E ISSN 2449-2450
ISSN 2449-2647

Caucasus Journal of Health Sciences and Public Health

Volume 2, Issue 2, June 2018

Dedicated to the 100th Anniversary of the Independence of Georgia

www.caucasushealth.ge

The University of Georgia, School of Health Sciences and Public Health, Tbilisi

The Arctic University of Norway, Tromsø

Ivane Javakhishvili Tbilisi State University, Faculty of Medicine

Caucasus Journal of Health Sciences and Public Health
Official journal of the University of Georgia and Iv.Javakhishvili Tbilisi State University

Editorial Office:
Georgia, 0175, Tbilisi, M. Kostava Street 77[a], Building I
Tel: (+995 32) 24 11 44
Email: v.tkeshelashvili@ug.edu.ge

E ISSN 2449-2450
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Sponsors:

განცხადება

ჟურნალის *Caucasus Journal of Health Sciences and Public Health* რედაქცია ღრმა მწუხარებით იუწყება, რომ გარდაიცვალა ჟურნალის სარედაქციო საბჭოს წევრი, ღვაწლმოსილი ექიმი, მკვლევარი და პედაგოგი, პროფესორი მზია წერეთელი და სამძიმარს უცხადებს მის ოჯახს.

2017

Statement

Editorial Board of the *Caucasus Journal of Health Sciences and Public Health* with deep sorrow informs that died a member of the Editorial Board of the Journal, Honored Doctor, Researcher and Teacher, Professor Mzia Tsereteli and expresses deep condolences to her family.

2017

მზია წერეთელი-
ღვაწლმოსილი ექიმი, მკვლევარი და პედაგოგი

1927 წელს ექიმმა, პროფესორმა ნიკო მახვილაძემ დაარსა შრომის მედიცინისა და ეკოლოგიის სამეცნიერო-კვლევითი ინსტიტუტი, სადაც წლების მანძილზე მოღვაწობდა არაერთი გამოჩენილი მეცნიერი და გამოცდილი ექიმი. მათ ღირსეული წვლილი შეიტანეს მოსახლეობის შრომის პირობების გაუმჯობესებისა და ჯანმრთელობის განმტკიცების მეტად ჰუმანურ და სახელმწიფოებრივი მნიშვნელობის საქმეში, ახალგაზრდა მედიკოს-სპეციალისტთა დაოსტატების პროცესში.

ინსტიტუტში მოღვაწე მეცნიერების ღირსეული წარმომადგენელი იყო ქალბატონი მზია წერეთელი - შრომის მედიცინის თვალსაჩინო მოღვაწე, მეცნიერი, ექიმი-პროფპათოლოგი.

ქალბატონი მზია დაიბადა ქ. თბილისში, 1927 წლის 29 მაისს, ექიმის, მედიცინის მეცნიერებათა კანდიდატის, ქალბატონ თამარ აბაშიძისა და ცნობილი იურისტის, პროფესორ ნიკოლოზ წერეთლის ოჯახში, სადაც ეზიარა სამშობლოს და მოყვასის სიყვარულს, ერთგულებას, გულისხმიერებას, სამშობლოსადმი უანგარო სამსახურს.

ქ-ნი მზია იმ თაობას ეკუთვნოდა, რომელმაც ბედნიერ დღეებთან ერთად ბევრი სიმწარეც გამოიარა. მიუხედავად ამისა, ან იქნებ სწორედ ამის გამოც, მას საოცრად სიცოცხლისუნარიანი და უდ-

Mzia Tsereteli -
Honored Physician, Researcher and Teacher

In 1927 Professor Niko Makhviladze founded the Scientific Research Institute of Labor Medicine and Ecology, where many outstanding scientists and experienced physicians worked for years. They contributed a lot to such humanistic and significant process as improvement of labor conditions and strengthening of health of the population, as well as in the professional development of young medical specialists. Mrs. Mzia Tsereteli was a distinguished representative of scientists working in the Institute - a well-known specialist of labor medicine, scientist, and physician-occupational pathologist.

Mrs. Mzia Tsereteli was born on May 29, 1927, in the family of Tamar Abashidze, physician, candidate of medical sciences and famous lawyer, Professor Nikoloz Tsereteli, where she learned to love the motherland and love of neighbor, loyalty, compassion, and selfless service for the motherland.

