He has been taken to the Bahia Mosque by an Iranian doctor Hasan. Doctor Hasan wanted to include him in there own society. Although Jafar is not satisfied, he has been involved in this mosque several times because he is interested in everything. But he has not belonged to any religious community.

As a result of the laws and orders of the Soviet empire against humanity, millions of people, intelligentsia lived in a troubled life, or lost their life facing horrific torture in dungeons, in detention camps, in exile, away from homeland. Jafar Ismailzadeh lived in the building of the present Iranian embassy, he rent a room in Icheri Shahar, because his books did not fit into the house. 3000 books of the 7,000 were in Mardakan.

The house occupied by Jafar Ismailzadeh in Icheri Shahahr at 2 am on June 21, 1935 is stamped by two Armenians, after the books are confiscated, he was handed over to Khorezem Grigoryan at the XDIK with closed arms. Although in the investigation, he was accused of writing a hoax to Mirjaraf Bagirov, Jafar Ismailzadeh protested, he said he did not write a hoax.

Jafar Ismailzadeh was sentenced to 3 years, till 29 December 1938, as a member of the Revolutionary Organization and an adherent of the Musavat Mammad Ali Alizadeh. In the second half of March 1936, he was taken to Cotlas, kept in one of the barracks for a week, then he was taken to the barracks next to the city of Ustmim of Komi MSSP with 200 people, was kept here for a week, from there they divided them into groups, with more than 30 crowds and took them to Ropcha on April 10, 1930. The exile life brought a favor to Jafar Ramzi's life. So that, Jafar Ramzi has a nervous disorder and
stomach illness. Jafar was afraid to eat bread because black bread was not good enough. He could not look at the borsh cooked from pork. For this, he applies to the doctor. The 50-year-old Ukrainian doctor advised him to drain the bread and eat less, his illness might get worse, so he can send him to the hospital. Jafar Ramzi writes in his article "Sheets from my life": "I dried up the bread and ate less as he said. 3-4 days my stomach pain was intensified. Gradually the pain relieved. I used to eat pork cooked dishes. It has been more than fifty years since then. I eat everything. The pain of my stomach remained there. I always remember a famous Egyptian verse: "Ədu şəvəd səbəbi (if God so wishes, the enemy will cause good) So if I did not fall into this situation, this disease would probably not have gone away"[1, 8].

On May 9, 1936 Jafar set out on a truck with a middle-aged Russian to go to the sovkhoz of Kiltovo to cure nerves with the help of that doctor and after walking for an hour, they are dropped off near the city of Ustvím. Up to evening nearly 15 patients going to Kiltovo went on Kiltovo sitting on grasses three-one, four-one in four carriages, on May 10, 1936 after driving an hour and a half the 8-kilometer road by carriage they reached the Kiltovo sovkhoz. Jafar was treated there for 4 months. The head physician of the department was Zinovyev, a 60-year-old short, lean Russian. By Zinovyev's instruction after being discharged from the hospital he is given a light job in Komi ASSP in Kiltovo sovkhoz. He works in this sovkhoz for two years and a half. In general Jafar Ismailzadeh spent 28 months of 21 years and 2 months of his imprisonment in the camp of this sovkhoz.

On December 26, 1938 Jafar Ramzi calling to the HR department, received the news of freedom, he was given fresh clothes. At 9 o'clock in the morning, the head of the cadre department gave him the release document and told him that they would take him to Chibu, then from there to Chinyevari and pay his account there. He was taken by ski to Chinyevari. There they gave him 721 manats kept in the cash register of the Kiltovo sovkhoz, told him to go to the city of Ustvím to get a passport. He left Ustvím early in the morning. 3 miles away Ustvím the driver left him in the road saying I had to take five person to another place. In a frosty weather, he got to the reception where he would receive a passport, he was a guest in the house of a Azerbaijani working there. However, this person didn't want to provide information about his identity and his name.

At the end of 1938, after the 3-year sentence expires Jafar would live in remote places, because "39" digits was written on his passport. Therefore, after his release, he was given a permanent residence in Guba. Jafar was assigned to a teacher in the village of Khnachi, he worked there for a month. After appointing teachers to their previous assignments, Jafar's appointment was also given at Mohuc Secondary School as literature teacher. Jafar Ramzi worked here until he was arrested for the second time, on October 10, 1942.

Jafar Ramzi has shown several reasons for his arrest. The poet explains that writer Hussein Natiq wrote poem to someone and insulted that person. Jafar Ramzi also made some adjustments by reading this poem. They considered him guilty stating that these amendments were against the Soviet Union.

For another reason, Jafar Ismailzadeh said that he had with Hussein Natiq personal enmity with jealousy against a girl. Therefore, having no evidence in his possession he has been achieved his arrest putting forward false accusations as "Jafar held talks with me against the Soviet Union", "He said he would hold a high post after the overthrow of the Soviet regime" and so on.

In 1941-1942, Jafar Ismailzadeh received a correspondence education at the History faculty of the Azerbaijan Pedagogical Institute.

Jafar Ramzi was arrested for the second time on October 10, 1942. After returning from the prison camp, making demonstrations against the Soviet authorities among relatives in Guba, engaged in anti-Soviet activities, and protest against the arrest of their relatives were shown as the reason. Thus, Jafar's sister's wife, Aliyev Baba, was arrested in 1937 by the People's Internal Affairs of Commissariat ( PIAC) was deported with her family. The two horsemen coming to Mohuc checked Jafar's house, took his camera and about twenty cassettes and ordered him to go to Guba taking a pillow, blankets and mattresses. They took him to the Guba militia office and then to Khachmaz station with 50-year-old Kashlali Mammad, then to Baku and on October 11, 1942, handed over to the People's Internal Affairs of Commissariat (PIAC) administration. Jafar was thrown into jail. He remained in this detention from October 11, 1942 until October 4, 1943. Jafar Ramzi describes the gravest situation in the prison in the article "My second imprisonment and deportation to Kazakhstan" so: "In the morning spinning top (the hole of the camera's door that man's head couldn't enter) used to open. Each of us was given almost 400 grams of black bread, one tab of sugar, 20 units. We drank 500-gram bottle of tea, and boiled water of wild fruits instead of tea. We also eat fish's bone and skin, because we're hungry. At around 14 o'clock, it was given a bucket (half a liter) soup, one spoon of kasha, fruit juice instead of tea, and fruit juice in the evening. Who can keep bread of morning ate it with soup. The meals were unproductive and lean. You can count barley, wheat in the soup. There would not be more than 10-15-20 units. We drank sour water with hungry belly, we were crushed over the free iron tie discretionary. When I stood on the tie I suffered a lot. Our biggest problem was hunger. Sometimes they get meals for someone. They didn't let me to buy meals with home money (money was kept in a dungeon's safe box)[2, 6].

