



AGRICULTURAL, ENVIRONMENTAL & NATURAL SCIENCES

SOCIAL, PEDAGOGY SCIENCES & HUMANITIES

MEDICINE, VETERINARY MEDICINE, PHARMACY AND BIOLOGY SCIENCES

TECHNICAL AND APPLIED SCIENCES

REGIONAL DEVELOPMENT AND INFRASTRUCTURE

ECONOMIC, MANAGEMENT & MARKETING SCIENCES

LEGAL, LEGISLATION AND POLITICAL SCIENCES



9 771987 652001



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

ISSN: 1987-6521; E-ISSN:2346-7541, DOI prefix: 10.23747

APRIL-MAY 2019 VOLUME 46 ISSUE 03

GULUSTAN

© SOUTHERN CAUCASUS SCIENTIFIC JOURNALS

BLACK SEA

SCIENTIFIC JOURNAL OF ACADEMIC RESEARCH

MULTIDISCIPLINARY JOURNAL
REFEREED & REVIEWED JOURNAL

Index Copernicus Value (ICV) for 2018 – 76.92

IPI Value: 2.42

IARC Impact Factor 2017 – 2.110

Catalogue of Russian Journals Impact Factor (2016) – 0.171

Impact factor ПИИЦ 2017-0.041

JOURNAL INDEXING

mEDRA

OpenAIRE

Google
scholar

Academic
Resource
Index
ResearchBib

SHERPA/R•MEO

BASE
Bielefeld Academic Search Engine

citeulike

Academia.edu

AGRS-CARIS
INTERNATIONAL
CONFERENCE FOR THE
ADVANCEMENT OF
SCIENCE AND TECHNOLOGY

RESEARCHERID

THOMSON REUTERS

IARC
Impact Factor

zenodo

zotero

ResearchGATE
SCIENTIFIC NETWORK

НАУЧНАЯ ЭЛЕКТРОННАЯ
БИБЛИОТЕКА
eLIBRARY.RU

SCIARY
WORLDWIDE SCIENTIFIC AND EDUCATIONAL LIBRARY

MyScienceWork

MENDELEY

publons

Clarivate
Analytics

Editors-in-chief:

Lia Matchavariani

Full Professor, Faculty of Exact & Natural Sciences, Dep. of Geography (Tbilisi State University)

Chiefs by parts:

Historical and Natural Sciences

Lienara Adzhyieva

Tubukhanum Gasimzadeh

Social, Pedagogy Sciences & Humanities

Eka Avaliani

Medicine, Veterinary Medicine, Pharmacy and Biology Sciences

Mariam Kharashvili

Technical, Engineering & Applied Sciences

Nikolay Kurguzov

Regional Development and Infrastructure

Lia Eliava

Kutaisi University. Full Professor. PhD in Business Administration.

Economic, Management & Marketing Sciences

Varadaraj Aravamudhan

Measi Institute of Management. Associate Professor. PhD in Management.

Badri Gechbaia

Batumi Shota Rustaveli State University. Professor. PhD in Economics

International Advisory and lawyer

Alexandra Romanova Cuco

Laywer in Administration, more specifically in European Union Agricultural funds for regional investments.

Translation

Elmira Valiyeva

EDITORIAL BOARD LIST SEE PAGE 69

ISSN: 1987-6521; E-ISSN: 2346 – 7541; UDC: 551.46 (051.4) / B-64

©**Publisher:** NGO Azerbaijan International Diaspora Center in Georgia.

Head and founder of organization: Namig Isayev. Academic Doctor in Business Administration.

©**Editorial office:** Village Takalo, 0165 Georgia. Marneuli municipality.

Registered address: Village Takalo, 0165 Georgia. Marneuli municipality.

©**Typography:** NGO Azerbaijan International Diaspora Center in Georgia. SC Scientific Journals.

Registered address: Village Takalo, 0165 Georgia. Marneuli municipality.

©**Publisher:** NGO International Research, Education & Training Center. (Estonia, Tallinn)

Deputy and founder of organization: Seyfulla Isayev. Azerbaijan Marine Academy.

©**Editorial office:** Narva mnt 5, 10117 Tallinn, Estonia.

©**Typography:** NGO International Research, Education & Training Center. BS Journals.

Registered address: Narva mnt 5, 10117 Tallinn, Estonia.

Telephones: +994 55 241 70 12; +994518648894; +994 70 375 70 12

Website: <http://sc-media.org/>

E-mail: gulustanbssjar@gmail.com, sc.mediagroup2017@gmail.com, caucasusblacksea@gmail.com

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 Mukhuradze, Levan Makhaldiani THROMBOPHILIA GENE MUTATIONS AND VTE DURING PREGNANCY AND POSTPARTUM PERIOD	20
Nino Pirtskhelani, Nino Kochiashvili, Ketevan Kartvelishvili, Nugzar Pargalava, Mamuka Bokuchava, Levan Makhaldiani INHERITED THROMBOPHILIA AND RECURRENT PREGNANCY LOSS	26
Sayyyara Ibadullullayeva, Sabina Rafiyeva ESSENTIAL OIL FEATURES OF SOME SPECIES OF LAMIACEAE LINDL. FAMILY	30
Pashayeva Gunel Bakhsheyish 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 ISMAYILZADEH'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 Kvakhajelidze, 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

¹Nadiia Vysochina, ²Olha Fedorenko, ³Valentin Vorona

¹Doctor of physical training and sport of the National defence university of Ukraine named after Ivan Cherniakhovskiy, Ukraine.

²Student of the National defence university of Ukraine named after Ivan Cherniakhovskiy, Ukraine.

Email: ^{1,2,3}naspa2@yandex.ua

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 defence 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 defence 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 Cherniakhovskiy [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 1

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

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

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.

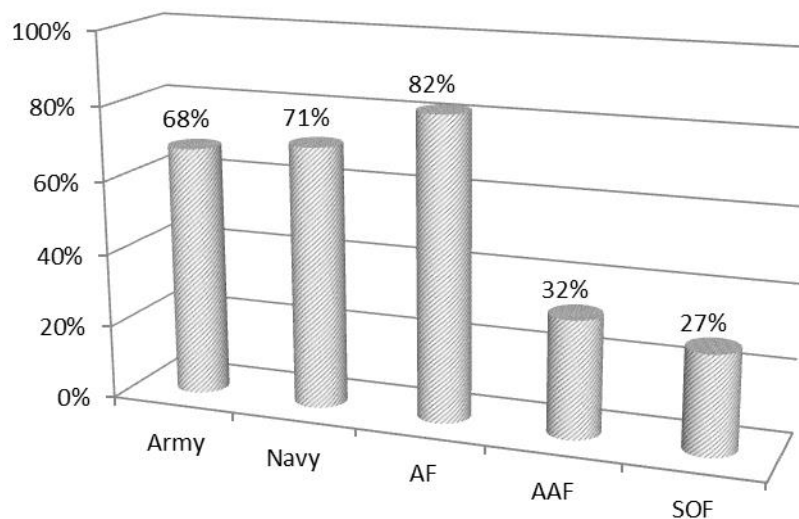


Figure 1 – The presence of smokers in the team.

Note: Army – Army Forces; AF – Air Forces; AAF – Air Assault Forces; SOF – Special Operations Forces.

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.

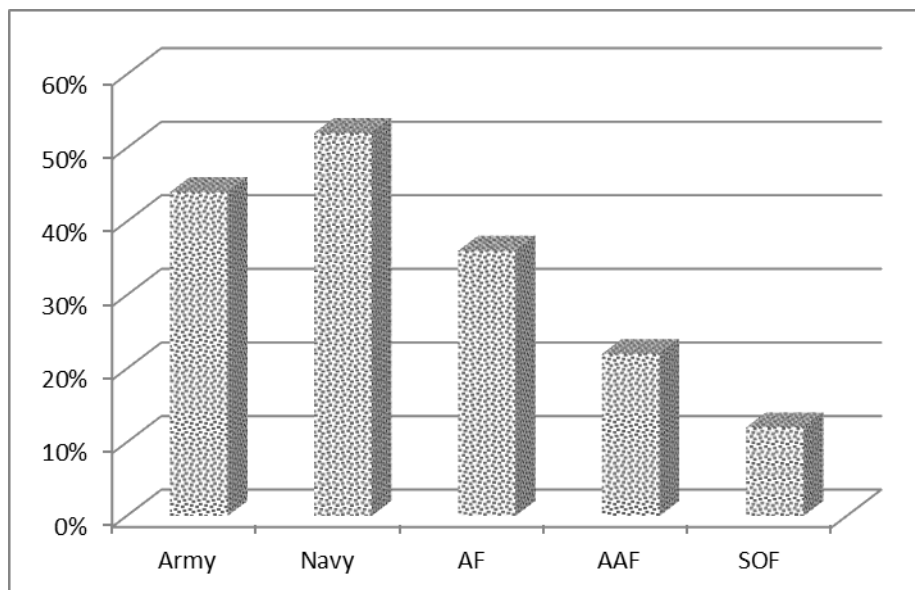


Figure 2 – The presence of overweight servicemen.

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.

REFERENCES

1. Barkov, V. I., Verbin, N. B., Glazunov, S. I., Zhebrowsky, S. M., Petrachkov, O. V. (2016). Provision of physical training of servicemen: a tutor's manual. Kiev, NUOU, 88. [in Ukrainian].
2. Campos, F., Marques, M., Silva, S., Martins, F., Simoes, V., & Franco, S. (2017). Physical self-description and sport participation, by gender, of university students. *Journal of Physical Education and Sport*, 17(1), 207-211. DOI:10.7752/jpes.2017.01031
3. Finogenov, Y. S. (2014). Physical education, special physical training and sports: textbook. Kiev, NUOU named after Ivan Chernyakhovsky, 468. [in Ukrainian].
4. Grishchenko, D. S. (2016). Conceptual directions of improvement of the system of physical training and sport in the Armed Forces of Ukraine in conditions of their reformation and development: Materials of the session of the section of the Military Scientific Council on the military-theoretical issues of the Ministry of Defense of Ukraine. Kiev, Department of Physical Culture and Sports of the MDU, NUOU named after I. Chernyakhovsky, 232. [in Ukrainian].
5. Hortigüela, D., Fernández-Río, J., & Pérez-Pueyo, A. (2016). Long-term effects of the pedagogical approach on the perceptions of physical education by students and teachers. *Journal of Physical Education and Sport*, 16(4), 1326-1333. DOI:10.7752/jpes.2016.04210
6. Ilnytska, G., Kozina, Z., Kabatska, O., Kostiukevych, V., Goncharenko, V., Bazilyuk, T., Al-rawashdeh, A. (2016). Impact of the combined use of health-improving fitness methods ("Pilates" and "Bodyflex") on the level of functional and psychophysiological capabilities of students. *Journal of Physical Education and Sport*, 16(1), 234–240. DOI: 10.7752/jpes.2016.01037

7. Kokun, O. M. (2012). Professional orientation and competence of future professionals with a “person-person” occupational type. *Social Welfare. Interdisciplinary Approach*, 2(2), 36–47.
8. Kostiv, S. F. (2017). Emotional-volitional stability of future military specialists. Collection of scientific works «Military education». Kiev, 2 (36), 107–116. [in Ukrainian].
9. On approval of the Concept of development of physical training and sports in the Armed Forces of Ukraine for the period up to 2020: the order of the Ministry of defense of Ukraine dated May 13, 2016 No. 257 // Ministry of Defense of Ukraine: officer. Website. [in Ukrainian]. URL: http://www.mil.gov.ua/content/other/MOU2016_257.pdf
10. On approval of the Concept of the state target social program for the development of physical culture and sports for the period up to 2020: Order of the Cabinet of ministers of Ukraine dated 12.09.2015 No. 1320-r // Government Portal: Web Portal. [in Ukrainian]. URL: <http://www.kmu.gov.ua/control/uk/cardnpd?docid=248719473>
11. Petrachkov, O. V. (2017). Physical training in troops. Practical recommendations (second reprint): Teaching method. manual. Kiev, NUOU, 273. [in Ukrainian]. Pohrebniak, D. V. Organizational and pedagogical conditions of special competence development of heads of physical training and sports of military units of the Armed Forces of Ukraine in the system of postgraduate education. *Zhytomyr Ivan Franko State university journal. Pedagogical sciences*, 4 (95), 160–165.
12. Pohrebniak, D. V. Organizational and pedagogical conditions of special competence development of heads of physical training and sports of military units of the Armed Forces of Ukraine in the system of postgraduate education. *Zhytomyr Ivan Franko State university journal. Pedagogical sciences*, 4 (95), 160–165.
13. Petrachkov, O., Vysochina, N. (2019). The establishment of the Educational and scientific institute of physical culture and sports and health technologies of the National Defence University of Ukraine named after Ivan Chernyakhovskiyi. *Sportomokslas*, 1 (95), 76–78. DOI: <https://doi.org/10.15823/sm.2019.95>
14. Romanchuk, S. (2015). Self-educational technologies of the commanders of cadets units of higher military educational institutions in the field of physical training and sports. *Journal of Physical Education and Sport*, 15(3), 498–501.
15. Sergienko, Y., Andreianov, A. (2013). Model of professional readiness of students of higher military schools of the Armed Forces of Ukraine. *Physical Education of Students*, 6, 66–72.
16. Svystun, V. I., Shemchuk, V. A. (2018). Scientific-research laboratory as the organizer and coordinator of the innovative scientific environment of the higher military educational institution. *Zhytomyr Ivan Franko State university journal. Pedagogical sciences*, 4 (95), 182–187.
17. Verbin, N. B., Grishchenko, D. S., Zhebrowsky, S. M., Petrachkov, O. V., Romanyuk, O. A., Finogenov, Y. S. (2015). Methodical recommendations for the organization of physical training in a special period: teaching. Manual. Kiev, NUOU, 68. [in Ukrainian].
18. Vysochina, N., Petrachkov, O. (2019). Sport and health technologies in the physical training of the military. XVII International scientific and practical Internet conference "Valeleology: the current state, trends and prospects of development", April 10-14, 2019, Kharkiv, 46–47. [in Ukrainian].
19. Vysochina, N., Vorobiova, A. (2017). Goal-setting in sport and the algorithm of its realization. *Științaculturiifize*, 28/2, 108–112.
20. Vysochina, N., Vorobiova, A., Vasylenko, M., Vysochin, F. (2018). Volitional qualities of athletes and their influence on competitive activities. *Journal of Physical Education and Sport*, 18(1), 230–234. DOI:10.7752/jpes.2018.01030

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

Tamar Didbaridze¹, Shorena Tchiokadze², Nino Khotivari³, Maia Janelidze⁴, Amiran Koridze⁵, Vladimer Papava⁶, Liana Koridze⁷, Shalva Koridze⁸

¹TSMU Microbiology Department, Associated Professor, MD,PhD (Tbilisi, Georgia)

²Head of Laboratory Department , MD, PhD (Tbilisi, Georgia)

³TSMU Ob/Gyn department, Assistant Professor, MD, PhD (Tbilisi, Georgia)

⁴CEO, OB/Gyn, Reproductologist, MD, PhD (Tbilisi, Georgia)

⁵OB/Gyn, Associated Professor, MD,PhD (Tbilisi, Georgia)

⁶TSMU Urology Department, Assistant Professor MD,PhD (Tbilisi, Georgia)

⁷OB/Gyn, Associated Professor, MD, PhD (Tbilisi, Georgia)

⁸Director of the clinic Health House,MD,PhD (Tbilisi, Georgia)

Email: ¹didbaridzet@yahoo.com¹, ²shorenatchi@gmail.com, ³nino.xotiwari@yahoo.com; ⁴maia.janelidze@gmail.com

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, 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) (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 Reiline 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 10cases(20,4%), HPV52-6cases(12.2%), HPV51- 5(10,2%),HPV56, 59 and 33- for each one4 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 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: Cercical 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-limited 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 epidermotrophic 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 world wide 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 spesimens 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 98⁰. 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 Papanicolaou (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

1. Zong J, Wang C, Liu B, Liu M, Cao Y, Sun X, et al. Human hsp70 and HPV16 E7 fusion protein vaccine induces an effective antitumor efficacy. *Oncol Rep.* 2013;30:407–412.
2. Sadraei M, Rasoul-Amini S, Mansoorkhani MJ, Mohkam M, Ghoshoon MB, Ghasemi Y. Induction of antitumor immunity against cervical cancer by protein HPV-16 E7 in fusion with ricin B chain in tumor-bearing mice. *Int J Gynecol Cancer.* 2013;23:809–814.
3. Castle PE, Reid J, Dockter J, Getman D. The reliability of high-risk human papillomavirus detection by Aptima HPV assay in women with ASC-US cytology. *J Clin Virol.* 2015;69:52–55.
4. Huh WK, Ault KA, Chelmow D, Davey DD, Goulart RA, Garcia FA, et al. Use of primary high-risk human papillomavirus testing for cervical cancer screening: interim clinical guidance. *Gynecol Oncol.* 2015;136:178–182.
5. Satterwhite CL, Torrone E, Meites E, Dunne EF, Mahajan R, Ocfemia MC, et al. Sexually transmitted infections among US women and men: prevalence and incidence estimates, 2008. *Sex Transm Dis.* 2013;40:187–193.
6. Hoste G, Vossaert K, Poppe WAJ. The Clinical Role of HPV Testing in Primary and Secondary Cervical Cancer Screening. *Obstet Gynecol Int.* 2013;2013:610373.
7. Li S, Hu T, Lv W, Zhou H, Li X, Yang R, et al. Changes in Prevalence and Clinical Characteristics of Cervical Cancer in the People's Republic of China: A Study of 10,012 Cases from a Nationwide Working Group. *Oncologist.* 2013;18:1101–1107.
8. Tran LT, Tran LT, Bui TC, Le DT, Nyitray AG, Markham CM, et al. Risk factors for high-risk and multi-type Human Papillomavirus infections among women in Ho Chi Minh City, Vietnam: A cross-sectional study. *BMC Womens Health.* 2015;15:172–177.
9. Cox JT, Castle PE, Behrens CM, Sharma A, Wright TC, Jr, Cuzick J. Athena HPV Study Group: Comparison of cervical cancer screening strategies incorporating different combinations of cytology, HPV testing, and genotyping for HPV 16/18: Results from the ATHENA HPV study. *Am J Obstet Gynecol.* 2013;208:184.e1–e184.e11. doi: 10.1016/j.ajog.2012.11.020
10. Giorgi Rossi P, Fortunato C, Barbarino P, Boveri S, Caroli S, Del Mistro A, Ferro A, Giammaria C, Manfredi M, Moretto T, et al. Self-sampling to increase participation in cervical cancer screening: An RCT comparing home mailing, distribution in pharmacies, and recall letter. *Br J Cancer.* 2015;112:667–675. doi: 10.1038/bjc.2015.11.
11. Huh WK, Ault KA, Chelmow D, Davey DD, Goulart RA, Garcia FA, et al. Use of Primary High-Risk Human Papillomavirus Testing for Cervical Cancer Screening: Interim Clinical Guidance. *Obstet Gynecol.* 2015
12. Massad LS, Einstein MH, Huh WK, Katki HA, Kinney WK, Schiffman M, et al. 2012 updated consensus guidelines for the management of abnormal cervical cancer screening tests and cancer precursors. *Obstet Gynecol.* 2013;121:829–46
13. Yasmeen A, Alachkar A, Dekhil H, Gambacorti-Passerini C, Al Moustafa AE. Locking Src/Ab1Tyrosine Kinase activities regulate cell Differentiation and Invasion of Human cervical cancer cells expressing E₆/E₇ oncoproteins of High-risk HPV. *J Oncol.* 2010;2010:10.

MODERN CONDITIONS OF ECOSYSTEMS IN THE SHIRVAN REGION CITIES OF AZERBAIJAN

Tubukhanum Gasimzadeh

Azerbaijan National Academy of Sciences. Institute of Dendrology of Azerbaijan NAS. Leading researcher PHD in Biological Sciences, Associate Professor.

Email: nushana_kasimova@yahoo.com

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 (deflation) 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 ecoethic 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 ecoethic 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, fluffy 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, Goycaychay, Turyanchay, Girdimanchay, Agsuchay, Pirsakhatchay, Gozluchay, 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.

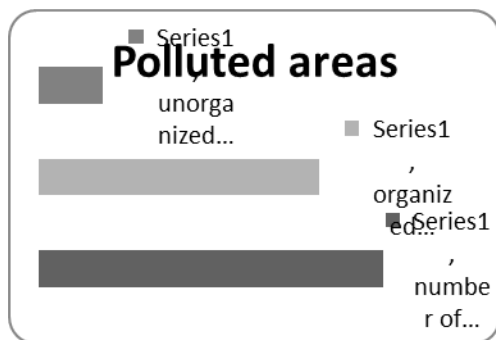


Diagram 1. Polluted area

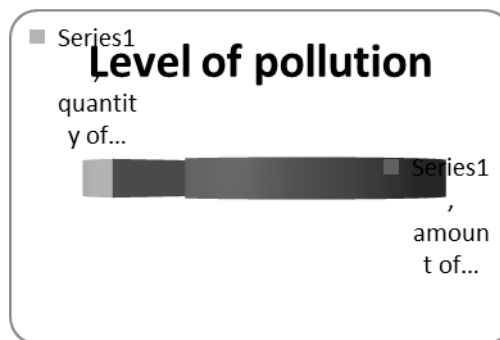


Diagram 2. Level of pollution

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, solonetzation, 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].

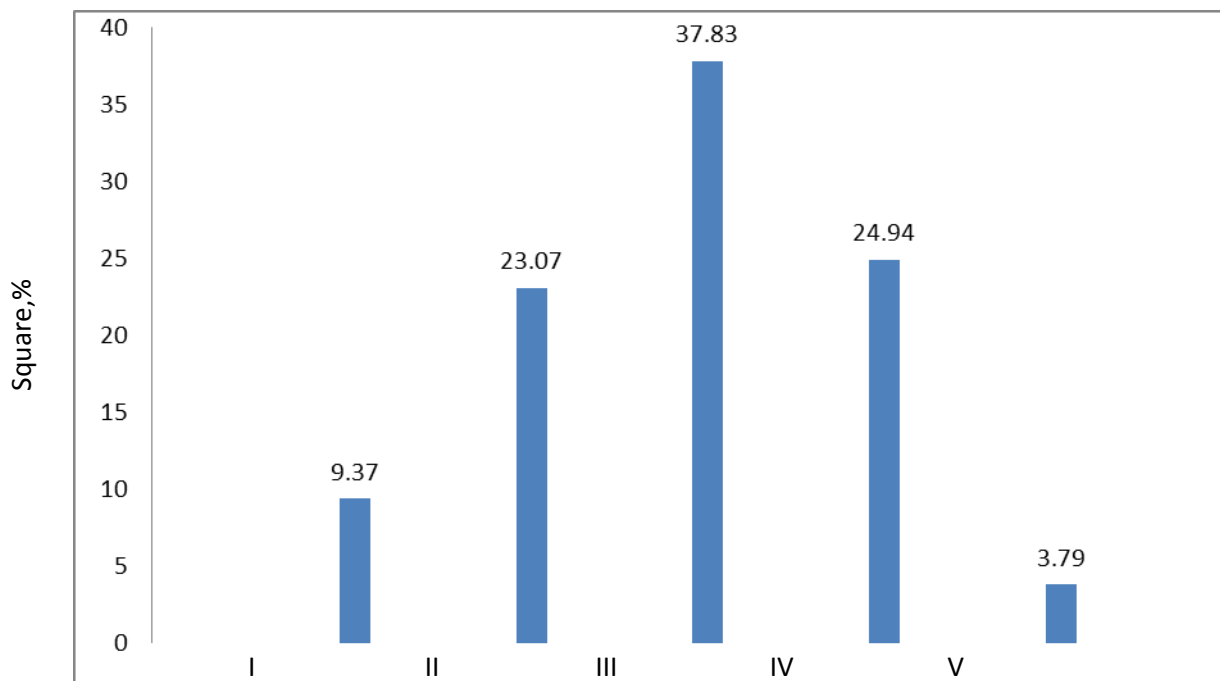
Three groups of data on the environmental conditions of soils were used in the assessment of soils:

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.

Picture 1

Soils classification in territory of Shirvan



I- high-quality soils, II - soils of good quality; III - medium quality soils, IV - low quality soils, V - conditionally unsuitable soils

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 Goychay 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. Data 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.

Table 1

Territory and speed of the current of the 7 main rivers of the Mountain and Flat Shirvan

№	River name	Territory of samples taken	Time for 100m spaces	Speed of the river	
				m/sec	km/sec
1.	Kura river	Zardab city	135sec (2min. 15sec.)	0,74	2,66
2.	Goychay river	Zardab city	100sec. (1min. 40sec.)	1,00	3,60
3.	Turyanchay river	Ujar city	85sec. (1min 25sec.)	1,18	4,24
4.	Girdiman river	Agdash city	50 sec	2,00	7,20
5.	Akhsuriver	Akhsu city	75 sec(1min.15sec)	1,33	4,79
6.	Pirsakhat river	Agsu city	60 sec (1minute)	1,66	5,98
7.	Gozluchay river	Shamakha city	85sec (1min 25sec)	1,18	4,24

Table 2

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

Indicators	Results of analysis of river waters							State standard norms
	1	2	3	4	5	6	7	
Odor: at 20°C (ball)	0	0	0	0	0	0	0	till 2 ball
Color: at 20°C (ball)	0	0	0	0	10	10	10	till 20°C
Taste: at 20°C (ball)	0	0	0	0	0	0	0	till 2 ball
Turbidity: by standard scale	3,6	4	4,3	4,3	9,4	28,0	16,0	till 1,5mg/l
Ph	8,8	8,2	8,8	8,2	8,2	7,6	6,0-9,0	6,0-9,0
Ammonium	0	0	0	0	0	0	0	max 2
Nitrite	0	0	0	0	0	0	0	max 3,3
Nitrates	1,0	0,6	0,9	0,6	0,9	0,3	0,1	till 45,0 mg/l
Total hardness	8,0	4,6	5,0	5,4	7,0	6,0	5,4	7,0mg/ekv/l
Chlorides	40,0	13,0	13,0	12,0	13,0	15,0	11,0	till 350,0
Alkalinity	3,2	2,8	3,0	2,8	3,6	4,8	4,4	10mg/l
Iron	0	0	0	0	0	0	0	0,3mg/l
Calcium	80,0	52,0	64,0	64,0	80,0	76,0	60,0	30-140mg/l
Magnesium	48,64	24,32	21,88	26,75	36,48	26,75	29,18	10-85mg/l
Bicarbonates	195,2	170,8	183,0	170,8	219,6	292,8	268,4	non-standardized

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

Picture 2

Rivers of Shirvan region of Azerbaijan (2008)



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

Indicators of life activity of some plants in pure and technogenic contaminated areas (2017)

Plant Name	Plant Life Indicators (HFG)%	
	Park in Mingachevir area	In technogenic polluted area
1. <i>Agropyrum cristatum</i>	100	65
2. <i>Cynodon dactulon</i>	88	12
3. <i>Medicago sativa</i>	80	18
4. <i>Eragrostis arundinacea</i>	85	21
5. <i>Hordeum bulbosum</i>	100	15
6. <i>Koleria phleoides</i>	90	16
7. <i>Malva sylvestris</i>	84	17
8. <i>Phragmites communis</i>	100	56
9. <i>Festuca sulcata</i>	80	18
10. <i>Poa trivialis</i>	80	12
11. <i>Lolium persicum</i>	85	20
12. <i>Paliurus spinachristi</i>	85	20
13. <i>Milium vernale</i>	87	49
14. <i>Sesleria phleoides</i>	90	33
15. <i>Stipa szovitsiana</i>	84	42

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"

Carpets (*Medicago sativa* L.), barley (*Hordeum bulbosum* L.), catwalk (*Phleum paniculatum* Huds.), brome grass (*Bromus Scop.*), pinweed (*Erodium L. Herit*), lumber (*Festuca sulcata*), Jerusalem thorn (*Paliurus spinachristi* 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 succession (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 ramoissisa*, *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 technogenic pollution should be used in biology recultivation.

4. Planting such bushes and trees as *Elaeagnus agustifolia*, *Salix australis*, *Olea europea*, *Tammarix raoississima* 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.

REFERENCE

1. Alexeyev V.A. Diagnostics of the alive trees in the woods. "Lesovedeniya", 1989, № 4, p. 51-54.
2. Alehin A.A., Orlova T.G., Alehina N.N. Multicolored flower-stucco rags for shade terrain. Mat. of intern. conf. "Introduction of plants, savvy and protection of biodiversity in botanical gardens and dendroparks". Kiev, 2010, p.133-135.
3. *Convention on Biological Diversity and the International Treaty on Plant Genetic*,2001
4. The Constitution of the Republic of Azerbaijan, 12 November 1995
5. Mammadov G.Sh Socio-economic and ecological bases of efficient use of land resources in Azerbaijan, Baku, Science, 2007, 854p.
6. Pimenova E.V. Chemical methods of analysis in monitoring of water bodies. Perm State Agricultural Academy, Perm, Russia, 2011,138P.
7. Safarli F.M. Ganja greenery and environment. Ganja: PKTA, 2004, 83 p.
8. SanPiN 2.1.4.1175-02 "Hygienic requirements for water quality of non-centralized water supply. Sanitary Protection of Sources ", etc.
9. Ilkun G.M. Tubular and ambient of air. Kiev: Naukova Dumka, 1978, p. 246
10. "United Nations Environment Programme". unep.org. November 2011. Retrieved November 17, 2011.
11. www.modern.az, June 28, 2011.

THROMBOPHILIA GENE MUTATIONS AND VTE DURING PREGNANCY AND POSTPARTUM PERIOD

¹Nino Pirtskhelani, ²Nino Kochiashvili, ³Ketevan Kartvelishvili, ⁴Nugzar Pargalava, ⁵Mamuka Bokuchava, ⁶Tea Mukhuradze, ⁷Levan Makhaldiani

¹Associated Professor of TSMU, Department of molecular and Medical Genetic, Expert of Forensic Biology (DNA) Department, National Forensics Bureau. MD, PhD (Tbilisi, Georgia)

²Head of Biology (DNA) Department, National Forensics Bureau, MD, PhD (Tbilisi, Georgia),

³Expert of Biology (DNA) Department, National Forensics Bureau, PhD Student, TSMU, (Tbilisi, Georgia)

⁴Vice-Director of the Bokhua Memorial Cardiovascular Clinic, MD, PhD (Tbilisi, Georgia)

⁵Associated Professor of TSMU, Department of Vascular Surgery, MD, PhD (Tbilisi, Georgia),

⁶Invited Professor of TSMU, Department of Vascular Surgery, MD (Tbilisi, Georgia)

⁷Head of Hemophilia and Thrombosis Centre, K. Eristavi National Center of Experimental and Clinical Surgery, MD (Tbilisi, Georgia)

E-mails: ¹ninopirtskhelani@yahoo.com; ²nkochiashvili@yahoo.com; ³ketikartvelishvili@yahoo.com;

⁴nugparg@hotmail.com; ⁵bmamuka@hotmail.com; ⁶teoangio77@gmail.com; ⁷leo_makh@yahoo.com

თეზისი

ნორმალური ორსულობა დაკავშირებულია ჰემოსტაზის დიდ ცვლილებებთან, როგორც კომპლექსურ ფიზიოლოგიურ ადაპტაციასთან. ორსულობის პერიოდში და ლოგინობის ხანაში ქალებს ვენების თრომბოემბოლიზმის გაზრდილი რისკი აქვთ (1.2-დან 1.4-მდე ყოველ 1000 მშობიარობაზე). ორსულობისა და ლოგინობის ხანის ვენური თრომბოემბოლიზმის რისკის თითქმის ნახევარი (48%) მოდის მემკვიდრულ თრომბოფილიაზე. ვენური თრომბოემბოლიზმის რისკი სხვადასხვა სიმძიმითაა გაზრდილი და მაქსიმუმს აღწევს ლოგინობის ხანაში. ჩატარებული კვლევის მიზანს წარმოადგენდა მემკვიდრულ თრომბოფილიასა (ლეიდენის V ფაქტორი (FVL), პროთრომბინი G20210A და MTHFR C677T გენების მუტაციები) და ორსულობასა და ლოგინობის ხანაში განვითარებულ ვენურ თრომბოემბოლიზმს შორის კავშირის შეფასება. კვლევის განმავლობაში, მოხდა 40 ქართველი ორსული ქალის (ვენური თრომბოემბოლიზმით და ორსულობის სხვადასხვა გართულებით) და 100 კონტროლის (ქალები სამი ან მეტი არაგართულებული ორსულობით) გენოტიპირება პჯრ ანალიზით. FVL მუტაცია ნანახი იქნა 9 შემთხვევაში, პრევალენტობით 22.5% (0% კონტროლში) ($P=0.0051$). ორივე, პროთრომბინის G20210A ჰეტეროზიგოტული და MTHFR C677T ჰომოზიგოტული მუტაცია ნანახი იქნა 5 შემთხვევაში, პრევალენტობით 12.5% (1% კონტროლში) ($p=0.0173$). კავშირი ვენურ თრომბოემბოლიზმსა და შესწავლილ მუტაციებს შორის იყო სტატისტიკურად სარწმუნო. MTHFR გენის ჰეტეროზიგოტული მუტაცია ნანახი იქნა 14 (35%) შემთხვევაში პაციენტებში და 24 (24%) შემთხვევაში საკონტროლო ჯგუფში ($p=0.0785$). ეს არის პირველი კვლევა ქართულ პოპულაციაში და მირებულ მონაცემებზე დაყრდნობით, ჩვენს პოპულაციაში ქალებს მემკვიდრული თრომბოფილიით, ორსულობისა და ლოგინობის ხანაში, ვენური თრომბოემბოლიზმის გაზრდილი რისკი აქვთ. მიღებული შედეგების გათვალისწინებით, და ასევე, შესაბამისი მკურნალობის დროულად დაწყების ეფექტურობის მხედველობაში მიღებით, გონივრულია მემკვიდრული თრომბოფილიის გენების მუტაციების შესწავლა ორსულობის გართულების ისტორიის მქონე ყველა ქართველ ქალში.

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% (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 ($p=0.0785$). 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-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

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 (χ^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/Prothombin/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.

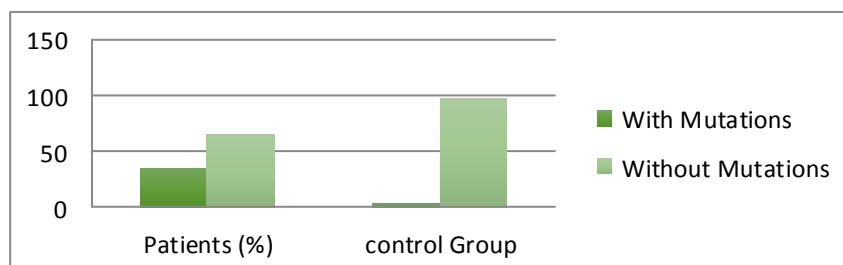


Figure N1. Distribution of Mutations in Patients and Control Group

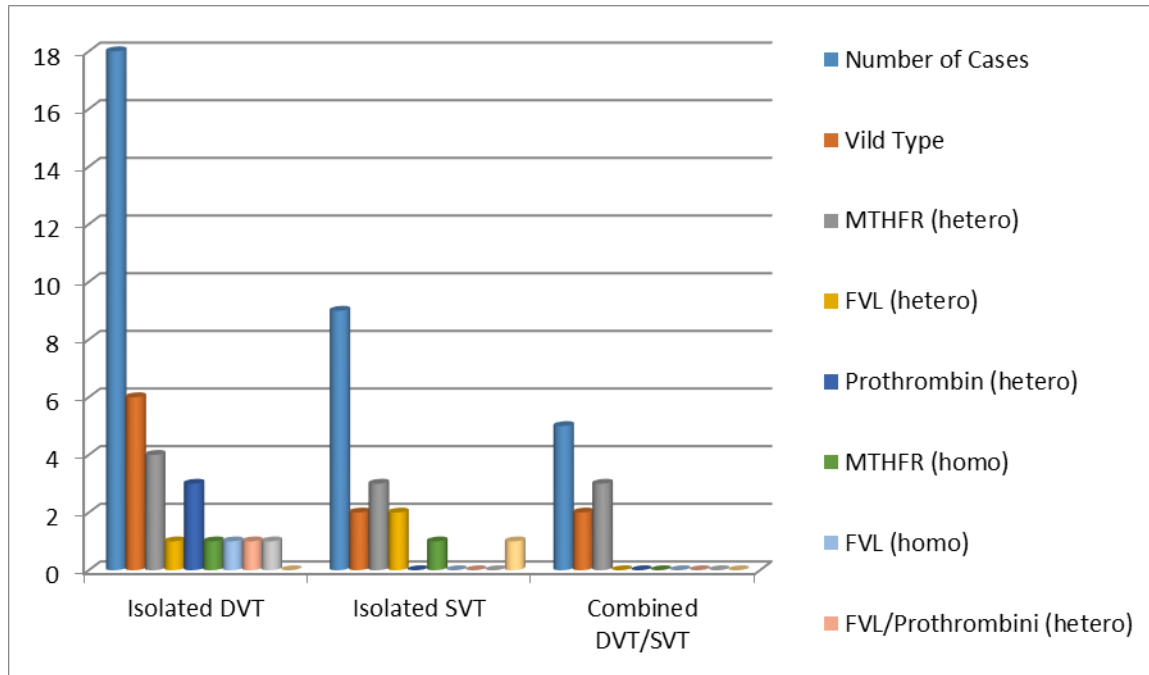


Figure N2. Distribution of Thrombophilia Gene Mutations in Patients with VTE During Pregnancy

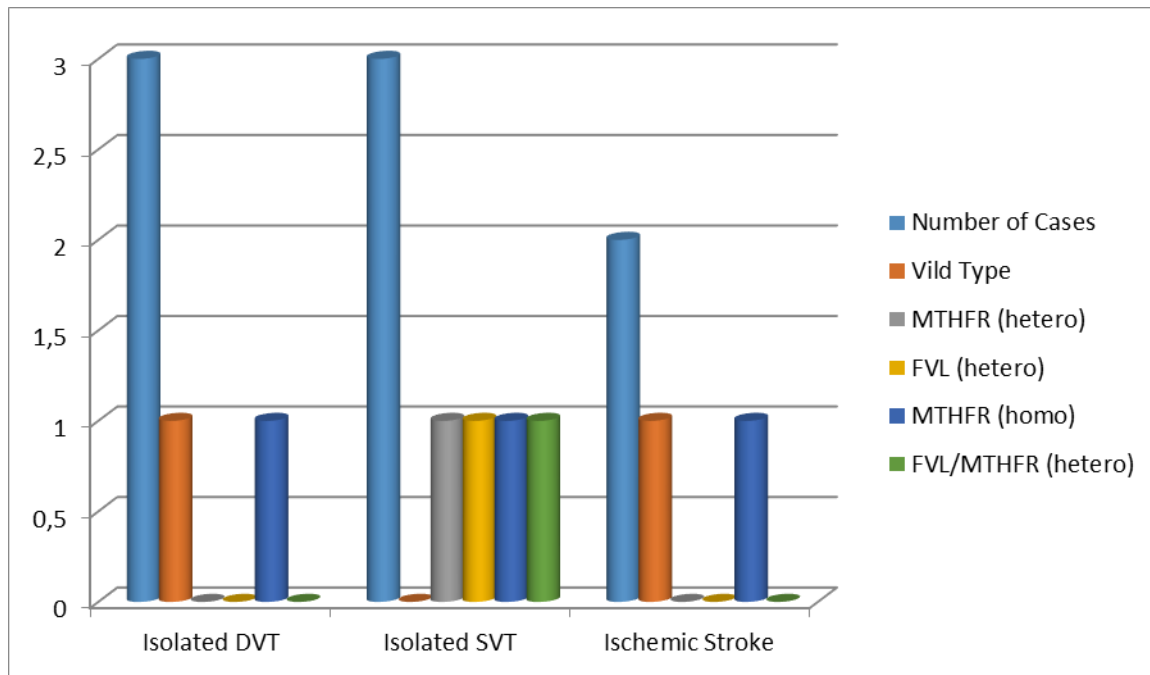


Figure N3. Distribution of Thrombophilia Gene Mutations in Patients with VTE During Postpartum Period

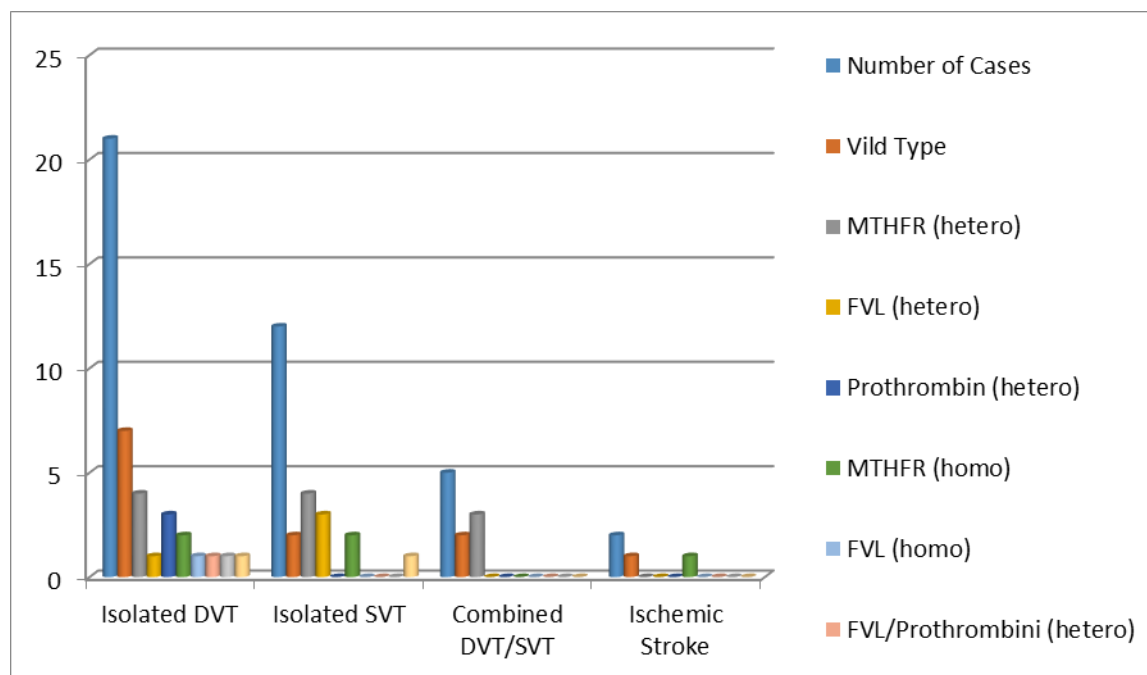


Figure N4. Distribution of Thrombophilia Gene Mutations in Patients with VTE During Pregnancy and Postpartum Period

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.