On October 4, 1943, Jafar was sentenced to five years in prison and taken to the Kashla prison and kept there for 10 days. He was taken to the sea by about eighty people in the evening on October 14, 1943 and put on a ship. After 3 hours, the ship stopped. Everyone was afraid that they would throw them into the sea. After an hour, ship began to move
on. They reached Krasiovodski on October 15, 1943, early in the morning. They throw them in the prison. Within 2 weeks, they were worked in different jobs. Then they set them on the carriages. They reached Tashkent on November 2, 1943, there they are thrown into the camera. After storing here for 7 days, they reach Alma-Ata for a few hours with Stalin's wagons, from there were taken to Novosibirsk, they arrive there on March 10, 1943. They put them in jail. The dishes here were too poor quality. Less than 300 grams of bread were provided. There were men, that gave a new shirt and a fog wear for 300 grams of bread. Everyone changed their clothes to bread, thinking that they could buy their clothes later. One bread was worth a suit and half fur.

Worker loader on elevator near Tayincha station Jafar went to the shackles to shave his beard in January 1945, after talking to a 45-year-old Ukrainian woman serving there, he decided to become a photographer. Jafar worked as a photographer from April 1, 1945 to January 30, 1948.

IV Activity after the Decision of the Court
1. On July 2, 1956, the Supreme Court of the Azerbaijani SSR made a decision that Jafar Ramzi was innocent and had acquitted him, PIAC canceled the decision of the USSR on August 21, 1943 for the following reasons:
2. It is clear from the case materials that when the Ismayilzadeh was arrested on October 10, 1942, the PIAC authorities were not informed about the restoration of its counter-revolutionary activity.
3. After Ismailzadeh's arrest, no evidence has been obtained by the investigation.
4. There were 2 unauthorized information in the investigation. The real reason for the arrest of Ismayilzadeh in 1942 was that he was the relative of Bolshevik Baba Aliyev. Baba Aliyev was the wife of Jafar's sister.

Taking them into account, the Criminal Court of the Supreme Court of the Azerbaijan USSR based on Article 433 of the Criminal Code decided to cancel the decision of the special session of Ismayilzadeh, stop the case because there is no criminal content. The decision came into force on 16 June 1956.

Jafar has been married to Raisa Petrovna Aleksandrovna on October 10, 1947, He had three children: his daughter Venera (1947), his son Nizami (1950), his younger daughter Melody (1951)

Jafar Ismayilzadeh worked as a teacher of language and literature at the school No. 132 from August 25, 1956 to August 18, 1958. He worked as the chief bibliographer at the Institute of Oriental Studies from August 19, 1958 to January 17, 1964, as a small scientific worker from June 16, 1964 to July 31, 1973, as senior scientific worker since August 1, 1973. Jafar Ismayilzadeh actively participated in the social life of the Institute, earned the respect of the collective with sincerity and enthusiasm.

Jafar Ramzi was the participant of the "Majmaush-shuara" before and after the revolution, ie in 1921-1922. After the assembly closed, Jafar Ramzi was not a member of the Golden Pencil Society, established by Suleyman Rustam. On June 17, 1991, after Ministry of Culture, Baku Culture Foundation the officially restored "Majmaush-Shuara", Jafar Ramzi became the first member of assembly.

Jafar Ismayilzadeh began his artistic career with pseudonym "Sufi" at 15-year-old, until 1954 he used this pseudonym. The poet wrote ghazals and satirical poems under the influence of classical poetry, printed them on periodical press pages. Later, he wrote poems, scientific works and translations with the pseudonym "Jafar Ramzi".

Jafar Ramzi was an Iranian literary expert, engaged in satirical problems in the Iranian poetry of the 19th and 20th centuries, translated selected examples from classical Eastern literature into Arabic and Persian languages, in 1968 he defended his dissertation on the theme "The poetry of Yagma Jandagi" and received the title of candidate of philological sciences. He was a labor veteran in 1977, a science veteran in 1978, and a member of the Azerbaijani Writers' Union in 1985. He has published more than 400 poems, translations and scientific works in periodical press of different countries. Jafar Ismayilzadeh was exposed to repression and spent 21 years and 2 months in prison in Siberia with 73, 74 items. However, this tough life, without trial, unreasonable arrest did not break him, continued his creative activity, despite the heavy tortures write and create, in difficult circumstances because of there is no pen, paper he engraved poems in his memory, and later transferred it to the writing.

RESULT

LITERATURE

2. C.R.Ismayilzadeh. My second imprisonment and deportation to Kazakhstan. "Dada Gorgud" newspaper, March 10, 1992
BRCA1 AND BRCA2 GENES MUTATIONS AND BREAST CANCER IN WOMEN FROM GEORGIAN POPULATION

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ABSTRACT

Introduction: The morbidity and mortality rate caused by malignant tumors stands on the second place in Georgia. Breast cancer is the most common cancer in women. BRCA1/2 gene mutations result in a hereditary cancer predisposition syndrome – elevated risk of breast and ovarian cancer. Considering the facts that there are no previous studies about BRCA1/2 mutations in Georgian population and BRCA1 gene mutations 5382insC and 185delAG and BRCA2 gene mutation 6174delT are in high frequency in different populations (most frequent in Ashkenazi Jewish), it was reasonable to investigate distribution of these specific mutations in Georgian population at the beginning of our study. Materials and
INTRODUCTION

Two tumor suppressor genes BRCA1 and BRCA2 are most commonly mutated in hereditary breast and ovarian cancer patients. Both hereditary cancers are caused by an autosomal dominant inheritance with incomplete (45-65%) penetrance. Breast and ovarian cancer development is associated with many factors including genetic, environmental and acquired. These non-genetic factors include: early menopause, alcohol and tobacco, exposure to radiation, obesity, decreased physical activity, urbanization, sedentary lifestyle, high fat diet, frequent spontaneous miscarriages, lack of breast-feeding, hormone replacement therapy, aging, geographical location, socio-economic conditions, reproduction events, exogenous hormones, breast density, and family history of breast cancer or other cancers [1]. In patients with family history of breast cancer in several generations, genetic predisposition should be considered more. Early detection of carriers of predisposing genes (BRCA1 and BRCA2) mutations, in turn, can play an important role in its prevention [2-6].

Breast cancer has a high prevalence in half of the global population and constitutes 22.9% of cancer in women [1]. The morbidity and mortality rates caused by malignant tumors stands on the second place in Georgia. Breast cancer is the most common cancer not only in Georgian women, but also worldwide. Although the incidence rate is different in various geographical areas. The risk in the general population is on average 1/10 [7,8]. The rate of breast cancer among women in developed and developing countries is 1/12 and 1/22, respectively [9].

Hereditary breast cancer is characterized by the following: 1. early onset of disease; 2. high incidence of bilateral disease and repetitive correlation with ovarian cancer [10]. Early onset breast cancer is a hallmark for the existence of genetic predisposition. Breast cancers molecularly divide to subgroup on the base of cell surface receptors, which are components of human epidermal growth factors, such as estrogen receptor (ER), progesterone receptor (PR) and HER-2. Molecular subtypes of breast cancer may be effective to determine the treatment plan and new therapies. Most studies divide breast cancer into six main molecular subgroups that include: Luminal A, Luminal B, Triple negative (basal-like), HER-2 type, Claudin-low, and normal-like. It is noteworthy that the majority of breast cancer associated with BRCA1 gene, which is one of the predisposing genes to breast cancer development, is triple negative and basal-like as well. Triple negative/basal-like tumors often are aggressive and have a poorer prognosis.

Pathogenic mutations in BRCA1 and BRCA2 genes results a hereditary cancer predisposition syndrome, increases the risk of breast and ovarian cancer. Mutations in these genes also increase the risk of prostate cancer, melanoma, pancreatic cancer, and uterine serous cancer. [11-14]. Hereditary mutations in the BRCA1 and BRCA2 genes (BRCA1/2) have autosomal dominant inheritance and increase the risk of female breast cancer by 60–80% and ovarian cancer by about 20–40% [15-17]. As BRCA1 and BRCA2 genes produce Tumor Suppressor Gene (TSG) proteins (act as cell growth suppressor proteins) they are called as TSGs. These proteins are also called anti-oncogene and help the cell repair damaged DNA and ensure the genetic material preservation. BRCA1 gene is located on chr17q, and any changes or mutations in this gene can lead to an increased risk of developing breast, ovarian, and prostate cancer. BRCA2 gene is located on chr13q, which is one of the acrocentric chromosomes, and any changes or mutations in this gene can lead to an increased risk of developing breast, ovarian, and prostate cancer.

BRCA1 gene mutations 5382insC and 185delAG and BRCA2 gene mutation 6174delT were originally described as a founder mutations in the Ashkenazi Jewish population. Founder mutations are not always specific to a certain population. For example, BRCA1 5382insC mutation, is the second most recurrent mutation reported in the BRCA1 gene according to the BIC and has been identified in 13 different populations: Russian, Latvian, Ukrainian, Czech, Slovak, Polish, Danish, Dutch, French, German, Italian, Greek, Brazilian, Turkish and Iranian, suggesting that this mutation could have existed before the Jewish diaspora [18-21].

The aim of our study was to determine the existence of these BRCA1 gene - 5382insC and 185delAG and BRCA2 gene - 6174delT mutations in Georgian women with personal or/and family history of breast cancer. Objective retrospective case-control study was conducted.
MATERIALS AND METHODS

100 Georgian women, from different region of Georgia, under the age 40 with the breast cancer and at least one first or second degree relatives who were suffering from breast or ovarian cancers, were genotyped by PCR analyses during five years.

The study was approved by the ethical committees of medical centers and all participants were asked to sign an informed consent form indicating their participation in the study.

BRCA1 gene mutations 5382insC and 185delAG and BRCA2 gene mutation 6174delT were detected by the molecular-genetics methods, which implied the following stages:

I. Extraction of genomic DNA: The genomic (nuclear) DNA was isolated from the peripheral blood leukocytes by a commercially available DNA extraction kit (Pronto Diagnostics).

II. Identification of mutation stages in genomic DNA
1. DNA amplification by Polymerase Chain Reaction (PCR), Gene Amp PCR System 9700 (Applied Biosystems) and Pronto BRCA Amplification Mix;
2. Detection of amplified DNA by gel-electrophoreses
3. Wild type and mutation-positive allele detection by a single nucleotide primer extension reaction using Gene Amp PCR System 9700 (Applied Biosystems) thermocycler;
4. Wild type and mutation-positive allele detection by Enzyme Linked Immuno-Sorbent Assay (ELISA);
5. Date detection by photometer-reader.

The PRONTO Product line is for in vitro diagnostic use and is accredited to the highest international quality standards of production including GLP/GMP, EN46001, ISO 9001 and ISO 13485 and is CE certified.

RESULTS

Existence of BRCA1 gene mutations 5382insC and 185delAG and BRCA2 gene mutation 6174delT were not detected among studied Georgian women. These results differ from the data of Ashkenazi Jewish and different European and not European populations, where these mutations and especially BRCA1 gene 5382insC mutation were detected in high frequency.

CONCLUSION

To the best of our knowledge this is the first study to detect BRCA1/2 three mutations in Georgian women. The results also suggest that for statistically contribution of these mutation to the breast cancer risk, there is a need for studies with larger sample size, to be sufficient for a reliable conclusion to be drawn.

Breast and ovarian cancer risks varied by type and location of BRCA1/2 mutations. With appropriate validation, data of the distribution of the mutations may have implications for risk assessment and cancer prevention decision making among carriers of BRCA1 and BRCA2 mutations. In counseling for selecting prone women for the screening of germ-line mutations in BRCA1/2 gene, it is important to combine information about family history, diagnosis age, and tumor morphology.

Due to the fact that the most prevalent deleterious mutations of different populations were not seen in Georgian women, it’s reasonable to sequence whole BRCA1/2 genes for detection of the major mutations which are responsible for inherited breast and ovarian cancer in Georgian population. This would give us the opportunity to draw out the recommendations for the state screening programs.

In addition to an increased risk of breast cancer, carriers of the mutation in either BRCA1 or BRCA2 genes have an increased risk of other cancers like colon, prostate, pancreatic, melanoma, and gastric cancers. Therefore, according to the conducted studies, screening for BRCA1 and BRCA2 genes should be proposed for all breast or ovarian cancer patients with a family history of the disease.