Mutations	40 Patients	100 Controls	χ^2	p	OR (odds ratio)	95% CI (Confidence Interval)	p
FVL	9 (22.5%)	0 (0%)	24.046	0.000	60.6190	3.4305 to 1071.1632	0.0051
Prothrombin	5 (12.5%)	1 (1%)	9.211	0.002	14.1429	1.5965 to 125.2867	0.0173
MTHFR (homo)	5 (12.5%)	1 (1%)	9.211	0.002	14.1429	1.5965 to 125.2867	0.0173
MTHFR (hetero)	14 (35%)	24 (24%)	3.160	0.075	2.0833	0.9197 to 4.7193	0.0785

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

The study has been funded by the grant FR/792/7-140/11 and DO/166/7-140/14 of Shota Rustaveli National Science Foundation of Georgia.

REFERENCES

1. Andra H. James, Venous Thromboembolism in Pregnancy. *Arterioscler Thromb Vasc Biol.* 2009;29(3):326-331
2. Chang J, Elam-Evans LD, Berg CJ, Herndon J, Flowers L, Seed KA, et al. Pregnancy-related mortality surveillance—United States, 1991-1999. *MMWR Surveill Summ* 2003;52:1-8.
3. Ronsmans C, Graham WJ. Maternal mortality: who, when, where, and why. *Lancet* 2006;368:1189-200.
4. J.A.Heit, C.E. Kobbervig, A.H. James, T.M. Petterson, K.R. Bailey, and L.J. Melton III, "Trends in the incidence of venous thromboembolism during pregnancy or postpartum: a 30-year population-based study," *Annals of Internal Medicine*, vol. 143, no. 10, pp. 697–706, 2005.
5. . Elisabeth M. Battinelli,¹ Ariela Marshall,² and Jean M. ConnorsThrombosis. - The Role of Thrombophilia in Pregnancy Volume 2013, Article ID 516420, 9 pages
6. Carmi N, Cohen D, Zvang E, Naparstek E, Deutsch V. Pronto ThromboRisk--a novel primer-extension ELISA based assay for the detection of mutations associated with increased risk for thrombophilia.*JClin Lab Anal.* 2004;18(5):259-64.
7. Pirtskhelani N, Kochiashvili N, Makhaldiani L, Pargalava N, Gaprindashvili E, Kartvelishvili K.. Impact of inherited thrombophilia on the risk of recurrent venous thromboembolism onset in Georgian population. *Georgian Med News.* 2014 Feb;(227):93-7.

INHERITED THROMBOPHILIA AND RECURRENT PREGNANCY LOSS

¹Nino Pirtskhelani, ²Nino Kochiashvili, ³Ketevan Kartvelishvili, ⁴Nugzar Pargalava, ⁵Mamuka Bokuchava, ⁶Levan Makhaldiani

¹Associated Professor of TSMU, Department of molecular and Medical Genetic, Expert of Forensic Biology (DNA) Department, National Forensics Bureau. MD, PhD (Tbilisi, Georgia)

²Head of Biology (DNA) Department, National Forensics Bureau, MD, PhD (Tbilisi, Georgia)

³Expert of Biology (DNA) Department, National Forensics Bureau, PhD Student, TSMU (Tbilisi, Georgia)

⁴Vice-Director of the Bokhua Memorial Cardiovascular Clinic, MD, PhD (Tbilisi, Georgia)

⁵Associated Professor of TSMU, Department of Vascular Surgery, MD, PhD (Tbilisi, Georgia)

⁶Head of Hemophilia and Thrombosis Centre, K. Eristavi National Center of Experimental and Clinical Surgery, MD (Tbilisi, Georgia)

Emails: ¹ninopirtskhelani@yahoo.com; ²nkochiashvili@yahoo.com; ³ketikartvelishvili@yahoo.com; ⁴nugparg@hotmail.com; ⁵bmamuka@hotmail.com; ⁶leo_makh@yahoo.com

თეზისი

არც თუ ისე დიდი ხანია, მემკვიდრული თრომბოფილია (ლეიდენის V ფაქტორი (FVL), პროთრომბინის G20210A და MTHFR C677T გენების მუტაციები) ითვლება განმეორებითი შეწყვეტილი ორსულობის შესაძლო მიზეზად. მემკვიდრული თრომბოფილია არის სისხლის შედედების გენეტიკური დაავადება, რაც იწვევს ჰიპერკოაგულაციურ მდგომარეობას, რომელიც თავის მხრივ, შესაძლებელია არანორმალური პლაცენტაციის მიზეზი გახდეს. იმის გათვალისწინებით, რომ შესწავლილი მუტაციების გავრცელების სიხშირე განსხვავებულია სხვადასხვა პოპულაციებში, ჩვენი კვლევის მიზანს წარმოადგენდა, პირველად ქართულ პოპულაციაში, მემკვიდრული თრომბოფილიის როლის განსაზღვრა განმეორებითი შეწყვეტილი ორსულობის პათოგენეზში. მასალა და მეთოდები: კვლევის ფარგლებში მოხდა 166 პაციენტისა და 100 ჯანმრთელი კონტროლის (ასაკი 20-45 წელი) გენოტიპირება პჯრ ანალიზით. შედეგები: 166 შესწავლილი პაციენტიდან, 152 ქალს ჰქონდა სპონტანური აბორტი და 48-ს მკვდრადშობადობა. მათ შორის, 34 პაციენტს ჰქონდა ორივე გართულება. სულ მცირე ერთი მუტაცია ნანახი იქნა 106 შემთხვევაში (63.8%), მაშინ როცა კონტროლში ეს ციფრი შეადგენდა 28 %-ს. FVL ჰეტერო და MTHFR ჰომოზიგოტური მუტაციები მნიშვნელოვნად მაღალი იყო პაციენტებში, ვიდრე საკონტროლო ჯგუფში (15.7/16.9% და 0/2% შესაბამისად). FVL/PTH/MTHFR ორმაგი და სამმაგი მუტაციების სხვადასხვა კომბინაცია ნანახი იქნა მხოლოდ პაციენტებში (6 შემთხვევა). მუტაციების მტარებლობის მიხედვით, პაციენტებს შორის სპონტანური აბორტით და მკვდრადშობადობით სტატისტიკურად მნიშვნელოვანი სხვაობა არ იქნა ნანახი, თუმცა, თრომბოფილიის შემთხვევაში, აღმოჩნდა პოზიტიური კორელაცია დედის ხანდაზმულ ასაკსა და შეწყვეტილ ორსულობას შორის.

დასკვნა: გამოდინარე იქიდან, რომ ქართულ პოპულაციაში მემკვიდრული თრომბოფილიის გავრცელება და შესაბამისად, მისი როლი ორსულთა პათოლოგიების განვითარებაში ჯერ კიდევ არ არის ცალსახად დადგენილი, ქალების უმრავლესობა გამოუკვლეველია ამ მუტაციების მტარებლობაზე. ჩვენ ვადასტურებთ მემკვიდრული თრომბოფილიის მნიშვნელოვან როლს განმეორებითი შეწყვეტილი ორსულობის (სპონტანური აბორტი და მკვდრადშობადობა) განვითარებაში, განსაკუთრებით დედის ხანდაზმული ასაკის დროს (<30) და ვურჩევთ ქალებს, განმეორებითი შეწყვეტილი ორსულობით, გენეტიკური ანალიზის ჩატარებას თრომბოფილიაზე. ამან შესაძლოა თავიდან აგვაცილოს სპონტანური

აბორტები და მკვდრადშობადობა, როგორც ორსულობის სერიოზული გართულება ქართულ პოპულაციაში.

ABSTRACT

Recently, inherited thrombophilia (Factor V Leiden (FVL), Prothrombin (PTH G20210A) and MTHFR (C677T) gene mutations) has been suggested as a possible cause of recurrent pregnancy loss (RPL). Inherited thrombophilia is a genetic disorder of blood coagulation resulting in a hypercoagulable state, which in turn can result in abnormal placentation. According to this fact, that investigated mutations are differently distributed in populations, the aim of our study, which is firstly carried out in Georgia, was to determine the role of inherited thrombophilia in development of recurrent pregnancy loss in Georgian population. Methods: 166 patients with RPL and 100 healthy controls (age 20–45) were genotyped by PCR. 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 group (15.7/16.9% and 0/2% respectively). 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. Conclusion: Since distribution and role of inherited thrombophilia in Georgian population has not been conclusively established yet, most women with RPL are not tested for these mutations. We 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.

Keywords: Inherited Thrombophilia, Recurrent Pregnancy Loss, gene, mutation.

INTRODUCTION

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 -20210G/A; 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

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 (χ^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

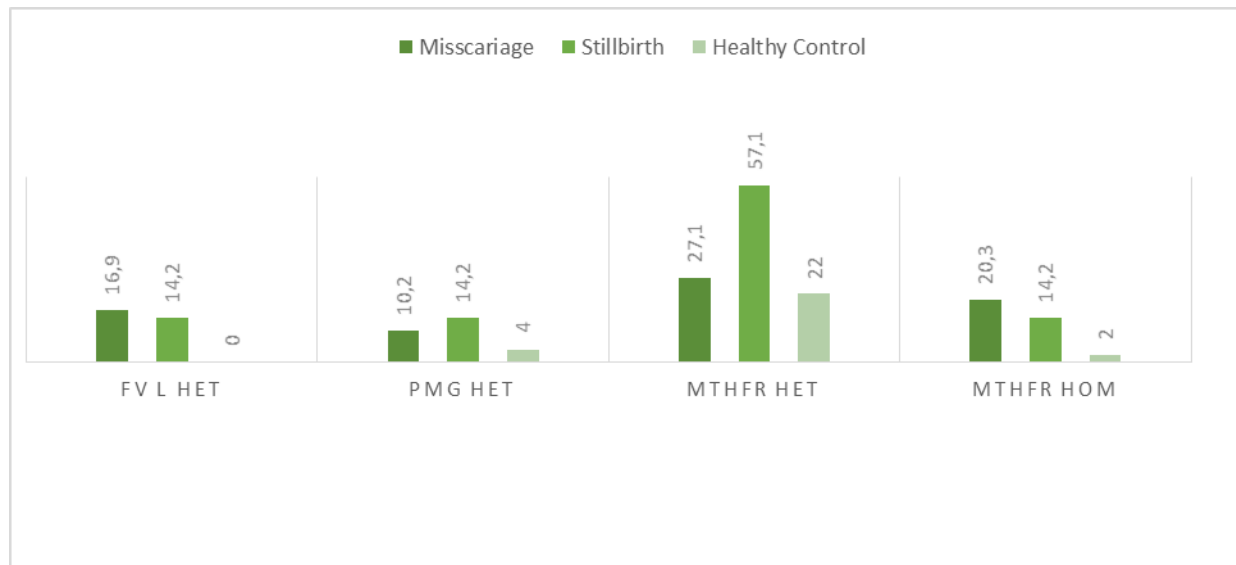
152 women had miscarriages and 48-stillbirth out of 166 investigated patients. Among them, 34 patients had both pathologies. At least single mutation was detected in 106 cases (63.8%), while it was found only in 28% in control group. FVL hetero and MTHFR homozygous forms of mutations were significantly 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

Gene mutations	patients with pregnancy complications N=166			healthy control N=100			Chi square (χ^2)	P
	Abs	Mean	Std	Abs	Mean	Std		
Factor V Leiden	26	0.16	0.42	0	0.00	0.00	18.85	0.0001
Protrombin Gene	14	0.08	0.28	4	0.04	0.197	1.94	0.163 (F 0.211)
MTHFR Gene (Homozygous)	28	0.17	0.38	2	0.02	0.141	13.79	0.0002

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 misscariages 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

1. Carmi N., Cohen D. et al. Pronto® ThromboRisk™- A novel primer-extension ELISA based assay for the detection of mutations associated with increased risk for thrombophilia. *Journal of Clinical Laboratory Analysis*. 2004; Vol. 18(5) pp.259–264.
2. Heit JA, Kobbervig CE, et al. Trends in the incidence of venous thromboembolism during pregnancy or postpartum: a 30-year population-based study. *Ann Intern Med*. 2005 nov; 143(10):697-706.
3. James, A.H., Bushnell C.D., Jamison M.G. et al. Incidence and risk factors for stroke in pregnancy and the puerperium. *Obstet Gynecol*. 2005; 106:509-516;
4. James A.H., Jamison M.G., Biswas M.S. et al. Acute myocardial infarction in pregnancy: a United States population-based study. *Circulation*. 2006; 113:1564-1571.
5. Pirtskhelani N, Kochiashvili N, Makhaldiani L, Pargalava N, Gaprindashvili E, Kartvelishvili K.. Impact of inherited thrombophilia on the risk of recurrent venous thromboembolism onset in Georgian population. *Georgian Med News*. 2014 Feb; (227):93-7.
6. Robertson L. et al. The Thrombosis: Risk and Economic Assessment of Thrombophilia Screening (TREATS) Study. Thrombophilia in pregnancy: a systematic review. *Br J Haematol* 2006; 132:171-96.

ESSENTIAL OIL FEATURES OF SOME SPECIES OF LAMIACEAE LINDL. FAMILY

Sayyyara Ibadullullayeva¹ Sabina Rafiyeva²

¹Institute of Botany of ANAS, Head of Ethnobotany lab., ibadullayeva.sayyara@mail.ru

²Institute of Botany of ANAS, post-graduate student, sabina.86.89@mail.ru

Email: ¹ibadullayeva.sayyara@mail.ru; ²sabina.86.89@mail.ru

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-gravelly rocks and debris and 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* 1,08-1,10%, *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.Hajiyev [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-gravelly rocks and debris. 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-gravelly 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)

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

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.

Table 2

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.

Components of the essential oils	<i>Melissa officinalis</i>		<i>Thymus hymalis</i>		<i>Zizifora seryllacea</i> Bieb.	
	Surface part	Flower	Surface part	Flower	Surface part	Flower
Terpene hydrocarbons	30,4	29,6	3,1	9,7	0,1	0,1
Camphor	-	-	0,1	0,4	0,5	0,3
Aldehyde	0,2	0,16	-	-	-	-
Ketones	7,5	1,8	5,2	3,8	30	37
Phenols (timol; carvacrol)	4,2	1,1	8,0; 3,2	30,3	1,5	2,8
Alcohol (terpene)	25,6	30,0	50,7	22,6	20,8	21,1
Complex ether	28,5	31,2	30,7	30,2	34,1	35,0

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.

Table3

Physical and chemical constants of the essential oils of *Lamiaceae* species

Species	Specific weight D_{20}^{20}	Angle of reflection n_{20}^{20}	Acid number	Ester number (e.n.)	Ester number after acetylation	Color of the essential oil
<i>Origanum vulgare</i>	0,964	1,4980	0,94	7,6	54,88	dark yellow
<i>Salvia virgata</i>	0,9227	1,1456	6,25	46,75	202,48	yellowish
<i>Thymus hymalis</i>	0,8954	1,4740	5,82	25,60	236,22	lemon-pink
<i>Satureja macrantha</i>	0,9328	1,5027	6,26	50,26	194,82	light yellow
<i>Zizifora seryllacea</i>	0,9213	1,4755	2,05	16,70	53,36	yellow
<i>Mentha longifolia</i>	0,925	1,4871	1,05	31,35	195,06	green-yellow
<i>Melissa officinalis</i>	0,8074	1,4656	6,28	70,64	230,75	light yellow

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.

REFERENCES

1. Ахмедова Е.Р., Исмаилов Н.М., Мустафаева С.Д., Мехтиева Н.П. Исследование пряно-ароматических растений Азербайджана. / Сб. «Современные проблемы биоорфхимии и хим. природ. соед.» Каз. НИИНТИ 769, ка-д. 1984, с. 21-29.
2. Qаджиев И.Ю. Эфиромасличные растения Нах.АССР. Изв.АН Az.ССР, 1945, №5, с.53-65.
3. Гурвич Н. Л. Эфирномасличные растения Азербайджана и возможности их использования. / "Эфирномасличное сырье и технология эфирных масел", Москва, 1968, с. 199-202.
4. Касумов Ф.Ю. Эфиромасличные виды рода *Thymus* L. флора Кавказа и пути их рационального использования (вопросы ресурсоведения). Баку, «Элм» - 2011, 403стр.
5. Ibadullayeva S.J., Jafarli I.A. Essential oil and aromatherapy. Вакu, "ELM" . 2007, 150р.
6. Мамедова З.А. Биологические особенности *Nepeta amoena* Stapf на Апшероне. Интродукция и акклиматизация растений, Баку, Изд. «Араз», 2000, с.88-94.
7. Mammedova Z.A., Ibadullayeva S.J. Antimicrobe characteristics of essence oils of some species of the *Nepeta* L. genus / Journal of Medicinal Plants Research Vol. 5(17), 2012, pp. 4369-4372
8. Мамедова С.А., Ахмедова Е.Р. Эфирное масло бутена клубненосного. //Хим. Природ. соед. №2, 1991, с. 287-288.
9. Мехтиева Н. П. Биологические особенности и эфирно-масличность видов *Pimpinella* (Бедренец), произрастающих в Азербайджане. Автор. канд. диссер. Баку: 1988, 22с.
10. Мишурова С.С., Мамедова З.А. Особенности развития *Nepeta meyeri* Benth.при выращивании на Апшеронском полуострове. Растительные ресурсы, Л. Изд. «Наука», 1988, т.24, вып.2, с.212-217.
11. Мустафаева С.Д. Биологические особенности и эфирно-масличность видов рода *Achillea* L. флоры Азербайджана: Автор. канд. диссер., Баку, 1989, 24.с.
12. Персидская К.К., Чипига А.П. Справочник для работников лаборатории эфиромасличных предприятий. М.: Изд-во легкой и пищевой промыш., 1981, 140 с.
13. Столяров Б.В. и др. Руководство к практическим работам по газовой хроматографии. Л.: Химия, 1978, 284 с.

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

¹Pashayeva Gunel Bakhshyish kizi, ²Musayeva Ilaha Ilham kizi

¹Doctor of Philosophy in Philology, ^{1,2}Teacher.

^{1,2}Azerbaijan Language and Its Teaching Methodology Faculty, ^{1,2}Sumgayit State University. (Sumgayit, Azerbaijan)

Email: Baku_2007@mail.ru

ABSTRACT

Structural - semantic and functional evolution research of the ceremony lexemes, 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 areas 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 derivatives 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 lexemes 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 – law and father – in – law 3. Very fancy, beautiful, chic one 4. Doll – it is about someone pleasant [1, p. 230].

There are following derivatives in the Turkish language: To marry means the girl's leaving her father's home, dear bridal "galinbaji" (the name given by her relatives, only relatives may call her), "galinbardaghi" (syrup drinking vessel), "galinbarmaghi" (grape varieties), "galingaytaran" (sandals), "galinboghani" (pear type), "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. derivatives 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 derivatives in the Turkish language:

Gelinboghani, gelinbojeghi, gelinfeneri (bridal's lamp), gelinhavasi (bridal's bird), 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 Kazakh language, kelin in Kirghiz language, kiilin in Khakas language, qelin in Turkmen language. The word bridal – gelin is Turkish origin word. Almost it is the main element of wedding ceremony in Turkish languages, it had not lost its functional quality, it had not changed its meaning, its structure 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. Generally, 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 etymology 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 "Oghuzname", we will be witness to the fact that the word is used to be brave and courage. Among the Oghuzs 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 etymology 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 *арваты* is used in mariy 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, arvad 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, prestigious 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. davammm

While reviewed the etymology, 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

1. Explanatory dictionary of Azerbaijani language " in IV Volume, II Volume "East-West" Baku – 2006. 792 p.
2. "Etymology Dictionary of Turkish Language". "Social Publications" First Edition Istanbul, June 1988
3. Dictionary of Turkmen language. "The Examinations of the Turkmen SSR Academy of Sciences". Ashgabat - 1962
4. "Dialectological dictionary of the Azerbaijani language" Baku – 1964. 476 p.
5. Alizade S. Ancient sources of Azerbaijani and Turkish folklore. Azerbaijan philology issues. 3rd edition. Baku. Science, 1991, 161-166 p.
6. Hasanov H. The lexics of modern Azerbaijani language. Baku: Maarif, 1988, 308 p.

QUALITY ASSURANCE IN HIGHER EDUCATION INSTITUTIONS IN AZERBAIJAN

Samira Mammadova¹, Nihad Huseynov²

¹Director of International Cooperation Department, Senior teacher in the Chair of History and its teaching methodology, PhD in historical sciences of Sumgayit State University, Azerbaijan.

²Director of Quality Assurance Center and PhD student of Sumgayit State University, Azerbaijan.

Email: inter_department@sdu.edu.az

ABSTRACT

The article is based on quality in teaching and learning process in Azerbaijan Higher Education Institutions, establishment and activities of Quality Assurance Centers. In 2015, Evaluation and quality control division is established in SSU. In 2018, Quality Assurance Center is created in the frame of international ERASMUS+EQAC (Establishment and development of Quality Assurance Centers in Azerbaijan Universities) project.

In this paper, the current active TWINING project is also analyzed. It is concluded that introduction of quality management system that is built on previous experience, make quality related issues more systematic, introduce new quality related elements, and improve the university's performance.

Keywords: Quality, evaluation, teaching and learning process, HEI-s

INTRODUCTION

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 Azerbaijanis 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. American

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 processes 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. So 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 fair 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 "beyond-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

faculty member's normal progress toward building a case for tenure. Reasons to "stop the clock" will typically be of a personal or family nature; examples may include childbirth or adoption, care of dependents, medical conditions, or physical disasters or disruptions.

An integral part should be students' involvement in the evaluation process. Such an initiative is being taken by Universities, but again, more research is needed to make the process more efficient, the students' opinions more reliable, and the students' participation in the overall quality process more active.

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 process is 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 bore 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.

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-score scale, "A" stands between 86 and 100. This produces over 70% "honour" students - an indicator, directly contradicting accreditation expectations.

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 Alicante 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:

1. Charles L. Glenn "Sharing responsibility for education: Families, government, and educators", European Journal for Education Law and Policy, Kluwer Academic Publishers, Netherlands, 2004.
2. Deli Danielle "Civil Liability within the education system: The Belgian framework" European Journal for Education Law and Policy, Kluwer Academic Publishers, Netherlands, 2004.
3. De Geyter L. "Trends and New Thinking in Europe on Special Needs Education" A New Framework of Special Education in the Russian Federation, J.De Groof, G.Lauwers and Garant Publishers.
4. Isaxanli H. A. "On education System in Transition Economy: A view from Azerbaijan, Khazar University Press, Baku, 2006.
5. Marsters Tim and Bliss Kelly "Developing a Comprehensive Housing Strategy: A Case Study" The Journal of the Society for College and University Planning, volume 35, Number 2, January- March 2007, United States, 2006.
6. Мельвиль А.Ю. «Мягкий Путь: Вхождения Российских Вузов в Болонский Процесс» Олма-Пресс, Москва, 2005.

JAFAR RAMZI ISMAYILZADEH'S BIOGRAPHY

Safarova Gunel

PhD student of Azerbaijan State Pedagogical University, Chair of "Azerbaijan and world literature", Baku, Azerbaijan

E-mail: baku_2007@mail.ru

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 Imammahammad 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.Ordubadı'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 1920-1922.

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-day 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 B.Cobanzadeh, teacher of Persian language, scientist Mirza Mohsen Ibrahim, teacher of Turkic languages, professor B.Cobanzadeh, professor of Turkic history Ubeydulin taught them. Demircizade, 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, Ubeydulin, A.Sherif, H. Zeynalli, A. Taghizadeh, N.Hasanzade, S. Shamilov, 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 Natiq

Jafar Ramzi acquainted with Hussein Natiq at the Pedagogical University and established friendly relations. Even Hussein Natiq 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 Natiq told Jabbar Ramzi that he had materials shaded Akim Sultanova's dignity, but when Jafar wanted these materials Hussein Natiq 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 Ismayilzadeh 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 Khorezm Grigoryan at the XDIK with closed arms. Although in the investigation, he was accused of writing a hoax to Mirjafar Bagirov, Jafar Ismayilzadeh protested, he said he did not write a hoax.

Jafar Ismayilzadeh 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-xeyr, əgər xuda xahəd" (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 sovkhos 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 Ustvim. 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 sovkhos. 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 sovkhos. He works in this sovkhos 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 sovkhos.

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 sovkhos, told him to go to the city of Ustvim to get a passport. He left Ustvim early in the morning. 3 miles away Ustvim 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 Natig 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 Ismayilzadeh 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 Ismayilzadeh 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 dungeon 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 tablespoon of sugar, about 10-15 grams of a salted celery, 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

Jafar Ramzi was the author of 12 books. He had collected anecdotes of world nations, translated and edited them in four books: "Foreign humor" (1964), "Pomegranates of the Parish" (1966), "Let's laugh together" (1970), "The Humor of the World Nations"(1976). Five books including his poems had published : "Poems" (1974), "Counting days" (1982), "Sounds from heart" (1986), "Delayed desires" (1990), "Ghazals" (2017). He was compiled "Dictionary of Arabic and Persian words used in Azerbaijani classical literature" with A.M. Babayev in 1966, 1981. Jafar Ismayilzadeh continued his bibliographic activity along with his artistic and scientific work, compiled works of Baku and Absheron poets, compiled two volumes of his 20-year work "Spoken word is the memory", published the first volume in 1981 and the second volume in 1987.

Jafar Ramzi Ismayilzade died on September 6, 1996 in Baku.

LITERATURE

1. C.R.Ismayilzadeh. Leaflets from my life. "Literature and Art" newspaper, November 22, 1991.
2. C.R.Ismayilzadeh. My second imprisonment and deportation to Kazakhstan. "Dada Gorgud" newspaper, March 10, 1992
3. C.R.Ismayilzadeh. My memories about Mushfig. "Literature and Art" newspaper, August 19, 1988.
4. C.R.Ismayilzadeh's personal archive materials.

BRCA1 AND BRCA2 GENES MUTATIONS AND BREAST CANCER IN WOMEN FROM GEORGIAN POPULATION

¹Nino Pirtskhelani, ²Nino Kochiashvili, ³Ketevan Kartvelishvili, ⁴Giorgi Dzagnidze

¹Associated Professor of TSMU, Department of Molecular and Medical Genetic; Expert of Forensic Biology (DNA) Department, National Forensics Bureau. MD, PhD. (Tbilisi, Georgia);

²Head of Forensic Biology (DNA) Department, National Forensics Bureau, MD, PhD (Tbilisi, Georgia);

³Expert of Forensic Biology (DNA) Department, National Forensics Bureau, PhD Student at TSMU (Tbilisi, Georgia);

⁴Head of Breast Unit, Khechinashvili University Hospital TSMU, President of Georgian Cancer Study Group (Tbilisi, Georgia).

Email: ¹ninopirtskhelani@yahoo.com; ²nkochiashvili@yahoo.com; ³ketikartvelishvili@yahoo.com
⁴doc.giorgi@yahoo.co.uk

თეზისი

საქართველოში, ავთვისებიანი სიმსივნით გამოწვეული ავადობისა და სიკვდილობის მაჩვენებელი, მეორე ადგილზეა. ყველაზე ხშირ ავთვისებიან სიმსივნეს ქალებში წარმოადგენს ძუძუს კიბო. BRCA1/2 გენების მუტაციები იწვევს თანდაყოლილი სიმსივნის წინასწარგანწყობის სინდრომს - ძუძუსა და საკვერცხის კიბოს განვითარების მაღალ რისკს. იმ ფაქტის გათვალისწინებით, რომ მანამდე არ არსებობდა არანაირი კვლევები BRCA1/2 მუტაციების შესახებ ქართულ პოპულაციაში და BRCA1 გენის 5382insC და 185delAG მუტაციები და BRCA2 გენის 6174delT მუტაცია გვხვდება მაღალი სიხშირით სხვადასხვა პოპულაციებში (ყველაზე ხშირია აშკენაზ ებრაელებში), კვლევის დასაწყისში, გონივრული იყო შეგვესწავლა ამ მუტაციების გავრცელება ქართულ პოპულაციაში.

მასალები და მეთოდები: საქართველოს სხვადასხვა რეგიონიდან, 40 წელს ქვემოთ მყოფი, 100 ძუძუს კიბოთი დაავადებული ქართველი ქალის, რომელთაც ჰყავდათ ძუძუს ან საკვერცხის კიბოთი დაავადებული სულ მცირე ერთი პირველი ან მეორე რიგის ნათესავი, პჯრ-ით გენოტიპირება გრძელდებოდა შვიდი წლის განმავლობაში.

შედეგები: შესწავლილ ქართველ ქალებში, ზემოხსენებული მუტაციების არსებობა არ გამოვლენილა. ეს მონაცემები განსხვავდება აშკენაზი ებრაელებისა და სხვადასხვა ევროპული და არაევროპული პოპულაციების მონაცემებისგან, სადაც აღნიშნული მუტაციები, განსაკუთრებით BRCA1 გენის 5382insC მუტაცია, არის მეტად გავრცელებული.

დასკვნა: იმ ფაქტის გამო, რომ ქართველ ქალებში არ იქნა ნანახი, სხვადასხვა პოპულაციებისათვის დამახასიათებელი, დაავადების გამომწვევი ყველაზე გავრცელებული მუტაციები, გონივრულია BRCA1/2 გენების სექვენირება იმ მუტაციების გამოსავლენად, რომლებიც პასუხისმგებელი არიან ქართულ პოპულაციაში ძუძუსა და საკვერცხის კიბოს მემკვიდრულ ფორმებზე. ეს მოგვეცემს შესაძლებლობას, შევიმუშავოთ რეკომენდაციები სახელმწიფო სკრინინგის პროგრამებისთვის.

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

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 seven years. Results: Existence of any above mentioned mutations was not detected among studied Georgian women. These results differ from the data of Ashkenazi Jewish and different European and non-European populations, where these mutations and especially BRCA1 gene 5382insC mutation are more distributed. Conclusion: 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 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.

Keywords: Breast cancer, BRCA genes, Mutation

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).

For the detection of mutation in the extracted DNA, was used Pronto BRCA kit (Pronto Diagnostics, Israel) [22], which detects Single Nucleotide Substitution by a single nucleotide primer extension reaction, followed by Enzyme Linked Immuno-Sorbent Assay (ELISA).

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.

REFERENCES

1. Amir Mehrgou1, Mansoureh Akouchejian*2; The importance of BRCA1 and BRCA2 genes mutations in breast cancer development; Medical Journal of the Islamic Republic of Iran (MJIRI) 15 May 2016.
2. Marchina E, Fontana MG, Speziani M, Salvi A, Ricca G, Di Lorenzo D, et al. BRCA1 and BRCA2 genetic test in high risk patients and families: counselling and management. *Oncology reports* 2010;24(6):1661-7.
3. Patmasiriwat P, Bhothisuwan K, Sinilnikova OM, Chopin S, Methakijvaroon S, Badzioch M, et al. Analysis of breast cancer susceptibility genes BRCA1 and BRCA2 in Thai familial and isolated early-onset breast and ovarian cancer. *Human mutation* 2002;20(3):230.
4. Schoumacher F, Glaus A, Mueller H, Eppenberger U, Bolliger B, Senn HJ. BRCA1/2 mutations in Swiss patients with familial or early-onset breast and ovarian cancer. *Swiss medical weekly* 2001;131(15-16):223-6.
5. Seong MW, Cho S, Noh DY, Han W, Kim SW, Park CM, et al. Comprehensive mutational analysis of BRCA1/BRCA2 for Korean breast cancer patients: evidence of a founder mutation. *Clinical genetics* 2009;76(2):152-60.
6. Tazzite A, Joughadi H, Nadifi S, Aretini P, Falaschi E, Collavoli A, et al. BRCA1 and BRCA2 germline mutations in Moroccan breast/ovarian cancer families: novel mutations and unclassified variants. *Gynecologic oncology* 2012;125(3):687- 92;
7. Parkin DM, Bray F, Ferlay J, Pisani P. Global cancer statistics, 2002. *CA: a cancer journal for clinicians* 2005;55(2):74-108.
8. Armakolas A, Ladopoulou A, Konstantopoulou I, Pararas B, Gomatos IP, Katakaki A, et al. BRCA2 gene mutations in Greek patients with familial breast cancer. *Human mutation* 2002;19(1):81-2.
9. Ayub SG, Rasool S, Ayub T, Khan SN, Wani KA, Andrabi KI. Mutational analysis of the BRCA2 gene in breast carcinoma patients of Kashmiri descent. *Molecular medicine reports* 2014;9(2):749- 53.
10. Pohlreich P, Zikan M, Stribrna J, Kleibl Z, Janatova M, Kotlas J, et al. High proportion of recurrent germline mutations in the BRCA1 gene in breast and ovarian cancer patients from the Prague area. *Breast cancer research: BCR* 2005;7(5):R728- 36.
11. Shu CA, Pike MC, Jotwani AR, et al. Uterine cancer after risk-reducing salpingo-oophorectomy without hysterectomy in women with BRCA mutations. *JAMA Oncol.* 2016;2:1434-1440.
12. Kote-Jarai Z, Leongamornlert D, Saunders E, et al. BRCA2 is a moderate penetrance gene contributing to young-onset prostate cancer: implications for genetic testing in prostate cancer patients. *Br J Cancer.* 2011;105:1230-1234.
13. Moran A, O'Hara C, Khan S, et al. Risk of cancer other than breast or ovarian in individuals with BRCA1 and BRCA2 mutations. *Fam Cancer.* 2012;11:235-242.
14. Petrucelli N, Daly MB, Pal T. BRCA1- and BRCA2-Associated Hereditary Breast and Ovarian Cancer. *GeneReviews.* Seattle, WA: University of Washington; 2016.
15. Antoniou AC, Pharoah PD, Narod S, Risch HA, Eyfjord JE, Hopper JL, et al. Breast and ovarian cancer risks to carriers of the BRCA1 5382insC and 185delAG and BRCA2 6174delT mutations: a combined analysis of 22 population based studies. *J Med Genet.* 2005; 42(7):602–3. Epub 2005/07/05. <https://doi.org/10.1136/jmg.2004.024133> PMID: 15994883; PubMed Central PMCID: PMC1736090.
16. Gronwald J, Huzarski T, Byrski B, Medrek K, Menkiszak J, Monteiro AN, et al. Cancer risks in first degree relatives of BRCA1 mutation carriers: effects of mutation and proband disease status. *J Med Genet.* 2006; 43(5):424–8. Epub 2005/10/18. <https://doi.org/10.1136/jmg.2005.036921> PMID: 16227521; PubMed Central PMCID: PMC1736090.
17. Suthers GK. Cancer risks for Australian women with a BRCA1 or a BRCA2 mutation. *ANZ J Surg.* 2007; 77(5):314–9. Epub 2007/05/15. <https://doi.org/10.1111/j.1445-2197.2007.04050.x> PMID: 17497966.
18. Chen, S., & Parmigiani, G. (2007). Meta-Analysis of BRCA1 and BRCA2 Penetrance. *Journal of Clinical Oncology*, 25(11), 1329–1333. doi:10.1200/jco.2006.09.1066
19. Hamel N, Feng BJ, Foretova L, et al. On the origin and diffusion of BRCA1 c.5266dupC (5382insC) in European populations. *Eur J Hum Genet.* 2011;19(3):300-306.
20. Kooshyar MM, Nassiri M, Mahdavi M, Doosti M, Parizadeh A. Identification of germline BRCA1 mutations among breast cancer families in Northeastern Iran. *Asian Pac J Cancer Prev.* 2013;14(7):4339-4345
21. Fackenthal JD, Olopade OI. Breast cancer risk associated with BRCA1 and BRCA2 in diverse populations. *Nat Rev Cancer* 2007;7:937–948.
22. Carmi N, Cohen D, Zvang E, Naparstek E, Deutsch V. Pronto ThromboRisk-a novel primer-extension ELISA based assay for the detection of mutations associated with increased risk for thrombophilia. *J Clin Lab Anal.* 2004;18(5):259-64.

PREVALENCE OF NASOPHARYNGEAL CARRIAGE OF STAPHYLOCOCCUS AUREUS AMONG MEDICAL PERSONAL

Tamar Didbaridze¹, Tamar Shakarashvili², Gela Arabidze³, Darejan Chikviladze⁴, Nino Didbaridze⁵, Vladimer Papava⁶, Mamuka Katsarava⁷, Teoline Bokuchava⁸

¹TSMU Microbiology Department, Associated Professor, MD, PhD (Tbilisi, Georgia)

²Epidemiologist of the clinic „Jerarsi“. MD (Tbilisi, Georgia)

³Managing director of the clinic „Jerarsi“, MD, PhD (Tbilisi, Georgia)

⁴Head of Microbiology Department, TSMU, Professor, MD, PHD, SC (Tbilisi, Georgia)

⁵TSMU Immunology Department, assistant Professor, MD, PhD (Tbilisi, Georgia)

⁶TSMU Urology Department, Assistant Professor MD, PhD (Tbilisi, Georgia)

⁷General director of the clinic „Jerarsi“, MD (Tbilisi, Georgia)

⁸Infection control specialist of the clinic „Jerarsi“, MD (Tbilisi, Georgia)

Email: ¹didbaridzet@yahoo.com; ²t.shakarashvili@jerarsi.ge; ⁵didbaridzen@yahoo.com; ⁶vld100@inbox.ru

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*, Methicillin, 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 mammals(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 manitol-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.