In the long run, identification of BRCA1/2 mutations and other cancer susceptibility genes should permit the development of more effective therapies, so that physicians can not only predict future risks, but can also reduce those risks reliably and safely before disease occurs. Although we did not find these mutations in our patients, it does not allow us to conclude these three mutations are not present in Georgian population.

Diagnosis of genetic predispositions for the development of breast cancer is extremely important, as this knowledge will help to better prepare healthcare system to organize programs for the prevention of adverse health outcomes associated with these mutations. It is very important to continue research in this area, as more data are needed on BRCA1/2 mutation in women with breast cancer in Georgia.
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PREVALENCE OF NASOPHARYNGEAL CARRIAGE OF STAPHYLOCOCCUS AUREUS AMONG MEDICAL PERSONAL

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ABSTRACT

Introduction: Preventing the spread of methicillin-resistant Staphylococcus aureus (MRSA) in healthcare facilities is a major infection control target. However, only a few studies have assessed the potential role of medical personal for MRSA and MSSA dissemination.

Methods: To investigate the MRSA prevalence and the risk factors for MRSA and MSSA colonization among doctors and nurses, nasopharyngeal swabs were taken between March and May 2019 from 119 employees. The presence of MSSA and MRSA was determined by microbiological analysis of nasal exudate with antimicrobial susceptibility testing.

Results: The overall MSSA prevalence among medical personal was 14.2%(17 of 119), and was higher in nurses (14%, 12 of 86) than in physicians (6%, 2 of 33). MRSA carriers were not detected. The antibiotics with the highest level of resistance were erythromycin (42.0%; 50/119). All the strains were susceptible to vancomycin. All other antibiotics which were tested were 100% sensitive for MSSA.

Conclusion: The prevalence of MSSA in nasopharyngeal secretions of the nursing staff and doctors was not high(14,2%). There was no methicillin-resistant S. aureus isolated in this study.

Keywords: Nasal carriage, Medical personal, Staphylococcus aureus, Meticillin, antibiotics.

INTRODUCTION

Humans are a natural reservoir of Staphylococcus aureus (1). The nasal cavity is the main reservoir, but S. aureus can colonize other areas of the body such as the skin, perineal region, and pharynx (2). Studies have shown that there are three types of nasal carriers among healthy individuals: 20% are persistent carriers (range 12–30%), 30% are intermittent carriers (16–70%), and 50% (16–69%) are non-carriers (3).

The prevalence of S. aureus nasal carriage varies by country, profession, and demographic group. In the general population, values range from 17.8% to 21.6% in European countries (4) to a prevalence of 31.6% in the US (5). A higher prevalence of S. aureus among health professionals has been observed, with values of 52% among physiotherapists (6), 36–66% among nurses, and 30.6% among pediatricians (7), but the prevalence in Doctors of Podiatric Medicine (Podiatrists) as members of the surgical and medical team has not been described yet in any country.

Being a nasal carrier of S. aureus has been identified as a risk factor for the development of nosocomial and community-acquired staphylococcal infections, as it provides a reservoir from which bacteria can spread when the host's defenses are compromised (8).

Staphylococcus aureus is one of the leading cause of infectious diseases including many skin and soft tissue diseases, respiratory tract infections, meningitis, endocarditis, urinary tract and wound infections(9). Methicillin resistant Staphylococcus Aureus (MRSA) is a leading cause of hospital acquired as well as community acquired infections not only
in humans but also other mammalians(10). It is a major cause of wound contaminations and other invasive infections in hospitalized patients thereby increasing morbidity and mortality in these patients(11). MRSA are strains of S. aureus that are resistant to methicillin and other beta-lactam antibiotics. Nasal flora of MRSA have been proven to play an important role in the pathogenesis and transmission of infections. Health care workers (HCWs) carrying S. aureus in their nose or skin can play an important role in cross-contamination and thus MRSA related hospital acquired or sometimes community acquired infections(12). Screening and eradication of MRSA in hospital workers have been recommended as an important step in the prevention of MRSA infection. Moreover, proper knowledge about the prevalence and anti-microbial profile of this organism also help to decide proper empirical antibiotics in suspected patients infected with MRSA(13). S. epidermidis used to be considered a commensal microorganism. However, nowadays, it is considered an important opportunistic pathogen, producing a great variety of infections of varying severity and acting as a significant agent in medical implant infections. In addition, it is considered a potential reservoir of resistance genes for pathogenic bacteria, such as S. aureus, increasing the potential of S. aureus to colonize, survive during infection, and resist antibiotic treatment, which are important features of MRSA (14). Determination of MRSA in nasal carriage of HCWs is very necessary, because they can play an important role in the transmission and cross-contamination of infections in hospitalized patients as well as the community. Because HCWs are also an interface between the community and hospital. We conducted this study to determine the prevalence of MRSA among HCWs of a single hospital.

The objective of this study was to estimate the prevalence of nasal carriage of methicillin-susceptible and -resistant S. aureus (MSSA and MRSA) and methicillin-resistant S. epidermidis (MRSE) among podiatrists in Spain (Europe), to identify the possible risk factors for colonization of both bacteria in this population, and to determine the levels of antibiotic susceptibility among the isolates(15).

This study aimed to estimate the prevalence of methicillin-susceptible and -resistant Staphylococcus aureus (MSSA and MRSA) nasopharyngeal carriage among doctors and nurses.

MATERIAL AND METHODS

Samples were obtained from the front of the nostrils of each individual and throat using a sterile swab, rotating it gently in one of the nasal cavities at least five times. The nasopharyngeal swabs were streaked in two blood agar and mannitol-salt agar. Blood agar was selected for determine hemolyses, Mannitol Salt Agar (MSA) is recommended for use as a selective and differential medium for the isolation of pathogenic staphylococci. Mannitol is added to show the fermentation capabilities of the organisms. Acid production as the result of fermentation of this sugar results in the formation of colonies with a yellow zone. Those staphylococci that do not ferment mannitol show a purple or red zone around the colonies. Pastorex staph plus (BioRad, France) and API Staph (Biomerieux, France) were used for conformation. An antimicrobial susceptibility analysis was performed using the agar disk-diffusion method, following the indications and interpretation criteria of the European Committee on Antimicrobial Susceptibility Testing (EUCAST). For identification of MRSA we used Mueller- Hinton agar with Cefoxitin disc (30 μg).