REFERENCES

1. Askarian F., Ajayi C., Hanssen A.-M., van Sorge N. M., Pettersen I., Diep D. B., et al. (2016). *The interaction between Staphylococcus aureus SdrD and desmoglein 1 is important for adhesion to host cells. Sci. Rep.* **6**:22134. 10.1038/srep22134
2. Burgey C., Kern W. V., Römer W., Rieg S. (2016). *Differential induction of innate defense antimicrobial peptides in primary nasal epithelial cells upon stimulation with inflammatory cytokines, Th17 cytokines or bacterial conditioned medium from Staphylococcus aureus isolates. Microb. Pathog.* **90** 69–77. 10.1016/j.micpath.2015.11.023
3. De Jonge S., Atema J. J., Gans S., Boormeester M. A., Gomes S. M., Solomkin J. S., et al. (2016). *Surgical site infections 1 New WHO recommendations on preoperative measures for surgical site infection prevention: an evidence-based global perspective. Lancet Infect. Dis.* **16** e276–e287. 10.1016/S1473-3099(16)30398-X
4. Hayes S. M., Howlin R., Johnston D. A., Webb J. S., Clarke S. C., Stoodley P., et al. (2015). *Intracellular residency of Staphylococcus aureus within mast cells in nasal polyps: a novel observation. J. Allergy Clin. Immunol.* **135** 1648–1651.e5. 10.1016/j.jaci.2014.12.1929
5. Kaspar U., Kriegeskorte A., Schubert T., Peters G., Rudack C., Pieper D. H., et al. (2016). *The culturome of the human nose habitats reveals individual bacterial fingerprint patterns. Environ. Microbiol.* **18** 2130–2142. 10.1111/1462-2920.12891
6. Boada A, Almeda J, Grenzner E, Pons-Vigués M, Morros R, Juvé R, et al. Prevalencia de portadores nasales de Staphylococcus aureus y Streptococcus pneumoniae en atención primaria y factores asociados a la colonización. *Enferm Infecc Microbiol Clin.* 2015;**33**(7):451–457. doi: 10.1016/j.eimc.2014.10.014.
7. Price JR, Cole K, Bexley A, Kostiou V, Eyre DW, Golubchik T, et al. Transmission of *Staphylococcus aureus* between health-care workers, the environment, and patients in an intensive care unit: a longitudinal cohort study based on whole-genome sequencing. *Lancet Infect Dis.* 2017;
8. Garcia C, Acuña-Villaorduña A, Dulanto A, Vandendriessche S, Hallin M, Jacobs J, et al. Dynamics of nasal carriage of methicillin-resistant *Staphylococcus aureus* among healthcare workers in a tertiary-care hospital in Peru. *Eur J Clin Microbiol Infect Dis.* 2016;**35**(1):89–93. doi: 10.1007/s10096-015-2512-9.
9. Saadatian-Elahi M, Tristan A, Laurent F, Rasigade J-P, Bouchiat C, Ranc A-G, et al. Basic Rules of Hygiene Protect Health Care and Lab Workers from Nasal Colonization by *Staphylococcus aureus*: An International Cross-Sectional Study. *PLoS One.* 2013;**8**(12):e82851. doi: 10.1371/journal.pone.0082851.
10. Zipperer A, Konnerth MC, Laux C, Berscheid A, Janek D, Weidenmaier C, et al. Human commensals producing a novel antibiotic impair pathogen colonization. *Nature.* 2016;**535**(7613):511–516. doi: 10.1038/nature18634.
11. Khanal R, Sah P, Lamichhane P, Lamsal A, Upadhaya S, Pahwa VK, et al. Nasal carriage of methicillin resistant Staphylococcus aureus among health care workers at a tertiary care hospital in Western Nepal. *Antimicrob Resist Infect Control.* 2015;**4**(1):39. doi: 10.1186/s13756-015-0082-3.
12. Pant ND, Sharma M. Carriage of methicillin resistant Staphylococcus aureus and awareness of infection control among health care workers working in intensive care unit of a hospital in Nepal. *Braz J Infect Dis.* 2016;**20**(2):218–219. doi: 10.1016/j.bjid.2015.11.009.
13. Munir AH, Shoaib SL. Frequency of methicillin resistant staphylococcus aureus (mrsa) colonization amongst hospital staff in teaching hospitals of Peshawar. *J Med Sci.* 2016;**24**(4):194–198.
14. Shibabaw A, Abebe T, Mihret A. Nasal carriage rate of methicillin resistant Staphylococcus aureus among Dessie Referral Hospital health care workers; Dessie, Northeast Ethiopia. *Antimicrob Resist Infect Control.* 2013;**2**(1):25. doi: 10.1186/2047-2994-2-25
15. Kaibni MH, Farraj MA, Adwan K, Essawi TA. Community-acquired methicillin-resistant Staphylococcus aureus in Palestine. *J Med Microbiol.* 2009;**58**(5):644–647. doi: 10.1099/jmm.0.007617-0.

EFFECT OF VITAMIN D DEFICIENCY ON SEMEN QUALITY

Vladimer Papava¹, Tamar Didbaridze², Avtandil Imedadze³, Valeri Kvakhajelidze⁴, Leli Shanidze⁵, Nino Pirtskhelani⁶

¹TSMU Urology Department, assistant professor, MD, PhD(Tbilisi, Georgia)

²TSMU Microbiology Department, associated professor, MD, PhD(Tbilisi, Georgia)

³TSMU Urology Department, associated professor, MD, PhD, (Tbilisi, Georgia)

⁴TSMU the first university clinic, Urologist, MD(Tbilisi, Georgia)

⁵Manager of the Georgian-Austrian Medical Centre, Lab DoctorMD, PhD (Tbilisi, Georgia)

⁶TSMU. Associated professor of Department of Molecular and Medical Genetics (Tbilisi, Georgia)

E.mail ¹vld100@inbox.ru; ²didbaridzet@yahoo.com; ⁵leli-shani@mail.ru; ⁶ninopirtskhelani@yahoo.com

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 complains 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 dynamycs 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 influensng male fertility. Additional studies are pressingly needed to confirm a causal relationship and to investigate the potential therapeutic benefit of vitamin D supplementation.

Keywords: VitaminD, 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 maintainence 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, phenobarbitol 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 ,spermogramme (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 influensing male fertility.Additional studies are pressingly needed to confirm a causal relationship and to investigate the potencial therapeutic benefit of vitamin D supplementation.

REFERENCES

1. Aleyasin A, Hosseini MA, Mahdavi A, et al. Predictive value of the level of vitamin D in follicular fluid on the outcome of assisted reproductive technology. *Eur J Obstet Gynecol Reprod Biol.* 2011;159:132-7.
2. Firouzabadi R, Rahmani E, Rahsepar M, et al. Value of follicular fluid vitamin D in predicting the pregnancy rate in an IVF program. *Arch Gynecol Obstet.* 2014;289:201-6.
3. Jensen MB, Nielsen JE, Jørgensen A, et al. Vitamin D receptor and vitamin D metabolizing enzymes are expressed in the human male reproductive tract. *Hum Reprod.* 2010;25:1303-11.
4. Jensen MB, Bjerrum PJ, Jessen TE, et al. Vitamin D is positively associated with sperm motility and increases intracellular calcium in human spermatozoa. *Hum Reprod.* 2011;26:1307-17.
5. Ozkan S, Jindal S, Greenseid K, et al. Replete vitamin D stores predict reproductive success following *in vitro*fertilization. *Fertil Steril.* 2010;94:1314-9.
6. Rudick B, Ingles S, Chung K, et al. Characterizing the influence of vitamin D levels on IVF outcomes. *Hum Reprod.* 2012;27:3321-7.
7. Tangpricha V. Vitamin D deficiency and related disorders: Medscape.
8. Anifandis GM, Dafopoulos K, Messini CI, et al. Prognostic value of follicular fluid 25-OH vitamin D and glucose levels in the IVF outcome. *Reprod Biol Endocrinol.* 2010;8:91-5.
9. Li L, Schriock, E, Dougall K, et al. Conference abstracts. *Fertility Weekly.* 2012;12:17.
10. Rainer D, Davis E, Peck J, et al. Conference abstracts. *Fertility Weekly.* 2012:13-17.
11. Stanford JB. What is the true prevalence of infertility? *Fertil Steril.* 2013;99:1201-2.
12. Dabrowski FA, Grzechocinska B, Wielgos M. The role of vitamin D in reproductive health: A Trojan horse or the golden fleece? *Nutrients.* 2015;7:4139-53.
13. Blomberg Jensen M, Nielsen JE, Jørgensen A, Rajpert-De Meyts E, Kristensen DM, Jørgensen N et al. Vitamin D receptor and vitamin D metabolizing enzymes are expressed in the human male reproductive tract. *Hum Reprod* 2010;25:1303-11. 4.
14. Jensen MB. Vitamin D and male reproduction. *Nature reviews Endocrinology* 2014;10:175-86.

EXPERIENCE OF THE USE OF INVASIVE METHODS OF PRENATAL DIAGNOSTICS

Aytakin Hasanova

Senior teacher, Department of medical biology and genetics, Azerbaijan Medical University.

Email: aytakin_hasanova@mail.ru

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.

РЕЗЮМЕ

Статья обеспечивает анализ результатов пренатальной диагностики (174 случая) выполненный в Учебно-Хирургическом Клинике АМУ и Центре генетической диагностики "AFGEN" за 2015-2017. Хромосомные аномалии были обнаружены в 5,1% случаев. Наиболее частой аномалией на собственном материале была трисомия XXI (Болезнь Дауна), на втором месте оказались сбалансированные транслокации, на третьем – синдром Эдвардса. На основе результатов было указано необходимость более широкого применения пренатальной диагностики в регионе. Только таким образом можно своевременно выявить хромосомные аномалии у плода и предупредить рождение детей с грубыми пороками развития.

Ключевые слова: хромосомные аномалии, кордоцентез, аспирация ворсин хориона, биопсия плаценты.

REZÜME

Məqalədə 2015-2017-ci illər ərzində ATU-nun Tədris Cərrahi Klinikasında və "AFGEN" genetik diaqnoz mərkəzində aparılan prenatal diaqnostikanın (174 halda) nəticələrinin təhlili verilmişdir. 5,1% halda xromosom anomaliyaları aşkar olunmuşdur. Ən çox rast gəlinən anomaliya trisomiya XXI (Daun xəstəliyi), II yerdə balanslaşmış translokasiyalar, III yerdə Edvards sindromu olmuşdur. Nəticələrə əsaslanaraq müəllif prenatal diaqnostikanın tətbiqinin genişləndirilməsinin vacibliyini göstərmişdir. Qeyd etmişdir ki, ancaq bu yolla döldə xromosom anomaliyalarını vaxtında aşkar etmək və inkişaf qüsuru olan uşaqların doğulmasının qarşısını almaq mümkündür.

Açar sözlər: xromosom anomaliyaları, kordosintez, xorion xovlarının aspirasiyası, placentanın biopsiyası

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 technologies, 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 anesthesia. 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.

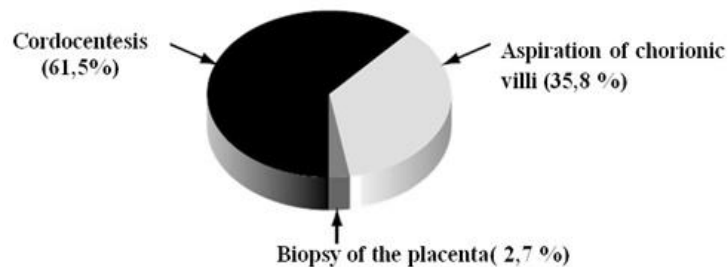


Table 1

Indications for prenatal karyotyping

Indications	Year			Total	
	2015	2016	2017	Number	%
Age of pregnant women over 35 years old	17	27	19	63	36,2
Biochemical markers	5	12	19	36	20,6
Gross developmental malformations	9	11	10	30	17,2
Markers of chromosomal abnormalities	3	12	4	19	10,9
Ultrasound markers	4	3	4	11	6,3
Child with Down's Disease in the family	3	5	1	9	5,1
Parents – carriers of chromosomal anomalies	1	2	3	6	3,4

Table 2

The revealed chromosomal anomalies

Anomalies	Year			Total	
	2015	2016	2017	Number	%
Down's syndrome (trisomy XXI)	2	1	0	3	1,7
Balanced translocations	1	1	0	2	1,1
Edwards syndrome	0	1	0	1	0,5
Shereshevsky-Turner syndrome	1	0	0	1	0,5
Others	0	1	1	2	1,1

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

1. Medvedev M.V Prenatal diagnosis of congenital malformations in early pregnancy. - Moscow: The Real Time, 2000.
2. Klimova M.I., Fedotov V.P. // Prenatal Diagnosis - Moscow: The Real Time, 1999, vol. 2. - P. 112-118.
3. Chen S. N., Cilingiroglu M., Todd J., et al. // BMC Med. Genet. 2009, vol. 10 - P.111.
4. Nicolaides K.H., Spencer K., Snijders R.J.M. The 11-13+6 weeks scan. - London.: Fetal Medicine Foundation, 2004. – P. 112 .
5. Wapner R.J., Martin C.L., Levy B. et al. Chromosomal karyotyping for prenatal diagnosis. // N. Engl. J. Med. 2012. № 367. P. 2175-2178.

MULTIORGAN FAILURE INDUCED BY THROMBOTIC MICROANGIOPATHY

Guliko Kiliptari¹, Merab Sutidze²

¹Head of critical care department of university clinic after N.Kipshidze. MD, PhD., Prof. of TSMU (Tbilisi, Georgia).

²Head of neurology department of university clinic after acad. Kipshidze. prof. (Tbilisi, Georgia).

ABSTRACT

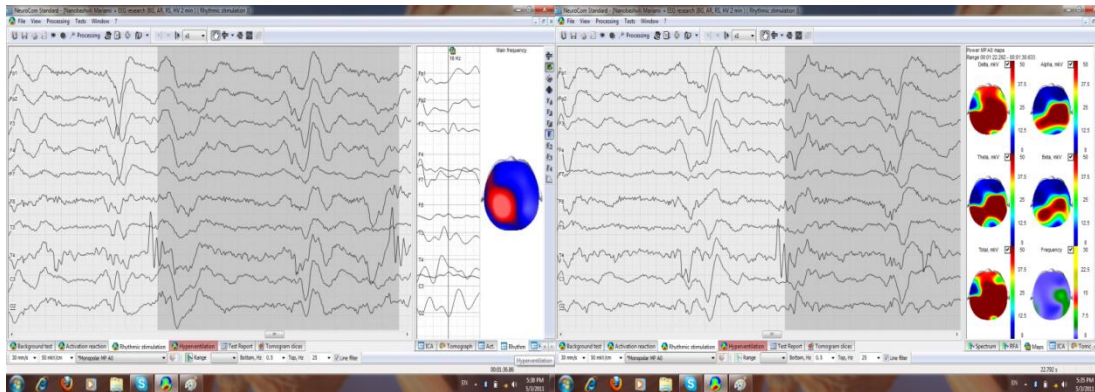
Introduction—HUS and TTP is syndromes, characterized with microangiopathic hemolytic anemia, thrombocytopenia, acute renal failure, severe neurological violations. Bloody diarrhea is caused with E.Coli(0157:H7). In Georgia revealed other strain –E.coli(0104:H4). We presented case when illness started 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 week 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 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 pre-morbid 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

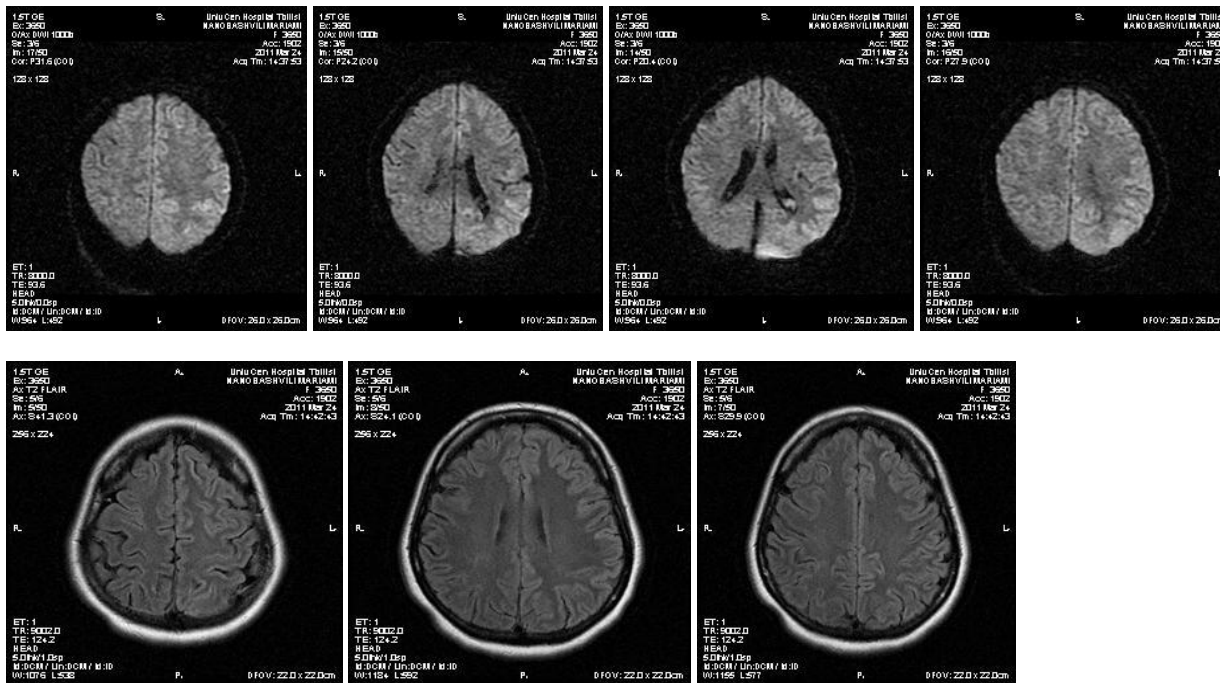
Introduction—HUS and TTP is syndromes, characterized with microangiopathic hemolytic anemia, thrombocytopenia, acute renal failure, severe neurological violations. Bloody diarrhea is caused with E.Coli(0157:H7). In Georgia revealed other strain –E.coli(0104:H4). We presented case when illness started 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 week 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 years 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 ventricles 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)



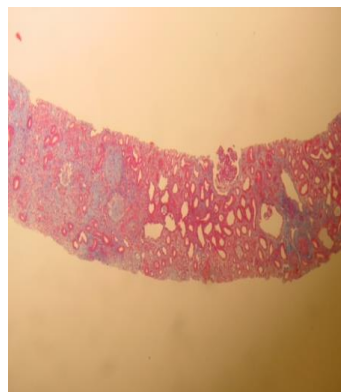
Pict.1 EEG

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.

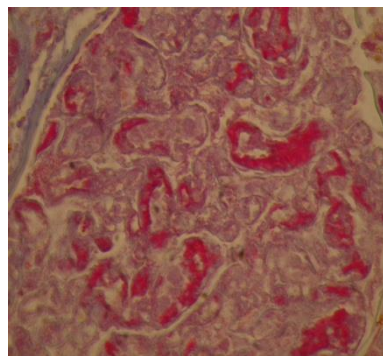


Pict.2 BBrain MRI

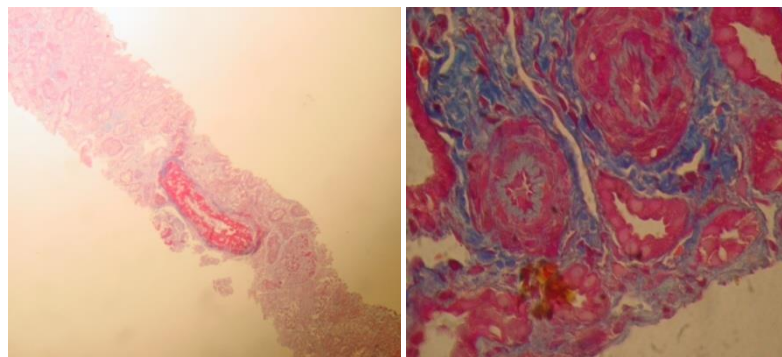
At first creatinine ,LDH and urea level was high(6.72mg/dl.198 mg/dl,3916 u/l). After renal biopsy was found 20 glomerulus,in 9 glomerulus was discovered necrotic changing(focal cortical necrosis) ,in 5 glomerulus --- complex replication of basement



Pict.3 Membrane and enlargement of mesangial matrix (pict 3,4)

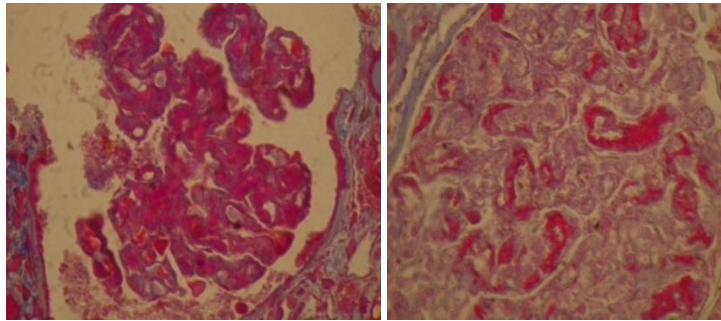


Pict.3 Renal biopsy material



Pict. 4 Renal biopsy material

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



Pict.5 Renal biopsy material.

In arterial wals 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 0.46u/ml,slightly decreased,and antibody was not found .ADAMTS inhibitor –3.5 u/ml(N<12u/l).

At first platelets count was decreased—80000/mm³,then platelets count returned to normal value.Immunity parameters was normal (schedule1)

CD3 lymphocytes—65%	IgG 14.3g/l(N8-18)
CD4 lymphocytes –45%(N29-57)	IgA 3.4g/l(N 0.9-2.5)
CD4—abs.number—1431(N404—1612)	IgM—0.2g/l(N0.6—2.8)
CD8lymphocytes—20%(N11-38)	IgE—9.19 g/l (N<200)

Schedule 1 Immunological tests

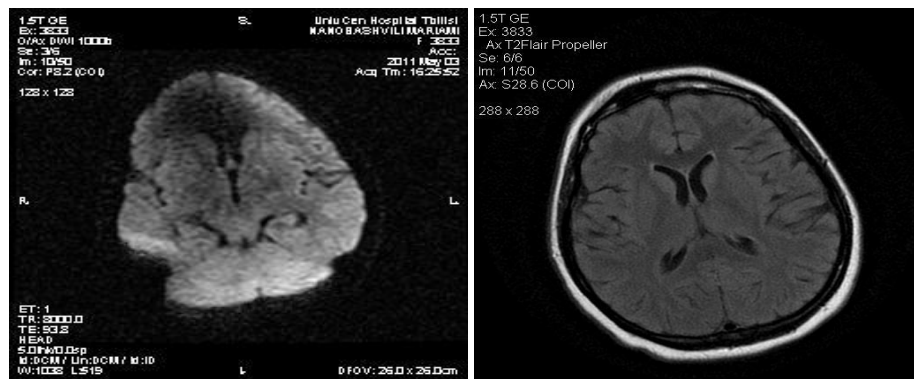
Antinuclear antibody was not found .In peripheral blood revealed leucocytosis: white blood cell count-- 41000/mm³,anisocytosis,shisocytosis ,poikilocytosis,Neutrophils count 31.4mg/d l

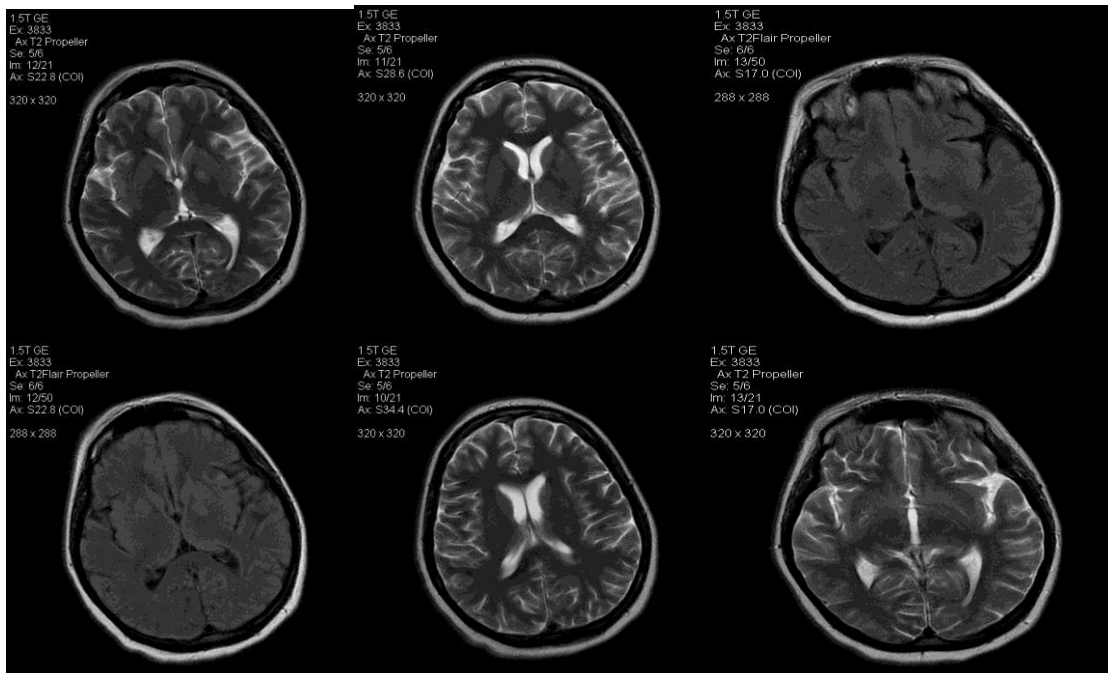
Secondary coagulation hemostasis was changed : decreased antithrombin III, increased soluble fibrin-monomer complex(sched.2)

FDP --21mg%	AT-III----70%
D-dimer 9000 ng/ml(<500ng/ml)	

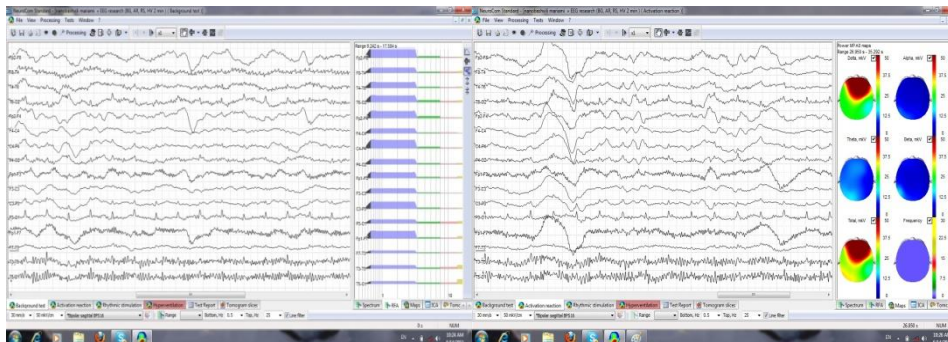
Schedule 2 Tests of coagulation hemostasis

Chest Ct scan ---detected pneumonia,abdominal CT scan---fluid accumulation .Brain MRI—detected (T2,Flair) ischemic damage in left subcortical nodes (pict 6)

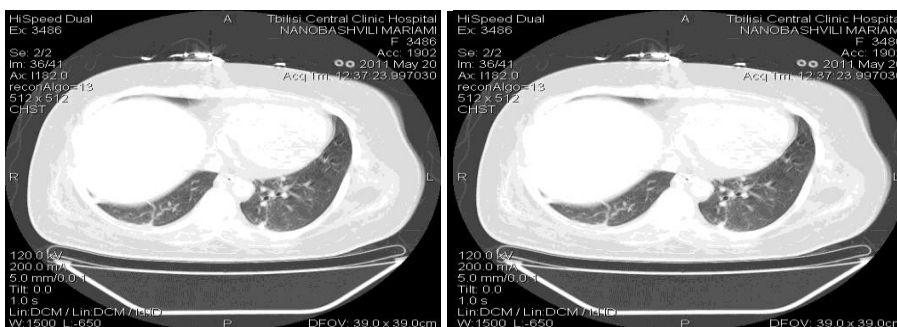




Pict. 6 Brain MRI
 EEG—detected low amplitude waves ,without specific pathological activity (pict7)

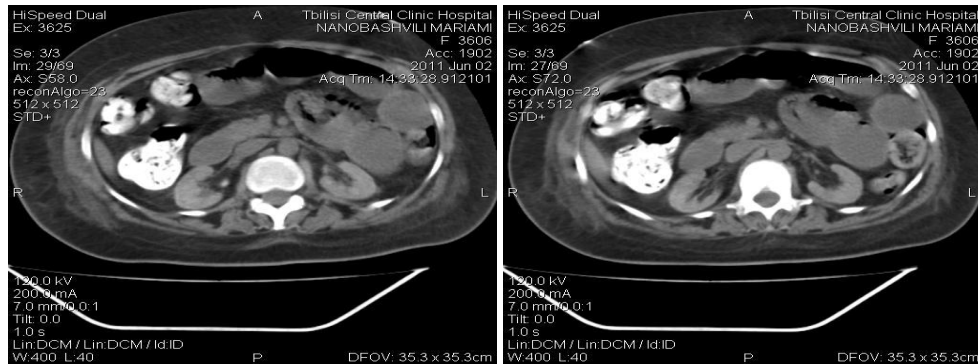


Pict 7. EEG
 After 35 day from hospitalization neurological state improved, awareness was adequate,without cognitive violations.lasted renal replacement therapy . Chest Ct scan (pict8) detected improument of lung radiological findings.

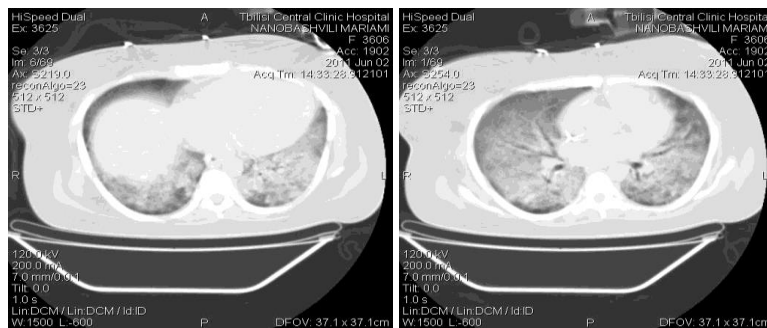


Pict 8. Chest CT scan

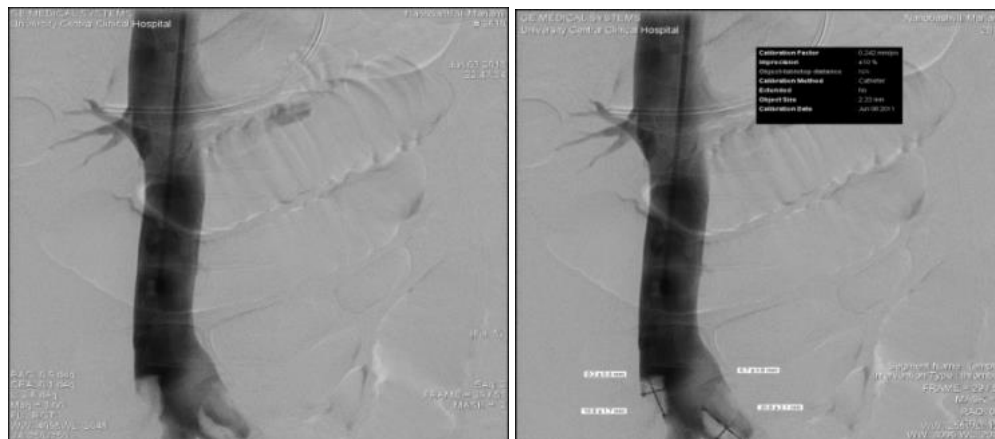
Patient was extubated ,parameters of spontaneous breathing was normal . After one weak revealed abdominal distension,vomiting .Abdomen CT scan and angiography was found bowel distension, dynamic obstruction and excluded mezenteric thrombosis. (pict 9)

**Pict 9. Abdomen CT scan.**

Later patient state was aggravated ,developed acute respiratory failure .Chest CT scan detected bilateral pneumonia.(pict 10)

**Pict10. Chest CT scan.**

Low extremity vessels ultrasonography revealed thrombus in common femoral ,deep femoral vein .Despite suitable treatment ,ventilation parametres worsened.Echocardiography revealed dilation of right chambers ,increased PASP(65mm.hg).Low extremity vessels ultrasonography revealed thrombus in left external iliac and great saphenous vein.After cavagrapy in vena cava bifurcation area detected filling defects- thrombus --8.2X16.8. and 6.7X 20.8 (pict 11).In infrarenal part of inferior vena cava was performed placement of vena cava filter(Vena Teech LP,B.Braun Medical)



Pict 11. Cavagraphy. Placement of filter
 Regardless of suitable treatment developed severe obstructive shock .

Discussion: disease started with bloody diarrhea, vomiting .After 7 day from onset patient was admitted in hospital . Identification of microb was not possible with Feces bacteriological analysis .D iagnosis 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 vires (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 glomerulus was found fibrin/fibrinogen deposits . Reason of renal failure was thrombotic microangiopathy ,activation of platelets after endothelium damage and activation of coagulation hemostasis. In several glomerulus detected 35% necrosed tubules and remaining part of tubuls was atrophic . Patient was treated with renal replacement therapy , plasma exchange therapy. Causes of coma was thrombotic 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 changings. 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 deficient. Among other causes, disseminated intravascular coagulation could also cause microangiopathic hemolytic anemia and thrombocytopenia, but it was distinguished by laboratory results.

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 premonitory 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 начиналось с кровавой диареей, рвоты. По фекальным бактериологическим анализам микробов не выявлено. Бессознательное состояние проявляется после госпитализации с генерализованными припадками. МРТ выявила повреждения височной и теменной коры, затем левое ишемическое повреждение левых подкорковых 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 ПДФД (также увеличился Д-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 был ГУС. 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

დასკვნა: ჩვენ განვიხილეთ შემთხვევა, როცა დაავადება დაიწყო ღიარებით, დებინებით თუმცა მიმდინარეობდა არატიპიურად. განავლის ბაქტერიოლოგიური ანალიზით მიკრობი არ გამოვლინდა. ცნობიერების დაქვეითება გამოიხატა ჰოსპიტალიზაციის შემდეგ, გენერალიზებული კრუნჩხვითი განტვირთვის საპასუხოდა აღინიშნა მარჯვენამხრივი ჰემიპლეგია პაციენტთან დაწყებული იქნა ფილტვების ხელოვნური ვენტილაცია. თავის ტვინის მაგნიტურ-ბირთვული რეზონანსით გამოვლინდა მარცხნივ, თხემ-საფეთქლის ქერქული დაზიანება, ხოლო მოგვიანებით მარცხნივ ქერქვეშა კვანძების იშემიური დაზიანება, რაც წარმოადგენდა კიდევ გულყრების მიზეზს. დასაწყისიდანვე მაღალი იყო ლაქტატდეჰიდროგენაზას დონე, დაქვეითებული იყო ჰაპტოგლობინი, რაც მიუთითებდა მიკროანგიოპათიურ ჰემოლიზს. პერიფერიული სისხლის ნაცხში აღინიშნებოდა ერთორციტების ფრაგმენტაცია. ზომიერად იყო დაქვეითებული თრომბოციტების რაოდენობა. საყურადღებო იყო ფიბრინის დეგრადაციის პროდუქტების, მათ შორის D დიმერის მკვეთრი მატება ცაქედან გამომდინარე კომის და რენული უკმარისობის გენეზს წარმოადგენდა როგორც თრომბოზული მიკროანგიოპათია ენდოთელიუმის დაზიანებით გამოწვეული თრომბოციტების და კოაგულაციური კასკადის აქტივაცია, ისე სხვა თანმხლები მიზეზები. ამ პაციენტში, მიუხედავად იმისა, რომ ცენტრალურ ნერვულ სისტემაში ღრმა ცვლილებებს ჰქონდა ადგილი, **ADAMTS13** აქტივობა არ დაქვეითებულა, მკურნალობა, მათ შორის პლაზმაფერეზი, იყო ეფექტური, რაც გულისხმობდა, რომ პაციენტს ჰქონდა ჰემოლიზურ -ურემული სინდრომი, ხოლო კლინიკური ნიშნების ადეკვატური შეფასება, როგორც პრემორბიდულ პერიოდში, ისე ჰოსპიტალიზაციის შემდეგ, ცალკეული სისტემების პერმანენტული მონიტორინგი და დარღვეული ფუნქციის დროული რეგულირება გამოჯანმრთელების შანსს იძლევა.

REFERENCES

1. Atypical Hemolytic-Uremic Syndrome: A Case Report and Literature Review
2. Anti-Factor H Autoantibody-Associated Hemolytic Uremic Syndrome: Review of Literature of the Autoimmune Form of HUS. Marie-Agnes Dragon-Durey, Caroline Blanc, Nature reviews Nephrology 8, 622-633, November 2012, doi:10.1038/neph. 2012.
3. Platelet count and prothrombin time help distinguish thrombotic thrombocytopenic purpura-hemolytic uremic syndrome from DIC in adults. PARK IA-AM j Clin Pathol-01-MAR-2010;133(3):460-5
4. Therapeutic plasma exchange in patients with TTP-HUS :the 10 year experience of a single center. Kirn - Hematology -01-MAR-2011;16(2):73-9
5. Atypical hemolytic uremic syndrome and thrombotic thrombocytopenic purpura: clinically differentiating the thrombotic microangiopathies. Nester CM, Thomas CP. Eur J Intern Med. 2013;24(6):486-91. [PubMed]
6. Diagnostic criteria for atypical hemolytic uremic syndrome proposed by the Joint Committee of the Japanese Society of Nephrology and the Japan Pediatric Society. Clin Exp Nephrol. 2014;18(1):4-9. [PubMed]
7. Neurological involvement in children with E. coli O104:H4-induced hemolytic uremic syndrome. Bauer A, Loos S, Wehrmann C, et al. Pediatr Nephrol 2014; 29:1607.
8. Thrombotic microangiopathy (TTP and HUS): advances in differentiation and diagnosis. Schneide M-Clin Lab Sci-oi-oct-2007;20(4):216-20
9. Interventions for hemolytic-uremic syndrome and thrombotic-thrombocytopenic purpura, a systematic review of randomized controlled trials. Michaelem-AM j Kidney dis-01-Feb-2009;53(2):259-72
10. .A Case Report and Literature Review of Eculizumab Withdrawal in Atypical Hemolytic Uremic Syndrome. Borja Quiroga ,Alberto de Lorenzo ,Cristina Vega ,Fernando de Alvaro, Am J Case Rep, 2016; 17: 950-956

11. Acute neurological involvement in diarrhea-associated hemolytic uremic syndrome. Nathanson S, Kwon T, Elmaleh M, et al. Clin J Am Soc Nephrol 2010; 5:1218.
12. Atypical hemolytic uremic syndrome-Kavanagh D-Curr opin hematol-01-Sep-2010;15(5):432-8
13. Is there a shared pathophysiology for TTP and HUS?-Desch K-j.AM Soc Nephrol-01 sep-2007;18(9):2457-60
14. HUS and atypical HUS. Blood. 2017 May 25; 129(21): 2847–2856.
15. oh CH, Alhamdi Y, Abrams ST. Current pathological and laboratory considerations in the diagnosis of disseminated intravascular coagulation. Ann Lab Med. 2016;36(6):505-512. [PMC free article] [PubMed] [Google Scholar]
16. 16.Nester CM, Barbour T, de Cordoba SR, et al. Atypical aHUS: State of the art. Mol Immunol. 2015;67(1):31-42. [PubMed] [Google Scholar]
17. Kielstein JT, Beutel G, Fleig S, et al. ; Collaborators of the DGfN STEC-HUS registry. Best supportive care and therapeutic plasma exchange with or without eculizumab in Shiga-toxin-producing E. coli O104:H4 induced haemolytic-uraemic syndrome: an analysis of the German STEC-HUS registry. Nephrol Dial Transplant. 2012;27(10):3807-3815. [PubMed] [Google Scholar]
18. 18.Scully M, Goodship T. How I treat thrombotic thrombocytopenic purpura and atypical haemolytic uraemic syndrome. Br J Haematol. 2014;164(6):759-766. [PMC free article] [PubMed] [Google Scholar]
19. Ariceta G, Besbas N, Johnson S, Karpman D, Landau D, Licht C, Loirat C, Pecoraro C, Taylor CM, Van de Kar N, Vandewalle J, Zimmerhackl LB. Guideline for the investigation and initial therapy of diarrhea-negative hemolytic uremic syndrome. European Paediatric Study Group for HUS. Pediatr Nephrol. 2009; 24:687-696 [PubMed] [Google Scholar]

EDITORIAL BOARD**Honorary Editors:****Archil Prangishvili**

Georgian Technical University. Doctor of Technical Sciences. Full Professor.