The antibiotics used to perform the antibiogram were clindamycin (2 μg), erythromycin (15 μg), penicillin (10 μg), chloramphenicol (30 μg), vancomycin (30 μg), mupirocin (5 μg), rifampicin (5 μg), tetracycline (30 μg), ciprofloxacin (5 μg), gentamicin (10 μg), cefoxitin (30 μg), linezolid (30 μg), and trimethoprim/sulfamethoxazole (23.75/1.25 μg) (cotrimoxazole).

RESULTS

A total of 119 samples were analyzed. The overall MSSA prevalence among medical personal was 14.2% (17 of 119), and was higher in nurses (14%, 12 of 86) than in physicians (6%, 2 of 33). MRSA carriers were not detected. The antibiotics with the highest level of resistance were erythromycin (42.0%; 50%). All the strains were susceptible to vancomycin. All other antibiotics which were tested were 100% sensitive for MSSA.

CONCLUSION

The prevalence of MSSA in nasopharyngeal secretions of the nursing staff and doctors was not high (14.2%). There was no methicillin-resistant S. aureus isolated in this study. The adoption of standard precautions measures and control of pathogens are essential for the practice of nursing and patient safety. The relevance of nasal carriage of MRSA and MSSA in health care personnel and brings to light the need for consensus recommendations for regular S. aureus carriage screening as well as for decolonization strategies.
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EFFECT OF VITAMIN D DEFICIENCY ON SEMEN QUALITY

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ABSTRACT

Introduction: In recent years, there has been a growing interest in studying the association of vitamin D deficiency and infertility. It has been postulated that vitamin D receptors (VDR) are found in human tissues such as male and female reproductive organs and play a major role in facilitating the biological activity of Vitamin D. Vitamin D deficiency has been advocated as a possible cause of infertility in many studies conducted in the past several years.

Methods: We retrospectively were studied males aged from 25-35 years who visited TSMU the first university clinic urology department between December 2018 and February 2019 with a complaints of infertility lasting for two to three years.

Results: Spermogram in patients with hypovitaminosis D (7.24ng/ml-14ng/ml) showed oligozoospermia, teratozoospermia and asthenozoospermia. They were treated with oral vitamin D daily 4000 IU for two month. After the completion of treatment, subjects return for repeat semen analysis and serum vitamin D level. It was 22-25ng/ml. The pre-treatment to the post-treatment mean vitamin D levels were compared. In spermogram the positive dinamycs was detected normospermia for oligozoospermia and asthenozoospermia. After treatment, the rate of low sperm motility has increased.

Conclusion: The retrospective study showed that there is a positive correlation between serum level of vitamin D and spermogram quality. Vitamin D is an emerging factor influencing male fertility. Additional studies are pressingly needed to confirm a causal relationship and to investigate the potencial therapeutic benefit of vitamin D supplementation.

Keywords: Vitamin D, infertility, male, treatment, spermogram.

INTRODUCTION

In recent years, there has been a growing interest in studying the association of vitamin D deficiency and infertility. It has been postulated that vitamin D receptors (VDR) are found in human tissues such as male and female reproductive organs and play a major role in facilitating the biological activity of Vitamin D. Vitamin D deficiency has been advocated as a possible cause of infertility in many studies conducted in the past several years. Vitamin D, also known as “sunshine hormone”, is a fat soluble hormone which plays an integral part in calcium and phosphorous homeostasis and maintenance of healthy bones and teeth and is involved in providing protection against a number of diseases such as cancer, diabetes, multiple sclerosis, cardiovascular diseases, obesity and many other diseases including its role in infertility (1-6).

Vitamin D is considered to be a prohormone and is synthesized by skin on exposure to sunlight as Vitamin D3 or cholecalciferol. Vitamin D2 or ergocalciferol is obtained from yeast and dietary sources. Vitamin D deficiency can result from inadequate exposure to sunlight, malabsorption syndromes and certain drugs like dilantin, phenobarbital and rifampicin which induce hepatic P450 enzymes to accelerate the catabolism of vitamin D (7). The deficiency of vitamin defined as the concentration of 25-hydroxycalciferol <20 ng/ml is frequently noted in patients of fertility clinics. Serum vitamin D concentration in healthy women is higher comparing to PCOS patients. The supplementation with vitamin D should be applied in the schemes of PCOS treatment both due to an improved insulin resistance and the results of infertility treatment. The explanation of vitamin D activity mechanism in patients with PCOS requires further research. Vitamin D have direct effect on AMH production, and thus increase longer maintenance of ovarian reserve in the patients with its higher concentration. The most consistent effect of vitamin D was reported on semen quality(8-12). Indeed,
vitamin D was shown to be positively associated to sperm motility, and to exert direct actions on spermatozoa, including non-genomic driven modulation of intracellular calcium homeostasis and activation of molecular pathways involved in sperm motility, capacitation and acrosome reaction. Studies of human male reproductive tract revealed presence of the vitamin D receptor suggesting that vitamin D is important for spermatogenesis(13). Few clinical studies published to date address the possible association between vitamin D deficiency and male infertility(14). The aims of this study are to determine if there is an association between hypovitaminosis D and abnormal semen parameters, and if semen parameters could be improved with repletion of vitamin D.

MATERIALS AND METHODS

We retrospectively were studied males aged from 25-35 years who visited TSMU the first university clinic urology department between december 2018 and february 2019 with a complains of infertility lasting for two to three years. We investigated all other risk factors for infertility: mumps, influenzae, frequency of X-ray and direct contact with radiation, functional abnormality of ureter. Inspection and palpation of the external genitalia was performed. On initial visit following analysis were done: X-ray of scrotum for varicocele, spermogram (twice), safe blood test, 25(OH) D level in serum, bacteriology of sperm. A fully automated electrochemiluminescence assay from Roche Diagnostics was used to measure vitamin D levels in blood.

RESULTS

Spermogram in patients with hypovitaminosis D (7.24ng/ml-14ng/ml) showed oligozoospermia, teratozoospermia and asthenozoospermia. They were treated with oral vitamin D daily 4000 IU for two month. After the completion of treatment, subjects return for repeat semen analysis and serum vitamin D level. It was 22-25ng/ml. The pre-treatment to the post-treatment mean vitamin D levels were compared. In spermogram the positive dinamycs was detected normospermia for oligozoospermia and asthenozoospermia. After treatment, the rate of low sperm motility has increased.