Avtandil Silagadze

Correspondent committee-man of National Academy of Georgia. Tbilisi University of International Relationships. Doctor of Economical Sciences. Full Professor.

Badri Gechbaia

Batumi Shota Rustaveli State University. Head of Business Administration Department. PhD in Economics, Associate Professor.

Davit Narmania

Tbilisi State University (TSU), Chair of Management and Administration Department. Professor.

Lamara Qoqjauri

Georgian Technical University. Member of Academy of Economical Sciences. Member of New York Academy of Sciences. Director of first English school named "Nino". Doctor of Economical Sciences. Full Professor.

Lia Eliava

Kutaisi University. Economic expert in the sphere of economy and current events in financial sector. Full Professor. PhD in Business Administration.

Liana Ptaschenko

Poltava National Technical University named Yuri Kondratyuk. Doctor of Economical Sciences. Professor

Paata Koguashvili

Georgian Technical University. Doctor of Economical Sciences. Full Professor. Academician. Member of Georgia Academy of Sciences of Agriculture.

Sergei S. Padalka

Doctor of Historical Sciences, Professor, Senior Researcher at the Department of Contemporary History and Policy at the Institute of History of Ukraine National Academy of Sciences of Ukraine.

Tamar Didbaridze

Tbilisi State Medical University, First University Clinic. PhD in MD.

International Advisory and Editorial Board**Australia****Shahid Khan**

Monash Business School. Sessional Lecturer. PhD in Management.

Vikash Ramiah

UNISA School of Commerce. Associate Professor. PhD in Applied Finance.

Azerbaijan**Abbas İsmayılov**

Azerbaijan State Agricultural University. Associate Professor. PhD in Biology Science.

Amir V. Aliyev

Ministry of Health of Azerbaijan Republic Lung Diseases Department. Guba District Central Hospital Head of Department. PhD of Medicine

Aytekin Hasanova

Azerbaijan Medical University. I Preventive Medicine Faculty. Deputy of Dean. PhD in Medicine.

Araz Manucheri-Lalen

Associated Professor, PhD Department of Psychiatry, Azerbaijan Medical University.

Azer K. Mustafayev

Turan Medical Clinic. Cardiologist. PhD in Medicine. Azerbaijan.

Beykas Seyfulla Xidirov

Azerbaijan State Oil and Industrial University. Head of department. Doctor of Economical Sciences

Djamil Alakbarov

A researcher at the Research Institute for Lung Diseases. PhD in medicine. Azerbaijan

Elchin Suleymanov

Baku Engineering University. Associate Professor of Department Finance. PhD in Economy.

Elmira Valiyeva

Azerbaijan State Agrarian University Senior teacher of the Chair of Languages.

Elshan Mahmud Hajizade

Cabinet of Ministers of Azerbaijan Republic. Head of department. Doctor of Economic Science. Professor.

Emin Mammadzade

Institute of Economics of ANAS. Economic institute. Phd in Economy. Associate professor.

Farda Imanov

ANAS. Geography Institute. Doctor of Geography Sciences. Professor.

Garib Mamedov

National Academy of Sciences of Azerbaijan Republic. Academician-secretary of the Department of Agrarian Sciences of ANAS, Academician of ANAS. Doctor of Biological Sciences.

Heyder Guliyev

Azerbaijan State Agricultural University. English Teacher. PhD in Philology

Ibrahim Gabibov

Azerbaijan State Oil and Industrial University. Doctor of Technical Sciences. Professor

Jamala Mursalova

Azerbaijan National Academy of Sciences. Genetic Resources Institute. PhD BS.

Lala Bekirova

Azerbaijan State Oil and Industrial University. Azerbaijan National Aviation Academy. PhD.TS

Leyla I. Djafarova

Clinic "Medium" Baku. Doctor of Medical Sciences. Professor

Mahmud Hajizade

Sector Director of State Fund for Information Technology Development of the Ministry of Communications and High Technologies of the Republic of Azerbaijan, Ministry of Transport, Communications and High Technologies of the Republic of Azerbaijan.

Rafiq Gurbanov

Azerbaijan State Oil and Industrial University. Doctor of Technical Sciences. Professor

Ramiz Gurbanov

Azerbaijan State Oil and Industrial University. Doctor of Technical Sciences. Professor

Ramiz Mammadov

ANAS. Geography Institute. Doctor of Technical Sciences. Professor. Academician.

Rashad G. Abishov

Dental Implant Aesthetic Center Harbor Hospital, Azerbaijan State Doctors Improvement Institute. PhD. Azerbaijan.

Rena Gurbanova

Azerbaijan State Oil and Industrial University. Associate Professor. PhD in Chemistry.

Sadagat V. Ibrahimova

Azerbaijan State Oil and Industrial University. Academician Doctor of Economical Sciences. PhD

Samira Mammadova

Sumgayit State University. Senior Teacher of History and its teaching methodology in History Faculty. PhD in History.

Sayyara Ibadullayeva

Institute of Botany. National Academy of Sciences. Professor. PhD in Biological Sciences.

Sevinj Mahmudova

Azerbaijan State Agrarian University. PhD. Researcher.

Tarbiz Nasrulla Aliyev

Innovation Center of National Academy of Azerbaijan Republic. The deputy of director. Doctor of Economical Sciences. Professor

Tariel Omarov

Azerbaijan Medical University. Department of surgical diseases. PhD in Medicine

Tofiq Ahmadov

Azerbaijan State Oil and Industrial University. Doctor of Geology and Mineralogy Sciences. Professor

Tofiq Yusif Baharov

Azerbaijan State Oil Company. Scientific Research Institute. Head of department. Doctor of Geology and Mineralogy Sciences

Tofiq Samadov

Azerbaijan State Oil and Industrial University. Doctor of Technical Sciences. Professor.

Tubukhanum Gasimzadeh

Azerbaijan National Academy of Sciences. Institute of Dendrology of Azerbaijan NAS. Leading researcher PHD in Biological Sciences, Associate Professor.

Vusal Ismailov

"Caspian International Hospital". Orthopedics Traumatology Expert. MD. Azerbaijan.

Zakir Aliyev

RAPVHN and MAEP. PhD in Agricultural Sciences, Professor of RAE academician.

Zakir Eminov

ANAS. Geography Institute. Doctor of Geography Sciences. Associate Professor.

Bahrain

Osama Al Mahdi

University of Bahrain, Bahrain Teachers College. Assistant Professor. PhD, Elementary Education and Teaching

Bangladesh

Muhammad Mahboob Ali

Daffodil International University. Department of Business Administration . Professor.

Belarus**Helena Kallaur**

Polesky State University. MD. Associate Professor

Tanua Teterinets

Belarusian State University of Agricultural Technology. Doctor of Economical Sciences. Associate Professor.

Vladimir Yanchuk

Belarus State University. Professor. Academy of Postgraduate Education. PhD in Social Psychology.

Bosna & Hercegovina**Igor Jurčić**

Head of marketing Business group for VSE/SME. Telecommunication Business and Management.

Ratko Pavlovich

University of East Sarajevo. Faculty of Physical Education and Sport. Full Professor. PhD in Sport Sciences.

Brazil**Paulo Cesar Chagas Rodrigues**

Federal Institute of Education, Science and Technology of Sao Paulo. Professor. PhD in Mechanical Engineering.

Bulgaria**Desislava Stoilova**

South-West University "Neofit Rilski". Vice Dean of Faculty of Economics. Associate Professor. PhD in Finance.

Eva Tsvetanova

Tsenov Academy of Economics, Svishtov, Bulgaria Department of Strategic Planning. Head assistant professor. PhD in Economy.

Jean-François Rouge

University of technology Sofia. Professor researcher. PhD in Management.

Jean-François Rouge

University of Technology, Sofia. PhD in Business law

Milena Kirova

Sofia University "St. Kliment Ohridski". Professor. PhD in Philology.

Croatia**Dragan Čišić**

University of Rijeka. Faculty of Maritime Studies. Full professor. PhD in Logistics, e-business.

Egypt**Abdelbadeh Salem**

Professor at Faculty of Computer and Information Science, Ain Shams University.

France**Michael Schaefer**

L'Association 1901 SEPIKE International, Président at SEPIKE International. PhD of Economical Sciences

Georgia**Anzor G. Abzalava**

Georgian Technical University. Doctor of Economical Sciences. Full Professor

Dali Sologashvili

State University named Akaki Tsereteli. Doctor of Economical Sciences. Full Professor

Dali Osepashvili

Professor of Journalism and Mass Communication TSU (Tbilisi State University), Head MA Program "Media and New Technology"

Davit Tophuria

Tbilisi State Medical University. Head of International Students Academic Department, Associate Professor. PhD in HNA.

Eka Avaliani

International Black Sea University. Associate Professor. PhD in History.

Eka Darchiashvili

Tbilisi State University named after Sv. Grigol Peradze. Assistant of professor. PhD in BA.

Ekaterine Maghlakelidze

The University of Georgia, Associated professor, Business, Economics and Management School.

Enene Menabde-Jobadze

Georgian Technical University. Academical Doctor of Economics.

Eter Bukhnikashvili

Dental clinic "NGM-Innovation Dental". The doctor-stomatologist. PhD in Medicine.

Evgeni Baratashvili

Georgian Technical University. Head of Economic and Business Department. Doctor of Economical Sciences. Full Professor

George Jandieri

Georgian Technical University; Chief scientist, Institute of Cybernetics of the Georgian Academy. Full Professor

George Malashkhia

Georgian Technical University. Doctor of Economical Sciences. Full Professor.

Giorgi Kepuladze

Akaki Tsereteli State University, Faculty of Business, Law and Social Sciences, PhD in Economics. Invited teacher.

Gulnara Kiliptari

Tbilisi State Medical University. Head of ICU department. Associate professor.

Iamze Taboridze

Scientific Center of the Humanitarian Educational University, Head, PhD in Medicine. Associate professor.

Irma Makharashvili

Caucasus International University. Dean of Business Faculty. Doctor of Economical Sciences. Full Professor

Ketevan Goletiani

Batumi Navigation Teaching University. Dean of Logistics Faculty. Batumi Shota Rustaveli State University. Doctor TS, Professor.

Larisa Korghanashvili

Tbilisi State University (TSU) named Ivane Javakhsishvili. Full Professor

Lia Davitadze

Batumi Shota Rustaveli State University. Higher Education Teaching Professional. PhD in Educational Sciences.

Lia Matchavariani

Tbilisi State University (TSU) named Ivane Javakhsishvili. Full Professor, Faculty of Exact & Natural Sciences (Geography Dep.)

Loid Karchava

Doctor of Business Administration, Association Professor at the Caucasus International University, Editor-in-Chief of the international Scientific Journal "Akhali Ekonomisti" (The New Economist)

Maia Kapanadze

Georgian State University named Javakhsishvili. Doctor of Economical Sciences. Associate Professor.

Maia Matoshvili

Tbilisi State Medical University. The First University Clinic. Dermato-Venereologist. Assistant Professor. PhD in DAPS.

Mariam Darbadze

Davit Aghmashenebeli National Defense Academy of Georgia. The Head of Education Division. PhD in Biology.

Mariam Kharaishvili

Ilia State University. Assistant Professor. PhD MD.

Mariam Nanitashvili

Executive Director - Wise Development LTD (Training Centre). Associated Professor at Caucasus University. PhD in Economics

Nana Shoniya

State University of Kutaisi named Akaki Tsereteli. Doctor of Economical Sciences. Full professor

Natia Beridze

LEPL National Environmental Agency of Georgia, Invited Expert at International Relations and PR Division. PhD in Political Science.

Nelli Sichinava

Akaki Tsereteli State University. Associate. Professor. PhD

Nino Didbaridze

Microbiology and Immunology Department. Immunology Direction. Tbilisi State Medical University. PhD MD.

Nino Gogokhia

Tbilisi State Medical University. Head of Laboratory the First University Clinic. Professor

Nino Pirtskhelani

Associated Professor of Department of Molecular and Medical Genetics of Tbilisi State Medical University.

Omari Omarimu

Tbilisi State University named Iv. Javakhsishvili. Doctor of Chemical Sciences Professor

Rati Abuladze

St. Andrew the first-called Georgian University of the Patriarchate of Georgia. Faculty of Economics and Business Administration. Manager of the Faculty Quality Assurance Office. PhD in Business Administration.

Rusudan G. Kutateladze

Georgian Technical University. Doctor of Economical Sciences. Full Professor

Rusudan Sujashvili

New Vision University. School of Medicine. Professor,

Simon Nemsadze

Georgian Technical University. Doctor of Technical Sciences. Full Professor

Tamila Arnanian-Kepuladze

Akaki Tsereteli State University. Department of Economics. PhD in Economic.

Tengiz Museliani

Georgian Technical University. Academic Doctor of Technical Sciences. Associate Professor

Timuri Babunashvili

Georgian Business Academy of Science. Doctor of Economical Sciences. Full Professor.

Vladimer Papava

Tbilisi State Medical University. Assistant-Professor. PhD. MD.

Zaira Gudushauri

Georgian-Azerbaijan University named G.Aliyev. Associate Professor. PhD. ES.

Germany**Hans-Juergen Zahorka**

Assessor jur., Senior Lecturer (EU and International Law, Institutions and Economy), Chief Editor of "European Union Foreign Affairs Journal", LIBERTAS - European Institute, Rangendingen

Alexander Dilger

University of Münster. Professor of Business Economics. PhD in Economy.

Greece**Margarita Kefalaki**

Communication Institute of Greece. PhD in Cultural Communication. President of Institute.

Hungary**Nicasia Picciano**

Central European University. Department of International Relations and European Studies.

India**Federica Farneti**

University of Bologna. Department of Sociology and Business Law. Associate Professor. OhD in Economic & Management.

Prasanta Kumar Mitra

Sikkim Manipal Institute of Medical Sciences. Department of Medical Biotechnology. PhD in Biochemistry.

Samant Shant Priya

Lal Bahadur Shastri Institute of Management, New Delhi, Associate Professor in Philosophy PhD in Marketing.

Sonal Purohit

Jain University, Center for Management Studies, Assistant Professor, PhD in Business Administration, Life Insurance, Privatization.

Varadaraj Aravamudhan

Measi Institute of Management. Associate Professor. PhD in Management.

Iraq**Rana Khudhair Abbas Ahmed**

Irag, Baghdad, Alrafidain University College. Lecturer, Global Executive Administrator, Academic coordinator. PhD in Scholar (CS).

Iran**Azadeh Asgari**

Asian Economic and Social Society (AESS). Teaching English as a Second Language. PhD

Italy**Simona Epasto**

University of Macerata. Department of Political Science, Communication and International Relations. Tenured Assistant Professor in Economic and Political Geography. PhD in Economic and Political Geography

Donatella M. Viola

London School of Economics and Political Science, London, Assistant Professor in Politics and International Relations at the University of Calabria, Italy. PhD in International Relations.

Jordan**Ahmad Aljaber**

President at Gulf University. German Jordan University, Founder / Chairman of the Board. Ph.D in Computer Science

Ahmad Zamil

Middle East University (MEU). Business Administration Dept. Associate Professor. PhD Marketing

Ikhlas Ibrahim Altarawneh

Al-Huessian Bin Talal University. Business Department. Full Professor in Human Resource Management.

Asmahan Majed Altaher

Arab Academy for Banking and Financial Sciences. Associate Professor. PhD in Management Information System.

Sadeq AlHamouz

Middle East University (MEU). Head Computer Information Systems. PHD. Computer Science.

Safwan Al Salaimeh

Aqaba University. Software Engineering Department. Information Technology Faculty. Professor. PhD.

Kazakhstan

Alessandra Clementi

Nazarbayev University School of Medicine. MD, GP. Assistant Professor of Medical Practice and Family Medicine

Altinay Pozilova

Sirdarya University. Associated professor. PhD in Pedagogy Science.

Anar Mirazagalieva

Vice-Rector for Teaching and Studies – East Kazakhstan State University named S.Amanzholov

Anna Troeglazova

East Kazakhstan State University named Sarsen Amanjolov. PhD

Gulmira Zhurabekova

Marat Ospanov West-Kazakhstan State Medical Academy. Department of Human Anatomy. Associate Professor

Guzel Ishkinina

Ust-Kamenogorsk, Russian Economy University G. Plekhanov, Associate Professor, PhD in Economic science.

Marina Bobireva

West Kazakhstan State Medical University named Marat Ospanov. PhD

Niyazbek Kalimov

Kostanay Agricultural Institution. PhD

Nuriya Kharissova

State University of Karaganda. Associate Professor of Biological Science

Nikolay Kurguzov

State University of Pavlodar named S. Toraygirova. PhD. Professor.

Oleg Komarov

Pavlodar State Pedagogical Institute. Professor of Department of Economics, Law and Philosophy. PhD in Sociology,

Zhanargul Smailova

Head of the Department of Biochemistry and Chemical Disciplines named after MD, professor S.O. Tapbergenova NAC Medical University of city Semey.

Libya

Salaheddin Sharif

University of Benghazi, International Conference on Sports Medicine and Fitness, Libyan Football Federation- Benghazi PhD in Medicine (MD)

Latvia

Tatiana Tambovceva

Latvian Council of Science. Riga Technical University. Associate Professor at Riga Technical University

Lithuania

Agne Simelyte

Vilnius Gediminas Technical University, Associate professor. Phd in Social Sciences (Management)

Ieva Meidute – Kavaliauskiene

Vilnius Gediminas Technical University. Vice-dean for Scientific Research

Vilma (Kovertaitė) Musankoviene

e-Learning Technology Centre. Kaunas University of Technology. PHD

Laura Uturyte

Vilnius Gediminas Technical University (VGTU). Head of Project Manager at PI Gintarine Akademy. PhD in Economy.

Loreta (Gedminaitė) Ulvydiene

Professor of Intercultural Communication and Studies of Translation. Vilnius University. PHD

Malaysia

Anwarul Islam

The Millennium University. Department of Business Administration. Associate Professor.

Kamal Uddin

Millennium University, Department of Business Administration. Associate Professor. PhD in Business Administration.

Morocco**Mohammed Amine Balambo**

Ibn Tufail University, Aix-Marseille University. Free lance. Consultant and Trainer. PhD in Philosophy. Management Sciences, Specialty Strategy and Logistics.

Nigeria**Bhola Khan**

Yobe State University, Damaturu. Senior Lecturer and Head, Dept. of Economics. PhD in Economics.

Norway**Svitlana Holovchuk**

PhD in general pedagogics and history of pedagogics.

Pakistan**Nawaz Ahmad**

The Aga Khan University. Chief Examiner. PhD in Management.

Poland**Grzegorz Michalski**

Wroclaw University of Economics. Faculty of Engineering and Economics. PhD in economics. Assistant professor.

Kazimierz Waluch

Pawel Wlodkowic University College in Plock, Assistant Professor at the Faculty of Management. PhD in Economy.

Robert Pawel Suslo

Wroclaw Medical University, Public Health Department, Health Sciences Faculty, Adjunct Professor of Gerontology Unit. PhD MD.

Tadeusz Trocikowski

European Institute for Eastern Studies. PhD in Management Sciences.

Qatar**Mohammed Elgammal**

Qatar University. Assistant Professor in Finance. PhD in Finance

Romania**Camelia Florela Voinea**

University of Bucharest, Faculty of Political Science, Department of Political Science, International Relations and Security Studies. PhD in Political Sciences.

Odette (Buzea) Arhip

Ecological University Bucuresti. Professor at Ecological University. PhD.

Russia**Alexander A. Sazanov**

Leningrad State University named A.S. Pushkin. Doctor of Biological Sciences. Professor

Alexander N. Shendalev

State Educational Institution of Higher Education. Omsk State Transport University. Associate Professor

Andrey Latkov

Stolypin Volga Region Institute of Administration, Ranepa. Sc.D. (Economics), Ph.D. (Politics), professor,

Andrei Popov

Director "ProfConsult Group". Nizhniy Novgorod Region. PhD

Anton Mosalyov

Russian State University of Tourism and Service. Associate Professor

Carol Scott Leonard

Presidential Academy of the National Economy and Public Administration. Vice Rector. PhD, Russian History

Catrin Kolesnikova

Samara Architectural and Constructional University. PhD

Ekaterina Kozina

Siberia State Transportation University. PhD

Elena Klemenova

South Federal University of Russia. Doctor of Pedagogical Sciences. Professor

Galina Kolesnikova

Russian Academy of Natural Sciences and International Academy of Natural History. Taganrog Institute of Management and Economics. Philologist, Psychologist, PhD

Galina Gudimenko

Orel State Institute of Economics and Trade. Department of History, Philosophy, Advertising and Public Relations. Doctor of Economical Sciences. Professor.

Grigory G. Levkin

Siberian State Automobile and Highway Academy. Omsk State Transport University. PHD of Veterinary Sciences

Gyuzel Ishkinina

Ust-Kamenogorsk affiliation of G. Plekhanov Russian Economy University / Associate Professor, Business, Informatics, Jurisprudence and General Studies sub-department. PhD in Economic science.

Irina V. Larina

Federal State Educational Institution of Higher Professional Education. Associate Professor

Irina Nekipelova

M.T. Kalashnikov Izhevsk State Technical University. Department of Philosophy. PhD

Larisa Zinovieva

North-Caucasus Federal University. PHD. Pedagogical Science. Associate Professor

Liudmila Denisova

Department Director at Russian State Geological Prospecting University. Associate Professor

Lyalya Jusupova

Bashkir State Pedagogical University named M. Akmully. PHD Pedagogy Science. Associate Professor

Marina Sirik

Kuban State University. Head of the Department of Criminal Law, Process and Criminalistics of the State Pedagogical University. PhD in Legal Sciences.

Marina Volkova

Research Institute of Pedagogy and Psychology. Doctor of Pedagogical Sciences. Professor

Natalia Litneva

Orlov State Institute of Economy and Trade. Volga Branch of The Federal State Budget Educational Institution of Higher Professional Education

Nikolay N. Efremov

Institute of Humanitarian Research and the Russian Academy of Sciences. Doctor of Philology. Research Associate

Nikolay N. Sentyabrev

Volgograd State Academy of Physical Culture. Doctor of Biological Sciences. Professor. Academician.

Olga Ovsyanik

Plekhanov Russian Economic University, Moscow State Regional University. Doctor in Social Psychology.

Olga Pavlova

Medical University named Rehabilitation, Doctors and Health, Professor of the Department of Morphology and Pathology, Doctor of biological sciences, physiology

Sergei N. Fedorchenko

Moscow State Regional University of Political Science and Rights. PhD

Sergei A. Ostroumov

Moscow State University. Doctor of Biological Science. Professor

Svetlana Guzenina

Tambov State University named G.R. Derzhavin. PhD in Sociology

Tatiana Kurbatskaya

Kamsk State Engineering – Economical Academy. PhD

Victor F. Stukach

Omsk State Agrarian University. Doctor of Economical Sciences. Professor

Yuriy S. Gaiduchenko

Omsk State Agrarian University. Associate Professor. PhD in Veterinary Science. Russia.

Zhanna Glotova

Baltic Federal University named Immanuel Kant, Ph.D., Associate Professor.

Saudi Arabia

Ikhlas (Ibrahim) Altarawneh

Ibn Rushd College for Management Sciences. PHD Human Resource Development and Management. Associate Professor in Business Administration

Salim A alghamdi

Taif University. Head of Accounting and Finance Dept. PhD Accounting

Serbia

Aleksandra Buha

University of Belgrade. Department of toxicology "Akademik Danilo Soldatović", Faculty of Pharmacy

Jane Paunkovic

Faculty for Management, Megatrend University. Full Professor. PhD, Medicine

Jelena Purenovic

University of Kragujevac . Faculty of Technical Sciences Cacak . Assistant Professor . PhD in NM systems.

Sultanate of Oman**Nithya Ramachandran**

Ibra College of Technology. Accounting and Finance Faculty, Department of Business Studies. PhD

Rustom Mamlook

Dhofar University, Department of Electrical and Computer Engineering College of Engineering. PhD in Engineering / Computer Engineering. Professor.

Sweden**Goran Basic**

Lund University. Department of Sociology. PhD in Sociology. Postdoctoral Researcher in Sociology.

Turkey**Mehmet Inan**

Turkish Physical Education Teachers Association. Vice president. PhD in Health Sciences, Physical Education and Sport Sciences

Muzaffer Sancı

University of Health Sciences. Tepecik Research and Teaching Hospital. Clinics of Gynecology and Obstetrics Department of Gynecologic Oncologic Surgery. Associated Professor.

Vugar Djafarov

Medical school at the University of Ondokuzmayıs Turkey. PhD. Turkey.

Yigit Kazancioglu

Izmir University of Economics. Associate Professor, PhD in Business Administration.

UK**Alan Sheldrake**

Imperial Collage. London University. Electrical Power Engineering Consultant. PhD

Christopher Vasilopoulos

Professor of Political Science at Eastern Connecticut State University. PhD in Political Science and Government.

Frances Tsakonas

International Institute for Education Advancement. Ceo & Founder. PhD in Philosophy.

Georgios Piperopoulos

Northumbria University. Visiting Professor, Faculty of Business and Law Newcastle Business School. PhD Sociology and Psychology.

Mahmoud Khalifa

Lecturer at Suez Canal University. Visiting Fellow, School of Social and Political Sciences, University of Lincoln UK. PhD in Social and Political Sciences

Mohammed Elgammal

Qatar University. Assistant Professor. PhD in Finance.

Stephan Thomas Roberts

BP Global Project Organisation. EI&T Construction Engineer. Azerbaijan Developments. SD 2 Onshore Terminal. Electrical engineer.

Ukraine**Alina Revtie-Uvarova**

National Scientific Center. Institute of Soil Structure and Agrochemistry named Sokolovski. Senior Researcher of the Laboratory, performing part-time duties of the head of this laboratory.

Alla Oleksyuk-Nexhames

Lviv University of Medicine. Neurologist at pedagog, pryvaty refleksoterapy. MD PD.

Anna Kozlovska

Ukrainian Academy of Banking of the National Bank of Ukraine. Associate Professor. PhD in Economic.

Bogdan Storokha

Poltava State Pedagogical University. PhD

Dmytro Horilyk

Head of the Council, at Pharmaceutical Education & Research Center. PhD in Medicine.

Galina Kuzmenko

Central Ukrainian National Technical University, Department of Audit and Taxation, Associate Professor. PhD in Economy.

Galina Lopushniak

Kyiv National Economic University named after Vadym Hetman. PhD. Doctor of Economic Sciences, Professor.

Hanna Huljaieva

Institute of Microbiology and Virology, NASU, department of phytopatogenic bacteria. The senior research fellow, PhD in Biology.

Iryna Skrypchenko

Prydniprovsk State Academy of Physical Culture and Sports. Department of Water Sports. Associate Professor. PhD in Physical Education and Sport.

Katerina Yagelskaya

Donetsk National Technical University. PhD

Larysa Kapranova

State Higher Educational Institution «Priazovskyi State Technical University» Head of the Department of Economic Theory and Entrepreneurship, Associate Professor, PhD in Economy,

Lesia Baranovskaya

National Technical University of Ukraine "Kyiv Polytechnic Institute", PhD, Associate Professor.

Liliya Roman

Department of Social Sciences and Ukrainian Studies of the Bukovinian State Medical University. Associate professor, PhD in Philology,

Ljudmyla Svistun

Poltava national technical Yuri Kondratyuk University. Department of Finance and Banking. Associated Professor.

Mixail M. Bogdan

Institute of Microbiology and Virology, NASU, department of Plant of viruses. PhD in Agricultural Sciences.

Nataliya Bezrukova

Yuri Kondratyuk National Technical University. Associate Professor, PhD in Economic.

Oleksandr Voznyak

Hospital "Feofaniya". Kyiv. Head of Neurosurgical Centre. Associated Professor

Olena Cherniavska

Poltava University of Economics and Trade, Doctor of Economical Sciences. Professor

Olga F. Gold

Ukrainian National University named I.I. Mechnikov. PhD

Roman Lysyuk

Assistant Professor at Pharmacognosy and Botany Department at Danylo Halytsky Lviv National Medical University.

Stanislav Goloborodko

Doctor of Agricultural Sciences, Senior Researcher. Institute of Agricultural Technologies of Irrigated Agriculture of the National Academy of Agrarian Sciences of Ukraine

Svetlana Dubova

Kyiv National University of Construction and Architecture. Department of Urban Construction. Associate Professor. PhD in TS.

Victoriya Lykova

Zaporizhzhya National University, PhD of History

Victor P. Mironenko

Doctor of Architecture, professor of department "Design of architectural environment", Dean of the Faculty of Architecture of Kharkov National University of Construction and Architecture (KNUCA), member of the Ukrainian Academy of Architecture

Yuliia Mytrokhina

Donetsk National University of Economics and Trade named after Mykhaylo Tugan-Baranovsky., PhD in Marketing and Management. Associate Professor

Yulija M. Popova

Poltava National Technical University named Yuri Kondratyuk. PhD in Economic. Associated professor

Crimea

Lienara Adzhyieva

V.I. Vernadsky Crimean Federal University, Yevpatoriya Institute of Social Sciences (branch). PhD of History. Associate Professor

Oksana Usatenko

V.I. Vernadsky Crimean Federal University. Academy of Humanities and Education (branch). PhD of Psychology. Associate Professor.

Oleg Shevchenko

V.I. Vernadsky Crimean Federal University, Humanities and Education Science Academy (branch), Associate Professor. PhD in Social Philosophy

Tatiana Scriabina

V.I. Vernadsky Crimean Federal University, Yevpatoriya Institute of Social Sciences (filial branch). PhD of Pedagogy. Associate Professor

United Arab Emirates

Ashok Dubey

Emirates Institute for Banking & Financial Studies, Senior faculty. Chairperson of Academic Research Committee of EIBFS. PhD in Economics

Maryam Johari Shirazi

Faculty of Management and HRM. PhD in HRM. OIMC group CEO.

USA**Ahmet S. Yayla**

Adjunct Professor, George Mason University, the Department of Criminology, Law and Society & Deputy Director, International Center for the Study of Violent Extremism (ICSVE), PhD in Criminal Justice and Information Science

Carol Scott Leonard

Presidential Academy of the National Economy and Public Administration. National Research University – Higher School of Economics. Russian Federation

Christine Sixta Rinehart

Academic Affairs at University of South Carolina Palmetto College. Assistant Professor of Political Science. Ph.D. Political Science

Cynthia Buckley

Professor of Sociology at University of Illinois. Urbana-Champaign. Sociological Research

Medani P. Bhandari

Akamai University. Associate professor. Ph.D. in Sociology.

Mikhail Z. Vaynshteyn

Lecturing in informal associations and the publication of scientific articles on the Internet. Participation in research seminars in the "SLU University" and "Washington University", Saint Louis

Nicolai Panikov

Lecturer at Tufts University. Harvard School of Public Health. PhD/DSci, Microbiology

Rose Berkun

State University of New York at Buffalo. Assistant Professor of Anesthesiology, PhD. MD

Tahir Kibriya

Director technical / senior engineering manager. Black & Veatch Corporation, Overland Park. PhD Civil Engineering.

Yahya Kamalipour

Dept. of Journalism and Mass Communication North Carolina A&T State University Greensboro, North Ca. Professor and Chair

Department of Journalism and Mass Communication North Carolina A&T State University. PhD

Wael Al-Husami

Lahey Hospital & Medical Center, Nardone Medical Associate, Alkhaldi Hospital, Medical Doctor, International Health, MD, FACC, FACP

Uruguay**Gerardo Prieto Blanco**

Universidad de la República. Economist, Associate Professor . Montevideo.

Uzbekistan**Guzel Kutlieva**

Institute of Microbiology. Senior Researcher. PhD in BS.

Khurshida Narbaeva

Institute of Microbiology, Academy of Sciences Republic of Uzbekistan, Doctor of biological sciences.

Shaklo Miralimova

Academy of Science. Institute of Microbiology. PhD in BS.

Shukhrat Yovkochev

Tashkent State Institute of Oriental Studies. Full professor. PhD in political sciences.

Honorary editorial board members:Agaheydar Seyfulla Isayev

Azerbaijan State Oil Academy. Doctor of Economical Sciences. Professor.

Jacob Meskhia

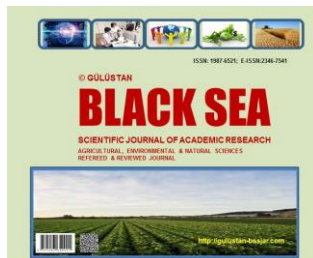
Tbilisi State University. Faculty of Economics and Business. Full Professor.

NGO Representation of Azerbaijan International Diaspora Center in Georgia and NGO International Research, Education & Training Center are publishing scientific papers of scientists on Website and in Referred Journals with subjects which are mentioned below:

© **SOUTHERN CAUCASUS SCIENTIFIC JOURNALS**

Gülüstän Black Sea Scientific Journal of Academic Research has ISSN, E-ISSN and UDC numbering:
ISSN: 1987-6521 (Print), E-ISSN: 2346-7541 (Online), DOI prefix:10.23747, UDC: 551.46 / (051.4)/B-64

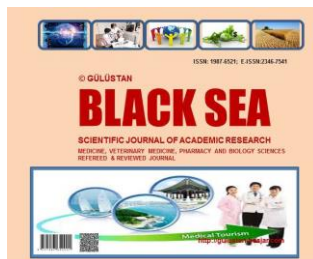
AGRICULTURAL, ENVIRONMENTAL & NATURAL SCIENCES



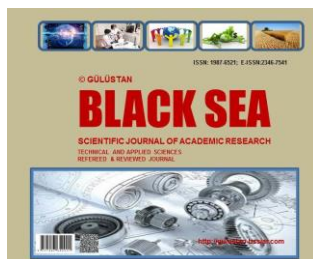
SOCIAL, PEDAGOGY SCIENCES & HUMANITIES



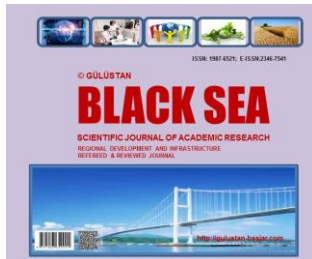
MEDICINE, VETERINARY MEDICINE, PHARMACY AND BIOLOGY SCIENCES



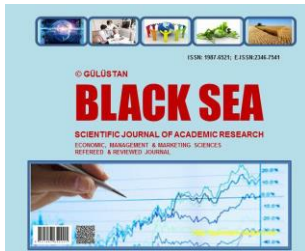
TECHNICAL AND APPLIED SCIENCES



REGIONAL DEVELOPMENT AND INFRASTRUCTURE



ECONOMIC, MANAGEMENT & MARKETING SCIENCES



LEGAL AND POLITICAL SCIENCE



CONFERENCE NEWSLETTER

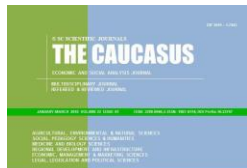


MULTIDISCIPLINARY JOURNAL



The Caucasus Economic and Social Analysis Journal has ISSN, E-ISSN and UDC numbering:
ISSN: 2298-0946 (Print), E-ISSN: 1987-6114 (Online), DOI prefix:10.23747, UDC: 3/K-144

MULTIDISCIPLINARY JOURNAL



CONFERENCE NEWSLETTER



AGRICULTURAL, ENVIRONMENTAL & NATURAL SCIENCES

Agriculture, Agronomy & Forestry Sciences
History of Agricultural Sciences
Plant Breeding and Seed Production
Environmental Engineering Science
Earth Sciences & Organic Farming
Environmental Technology
Botany, Zoology & Biology

SOCIAL, PEDAGOGY SCIENCES & HUMANITIES

Historical Sciences and Humanities
Psychology and Sociology Sciences
Philosophy and Philology Sciences
History of Science and Technology
Social Science
Pedagogy Science
Politology
Geography
Linguistics

MEDICINE, VETERINARY MEDICINE, PHARMACY AND BIOLOGY SCIENCES

Clinical Medicine
Prophylactic Medicine
Theoretical Medicine
Stomatology & Dentistry
Veterinary Medicine and Zoo
Drug Technology and Organization of Pharmaceutical Business
Pharmaceutical Chemistry and Pharmacology
Standardization and Organization of Medicines Production
History of Pharmacy
Innovations in Medicine
Biophysics and Biochemistry
Radiology and Microbiology
Molecular Biology and Genetics
Botany and Virology

Microbiology and Hydrobiology
Physiology of Plants, Animals and Humans
Ecology, Immunology and Biotechnology
Virology and Immunology
History of Biology
Entomology
Genetics

TECHNICAL AND APPLIED SCIENCES

Applied Geometry, Engineering Drawing, Ergonomics and Safety of Life
Machines and Mechanical Engineering
History of Science and Technics
Electrical engineering, Radio Engineering, Telecommunications, and Electronics
Civil Engineering and Architecture
Information, Computing and Automation
Mining and Geodesy Sciences
Metallurgy and Energy
Chemical Technology, Chemistry Sciences
Technology of Food Products
Technology of Materials and Products Textile and Light-load industry
Machinery in Agricultural Production
History of Art
Project and Program Management
Innovative Technologies
Repair and Reconstruction
Materials Science and Engineering
Engineering Physics
Mathematics & Applied Mathematics

REGIONAL DEVELOPMENT, OLIMPIC AND PROFESSIONAL SPORT

History of tourism
Theoretical and methodological foundations of tourism and recreation
Tourist market , its current state and development forecasts
Training and methodological support
Physical training
Olimpic sport
Professional sport
People health

ECONOMIC, MANAGEMENT & MARKETING SCIENCES

Economics and Management of Enterprises
Economy and Management of a National Economy
Mathematical Methods, Models and Information Technologies in Economics
Accounting, Analysis and Auditing
Money, Finance and Credit
Demography, Labor Conomics
Management and Marketing
Economic Science

LEGAL AND POLITICAL SCIENCE

Theory and History of State and Law
International Law
Branches of Law
Judicial System and Philosophy of Law
Theory and History of Political Science

Political Institutions and Processes
Political Culture and Ideology
Political Problems of International Systems and Global Development

CONFERENCE NEWSLETTER

MULTIDISCIPLINARY JOURNAL

JOURNAL INDEXING



ISSN: 2613-5817; E-ISSN: 2613 – 5825; DOI prefix: 10.23747

©**Publisher:** NGO Azerbaijan International Diaspora Center in Georgia.

Head and founder of organization: Seyfulla Isayev. Academic Doctor in Business Administration.

©**Editorial office:** Village Takalo, 0165 Georgia. Marneuli municipality.

Registered address: Village Takalo, 0165 Georgia. Marneuli municipality.

©**Typography:** NGO Azerbaijan International Diaspora Center in Georgia. SC Scientific Journals.

Registered address: Village Takalo, 0165 Georgia. Marneuli municipality.

©**Publisher:** NGO International Research, Education & Training Center.

Deputy and founder of organization: Seyfulla Isayev. Azerbaijan Marine Academy.

©**Editorial office:** Narva mnt 5, 10117 Tallinn, Estonia.

©**Typography:** NGO International Research, Education & Training Center. BS Journals.

Registered address: Narva mnt 5, 10117 Tallinn, Estonia.

Telephones: +994 55 241 70 12; +994518648894; +994 55 241 70 09

Website: <http://sc-media.org/>

E-mail: gulustanbssjar@gmail.com, sc.mediagroup2017@gmail.com, caucasusblacksea@gmail.com

BLACK SEA

SCIENTIFIC JOURNAL OF ACADEMIC RESEARCH

MULTIDISCIPLINARY JOURNAL
REFEREED & REVIEWED JOURNAL



AGRICULTURAL, ENVIRONMENTAL & NATURAL SCIENCES

SOCIAL, PEDAGOGY SCIENCES & HUMANITIES

MEDICINE, VETERINARY MEDICINE, PHARMACY AND BIOLOGY SCIENCES

TECHNICAL AND APPLIED SCIENCES

REGIONAL DEVELOPMENT AND INFRASTRUCTURE

ECONOMIC, MANAGEMENT & MARKETING SCIENCES

LEGAL, LEGISLATION AND POLITICAL SCIENCES