CONCLUSION

The retrospective study showed that there is a positive correlation between serum level of vitamin D and spermogram quality. Vitamin D is an emerging factor influencing male fertility. Additional studies are pressingly needed to confirm a causal relationship and to investigate the potential therapeutic benefit of vitamin D supplementation.

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EXPERIENCE OF THE USE OF INVASIVE METHODS OF PRENATAL DIAGNOSTICS

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ABSTRACT

The paper provides analysis of results of invasive pre-natal diagnostics (174 cases) performed in the Educational Surgical Clinic of AMU and Center for Genetic Diagnostics “AFGEN” over 2015-2017. Chromosomal anomalies were detected at 5.1% of cases. The most frequent pathologies were Down’s syndrome and balanced translocations. Based on the findings, the authors pointed out the necessity of wider application of invasive pre-natal diagnostics in the region.

Keywords: chromosomal abnormalities, cordocentesis, chorionic villus aspiration, placenta biopsy.

In recent years, the service of prenatal diagnosis in our country has eventually begun to attract more and more attention. The main role in this, of course, played the issuing of an order "On the improvement of prenatal diagnosis in the prevention of congenital and hereditary diseases in children." The main task is the timely diagnosis of chromosomal abnormalities and monogenic pathology in the fetus. Monogenic disease in the previous child is an absolute indication to the study due to the high risk of recurrence of the disease[3].

The level of work of any prenatal center is directly dependent on whether invasive diagnostic methods are performed and what their results are. During 3 years 172 pregnant women were examined in the Educational Surgical Clinic of AMU using invasive techniques, 174 invasive interventions were performed to exclude chromosomal abnormalities. For prenatal diagnosis, women were hospitalized in the gynecological department with minimal clinical examination (blood and urine tests, syphilis tests, HIV, hepatitis B and C, vaginal smear analysis)[4]. Invasive interventions were carried out with the consent of the pregnant woman under ultrasound control with the Aloka SSD-2000 device (Japan) with puncture 5 MHz and convective 3.5 MHz sensors. All manipulations were performed with local anestesia. Cytogenetic analysis of the obtained material (blood from the umbilical cord and chorionic villus) was performed in the AFGEN laboratory.

In 106 cases, a cordocentesis was performed according to the generally accepted method in terms of 20-26 weeks of pregnancy[1,2]. Transabdominal aspiration of chorionic villi is performed in 62 cases with pregnancy of 10-14 weeks. In 4 cases a transabdominal biopsy of the placenta was performed at a period of 16 to 23 weeks (Figure 1).
Fig. 1. The ratio of methods of invasive diagnostics.

Table 1
Indications for prenatal karyotyping

<table>
<thead>
<tr>
<th>Indications</th>
<th>Year 2015</th>
<th>Year 2016</th>
<th>Year 2017</th>
<th>Total</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age of pregnant women over 35 years old</td>
<td>17</td>
<td>27</td>
<td>19</td>
<td>63</td>
<td>36</td>
<td>36.2</td>
</tr>
<tr>
<td>Biochemical markers</td>
<td>5</td>
<td>12</td>
<td>19</td>
<td>36</td>
<td>20.6</td>
<td></td>
</tr>
<tr>
<td>Gross developmental malformations</td>
<td>9</td>
<td>11</td>
<td>10</td>
<td>30</td>
<td>17.2</td>
<td></td>
</tr>
<tr>
<td>Markers of chromosomal abnormalities</td>
<td>3</td>
<td>12</td>
<td>4</td>
<td>19</td>
<td>10.9</td>
<td></td>
</tr>
<tr>
<td>Ultrasound markers</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>11</td>
<td>6.3</td>
<td></td>
</tr>
<tr>
<td>Child with Down’s Disease in the family</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>9</td>
<td>5.1</td>
<td></td>
</tr>
<tr>
<td>Parents – carriers of chromosomal anomalies</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>3.4</td>
<td></td>
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</tbody>
</table>

Table 2
The revealed chromosomal anomalies

<table>
<thead>
<tr>
<th>Anomalies</th>
<th>Year 2015</th>
<th>Year 2016</th>
<th>Year 2017</th>
<th>Total</th>
<th>Number</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Down’s syndrome (trisomy XXI)</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>3</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>Balanced translocations</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
<td>1.1</td>
<td></td>
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<tr>
<td>Edwards syndrome</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Shereshevsky-Turner syndrome</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0.5</td>
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<tr>
<td>Others</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
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Indications for prenatal diagnosis were formed on the basis of standard risk factors. The main one was the age of pregnant women over 35 years old and serum markers of chromosomal abnormalities (Table 1).
174 cytogenetic studies were performed [5]. In 1 cases (0.5%), the absence of mitosis did not allow karyotyping. According to our data, gross chromosomal abnormalities affecting the prognosis of the life and health of the child were diagnosed in 7 patients (4%). Traditionally, a good indication for detection of chromosome abnormalities is considered a level exceeding 5%. The most common anomaly in the material was trisomy XXI (Down's Disease), followed by balanced translocations, and the third was Edwards syndrome. The Shereshevsky-Turner syndrome was detected in 2 people – 1.1% (Table 2). In 6 pregnant women after invasive manipulation, the following complications were observed:
1. Spontaneous miscarriage within 2 weeks after manipulation - 3 cases (1.7%);
2. Episode of persistent bradycardia in the fetus without disturbance of the fetal blood flow - 2 cases (1.1%);
3. Bleeding from the puncture site for more than 1 minute, stopping itself - 1 cases (0.5%).

After 1-2 hours of manipulation to all patients was performed ultrasound, evaluated the cardiac activity of the fetus, as well as the condition of the fetal egg and uterus. After invasive diagnosis until the receiving of a genetic response the woman was recommended to observe the protective regime and hygiene rules.

Thus, early detection of chromosomal abnormalities is of primary importance for practical public health. Unfortunately, using of only one screening method does not solve this problem. Only the use of combinations of ultrasound and biochemical markers will help in a timely identifying of chromosomal abnormalities in the fetus and prevent the birth of children with gross developmental malformations.

REFERENCES
MULTIORGAN FAILURE INDUCED BY THROMBOTIC MICROANGIOPATHY

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ABSTRACT

Introduction—HUS and TTP is syndromes, characterized with microangiopathic hemolytic anemia, thrombocytopenia, acute renal failure, severe neurological violations. Bloody diarrhea is caused with E.Coli(0157:H7). In Georgia revealed other strain — E.coli(0104:H4). We presented case when illness started with bloody diarrhea, oliguria and neurological changing( coma, seizures.). ADAMTS13 levels < 10% with the presence of antibody against ADAMTS13 is characteristic of most adults with TTP and these patients respond to plasma exchange. Testing for ADAMTS13 activity is appropriate in patients with suspected TTP-HUS. The combination of clinical and laboratory data, activity of ADAMTS13, and response to plasma exchange allows for better differentiation between these thrombotic microangiopathies, which itself is very important considering that both have different treatment options. Thrombotic microangiopathies are diseases characterized by thrombocytopenia, erythrocyte fragmentation, and elevated levels of LDH. Thickening of the arterioles and capillary walls with prominent endothelial swelling and detachment and subendothelial accumulation of proteins and cell debris characterize and define the pathologic lesion seen in all thrombotic microangiopathies. In patients with TTP, severely deficient ADAMTS13 activity has been seen in 25–79% of cases at presentation, whereas HUS is not associated with any reduction in activity or absence of ADAMTS13. Patient admitted in hospital after one weak from onset of clinical symptoms. Regardless of bacteriological investigations of feces, the microbe does not revealed. Progress of disease was severe, with many complication: renal failure with severest neurological violations.

Conclusion: We presented the case when the disease started with bloody diarrhea, vomiting. By fecal bacteriological analysis microbes has not been identified. Unconsciousness manifested after hospitalization with generalized seizures. MRI revealed temporal and parietal cortex damage, later left ischemic damage of left subcortical nodes, what probably was the reason of seizures. LDH and haptoglobin level reffered microangiopathic haemolysis. In the smears of peripheral blood was observed erythrocyte fragmentation. Platelets counts was mildly decreased, FDP increased (D dimer also increased). Therefore genesis of renal failure and coma was thrombotic microangiopathy and other encomoping causes. In this patient, despite such extensive involvement of the CNS, ADAMTS13 activity was not inadequate, the treatment was effective, including plasma exchange, what suggested that the patient had HUS. The manifestation of this syndrome sometimes is atypical. The adequate assessment of clinical signs in premorbid period, adequate exploration of organ dysfunction, using diagnostic methods after hospitalization and appropriate treatment gives the real chance to convalescence.

Key words: HUS, renal replacement therapy, coma, vena cava thrombosis

Introduction—HUS and TTP is syndromes, characterized with microangiopathic hemolytic anemia, thrombocytopenia, acute renal failure, severe neurological violations. Bloody diarrhea is caused with E.Coli(0157:H7). In Georgia revealed other strain — E.coli(0104:H4). We presented case when illness started with bloody diarrhea, oliguria and neurological changing( coma, seizures.). ADAMTS13 levels < 10% with the presence of antibody against ADAMTS13 is characteristic of most adults with TTP and these patients respond to plasma exchange. Testing for ADAMTS13 activity is appropriate in patients with suspected TTP-HUS. The combination of clinical and laboratory data, activity of ADAMTS13, and response to plasma exchange allows for better differentiation between these thrombotic microangiopathies, which itself is very important considering that both have different treatment options. Thrombotic microangiopathies are diseases characterized by thrombocytopenia, erythrocyte fragmentation, and elevated levels of LDH. Thickening of the arterioles and capillary walls with prominent endothelial swelling and detachment and subendothelial accumulation of proteins and cell debris characterize and define the pathologic lesion seen in all thrombotic microangiopathies. In patients with TTP, severely deficient ADAMTS13 activity has been seen in 25–79% of cases at presentation, whereas HUS is not associated with any reduction in activity or absence of ADAMTS13. Patient admitted in hospital after one weak from onset of clinical symptoms. Regardless of bacteriological investigations of feces, the microbe does not revealed. Progress of disease was severe, with many complication: renal failure with severest neurological violations.

Case: 32 yrs old woman was admitted in ICU with oligoanuria, chills. Diseases started with diarrhea, vomiting, abdominal pain, oliguria, fever. Changes of awareness revealed after generalized seizures. Patient was intubated and started artificial ventilation. Brain CT scan revealed ventriculis dilatation. Without dislocation of midline structures. After episodes of focal seizures treatment was started with carbamazepin(400mg per day). On EEG revealed generalized spike slow wave activity (pict.1)
Pict.1  EEG
MRI detected (Flair mode)—cortex damage of left temporal–occipital area (pict2),
Lumbar aspirate—protein—0.48g/l, leicocytes—7/mm³, limph—68%, neutrophils—32%. In lumbar aspirate was detected HSV 1 vires. After treatment with aciclovir and repeated investigation of lumbar aspirate, HSV 1 vires was not found. Antibacterial treatment was based on bacteriological investigations and suitable antibacterial therapy.

Pict.2  Brain MRI
At first creatinine, LDH and urea level was high (6.72mg/dl, 198 mg/dl, 3916 u/l). After renal biopsy was found 20 glomerulus, in 9 glomerulus was discovered necrotic changing (focal cortical necrosis), in 5 glomerulus complex replication of basement
Pict.3 Membrane and enlargement of mesangial matrix (pict 3, 4)

Pict.4 Renal biopsy material

Pict. 4 Renal biopsy material

In preglomerular arterioles revealed fibrosis of intima, thrombus into lumen and arterial-arterioles sclerosis 35% of tubules was necrozed (focal cortical necrosis), remaining part was atrophic with thickening of basement membrane. (pict 5)
Pict.5 Renal biopsy material.

In arterial walls and focal glomerulus was found fibrin/fibrinogen deposits (pict 3,4,5). ADAMTS-13 activity was normal – 64.9% (N40-130). ADAMTS-13 antigen was 0.46 u/ml, slightly decreased, and antibody was not found. ADAMTS inhibitor – 3.5 u/ml (N<12 u/l).

At first platelets count was decreased – 80000/mm³, then platelets count returned to normal value. Immunity parameters was normal (schedule 1)

<table>
<thead>
<tr>
<th>CD3 lymphocytes – 65%</th>
<th>IgG 14.3 g/l (N8-18)</th>
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<tr>
<td>CD4 lymphocytes – 45% (N29-57)</td>
<td>IgA 3.4 g/l (N 0.9-2.5)</td>
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<tr>
<td>CD4 – abs. number – 1431 (N404 – 1612)</td>
<td>IgM – 0.2 g/l (N 0.6 – 2.8)</td>
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<tr>
<td>CD8 lymphocytes – 20% (N11-38)</td>
<td>IgE – 9.19 g/l (N&lt;200)</td>
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Schedule 1 Immunological tests
Antinuclear antibody was not found. In peripheral blood revealed leicocytosis: white blood cell count – 41000/mm³, anisocytosis, poikilocytosis. Neutrophils count 31.4 mg/dl.

Secondary coagulation hemostasis was changed: decreased antithrombin III, increased soluble fibrin-monomer complex (sched. 2)

<table>
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<tr>
<th>FDP – 21 mg%</th>
<th>AT-III – 70%</th>
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<td>D-dimer 9000 ng/ml (&lt;500 ng/ml)</td>
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Schedule 2 Tests of coagulation hemostasis
Chest Ct scan – detected pneumonia. Abdominal CT scan – fluid accumulation. Brain MRI – detected (T2, Flair) ischemic damage in left subcortical nodes (pict 6)
Brain MRI
EEG—detected low amplitude waves, without specific pathological activity (pict7)

EEG
After 35 day from hospitalization neurological state improved, awareness was adequate, without cognitive violations. Lasted renal replacement therapy. Chest CT scan (pict8) detected improvement of lung radiological findings.
Patient was extubated, parameters of spontaneous breathing were normal. After one week, abdominal distension, vomiting, and bowel distension, dynamic obstruction were found, and mesenteric thrombosis was excluded. (Pict 9)

Later, the patient's state worsened, developing acute respiratory failure. Chest CT scan detected bilateral pneumonia. (Pict 10)

Low extremity vessels ultrasonography revealed thrombus in the common femoral and deep femoral vein. Despite suitable treatment, ventilation parameters worsened. Echocardiography revealed dilation of right chambers and increased PASP (65mm. hg). After cavagraphy in the vena cava bifurcation area, filling defects - thrombus - 8.2x16.8 and 6.7x20.8 were detected. In the infrarenal part of the inferior vena cava, a vena cava filter (Vena Tech LP, B. Braun Medical) was placed.
Discussion: disease started with bloody diarrhea, vomiting. After 7 days from onset, patient was admitted to hospital. Identification of microbe was not possible with feces bacteriological analysis. Diagnosis was based on results of renal biopsy and morphological researches, laboratory and clinical parameters. Unconsciousness and right side hemiparesis revealed after seizures. MRI detected left side subcortical nodes ischemic damage. In lumbar aspirate by PCR method detected viruses (HSV1). Patient was treated with antiviral drugs (ZOVIRAX). For treatment of sepsis was identified source of infection (pneumonia, VAP). LDH level was high, Haptoglobin level was decreased, what referred to microangiopathic hemolysis. In peripheral blood smear revealed red blood cells fragmentation, reduction of platelet count. D dimer and FDP level was increased. After renal biopsy, in arterial wall and in glomeruli was found fibrin/fibrinogen deposits. Reason of renal failure was thrombic microangiopathy, activation of platelets after endothelium damage and activation of coagulation hemostasis. In several glomeruli detected 35% necrosed tubules and remaining part of tubules was atrophic. Patient was treated with renal replacement therapy, plasma exchange therapy. Causes of coma was thrombic microangiopathy, also accompanying reasons. For prevention of thrombosis was used anticoagulation, nevertheless developed DVT, pulmonary embolism, low vena cava thrombosis. Establishing the diagnosis of TTP / HUS was a 2-step process: verifying the presence of triad of microangiopathic hemolytic anemia and thrombocytopenia, excluding systemic/secondary conditions that would cause this changing. In HUS, an antecedent history of diarrheal illness was presented. Clinical differentiation of hemolytic-uremic syndrome (HUS) and TTP is often based on the presence of CNS involvement in TTP and the more severe renal involvement in HUS. Level of ADAMTS13 activity was nondeficient. Patients with TTP have either an inherited or an acquired lack of this protease activity whereas those with HUS do not have an abnormality of the enzyme. This patient despite so wide involvement of CNS ADAMTS13 activity was not inadequate, the treatment was effective, including plasma exchange, what suggested that the patient had HUS. The manifestation of this syndrome sometimes is atypical. The adequate assessment of clinical signs in premonir period, adequate exploration of organ dysfunction, using diagnostic methods after hospitalization and appropriate treatment gives the real chance to convalescence.

Conclusion: We presented the case, when the disease started with bloody diarrhea, vomiting. By fecal bacteriological analysis microbes has not been identified. Unconsciousness manifested after hospitalization with generalized seizures. MRI revealed temporal and parietal cortex damage, later left ischemic damage of left subcortical nodes, what probably was the reason of seizures. LDH and haptoglobin level referred microangiopathic haemolysis. In the smears of peripheral blood was observed erythrocyte fragmentation. Platelets counts was mildly decreased. FDP increased (D dimer also increased). Therefore genesis of renal failure and coma was thrombotic microangiopathy and other accompanying causes. In this patient, despite such extensive involvement of the CNS, ADAMTS13 activity was not inadequate, the treatment was effective, including plasma exchange, what suggested that the patient had HUS. The manifestation of this syndrome sometimes is atypical. The adequate assessment of clinical signs in premonir period, adequate exploration of organ dysfunction, using diagnostic methods after hospitalization and appropriate treatment gives the real chance to convalescence.

Заключение: Мы представили случай, когда заболевание началось с кровавой диареи, рвоты. По фекальному бактериологическому анализу микробов не выявлено. Бессознательное состояние проявляется после госпитализации с генерализованными припадками. МРТ выявила повреждения височной и теменной коры, затем левое ишемическое повреждение левых подкortковых узлов, что, вероятно, явилось причиной судорог. Уровень
ЛДГ и гаптоглобина отражается на микроангиопатическом гемолизе. В мазках периферической крови наблюдалась фрагментация эритроцитов. Количество тромбоцитов было незначительно снижено. Увеличился ПФД (также увеличился димер). Поэтому генезом почечной недостаточности и комы была тромботическая микроангиопатия и другие сопутствующие причины. У этого пациента, несмотря на такое обширное вовлечение ЦНС, активность ADAMTS13 ADAM не была недостаточной, лечение было эффективным, включая обмен плазмы, что указывало на то, что у пациента было недостаточное. Проявление этого синдрома иногда бывает нетипичным. Адекватная оценка клинических признаков в преморбидном периоде, адекватное исследование дисфункции органов, использование диагностических методов после госпитализации и соответствующего лечения дает реальную возможность выздоровления

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<td>Country</td>
<td>Names and Institutions</td>
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