Mrs. Mzia Tsereteli belonged to that generation, who alongside happy days had a lot of bitterness. Nevertheless, and perhaps, that is why she had a viable and determined

რეკი ხასიათი ჩამოუყალიბდა. ეს მეგობრობის ნიჭით დაჯილდოებული ადამიანი, საოცრად მიმზიდველი იყო, ხოლო მისი სიცოცხლის სიყვარული და ოპტიმიზმი გადამდები. ვისაც კი ქალბატონ მზიასთან შეხება ჰქონია, არასდროს დაავიწყდება ეს მებრძოლი ხასიათის, ადამიანი, დახვეწილი იუმორით, უზადო გემოვნებით, მისი გულისხმიერება და ზრუნვა ნებისმიერ ადამიანზე. და აქ მისი მასშტაბი განუზომელი იყო.

1949 წლიდან - თბილისის სახელმწიფო სამედიცინო ინსტიტუტის სამკურნალო ფაკულტეტის დამთავრების შემდეგ, ქალბატონი მზია მუშაობდა რესპუბლიკის ცენტრალური კლინიკური საავადმყოფოს თერაპიული განყოფილების ექიმ-ორდინატორად. ხოლო 1956 წლიდან გარდაცვალებამდე ნ. მახვილაძის შრომის ჰიგიენისა და პროფდაავადებათა ს/კ ინსტიტუტში, სადაც განვლო გზა მეცნიერ-თანამშრომლიდან ამავე ინსტიტუტის პროფესიულ დაავადებათა განყოფილების ხელმძღვანელამდე. სხვადასხვა პერიოდში იგი იყო სააქციო საზოგადოების - ნ. მახვილაძის შრომის მედიცინის და ეკოლოგიის ს/კ ინსტიტუტის სამეთვალყურეო საბჭოს თავმჯდომარის მოადგილე და ინსტიტუტის გენერალური დირექტორის მოადგილე.

ქალბატონი მზია გამოცდილი ექიმი-პროფპათოლოგი და კვალიფიციური სპეციალისტი იყო. ინსტიტუტის კლინიკის პირობებში და წარმოებებში სისტემატური გასვლებით, დიდი ენერგიით და პასუხისმგებლობის გრძნობით ემსახურებოდა ქვეყნის დასაქმებული მოსახლეობის პროფესიული ჯანმრთელობის დაცვის საქმეს.

ქალბატონი მზიას სამეცნიერო კვლევების შედეგები გამოირჩევა თემატიკის მრავალფეროვნებით და ანალიზის სიზუსტით. იგი უბადლო იყო მეცნიერული კვლევების შედეგების შეჯამების და განსჯის სფეროში, ავლენდა პრობლემის ღრმა ცოდნას, ერუდიციას, ანალიტიკურ ნიჭს.

აღსანიშნავია ქალბატონი მზიას როლი პროფესიული პათოლოგიის მიმართულებით ახალგაზრდა მედიკოსთა აღზრდისა და ჩამოყალიბების მეტად საპატიო საქმეში. იგი წლების განმავლობაში იყო თბილისის სახელმწიფო სამედიცინო უნივერსიტეტში იუნესკოს ეგიდით შექმნილი ჯანსაღი ცხოვრების წესის კათედრის პროფესორი; მრავალი ათეული წლის მანძილზე მისი ხელმძღვანელობით ინსტიტუტის პროფესიულ დაავადებათა განყო-

character. Endowed with the gift of friendship, she was very attractive and her love for life and optimism were contagious. Anyone who had contacted Mrs. Mzia will never forget her fighter character, sophisticated humor, flawless taste, her intention and care for any person.

Since graduating from the medical faculty of Tbilisi State Medical Institute in 1949, Mrs. Mzia has worked as a doctor-ordinator of the Therapeutic Department of the Republican Central Clinical Hospital. Since 1955 to the end of life she worked at the N. Makhviladze Scientific-Research Institute of Labor Hygiene and Occupational Diseases, where she passed a career from scientific worker to the Head of the department of Occupational Diseases. In various periods she was deputy Chairperson of the Board of Directors of the Research Institute of Labor Medicine and Ecology and Deputy Director General.

Mrs. Mzia Tsereteli was a very experienced occupational pathologist and qualified specialist. In the clinics of the Institute and at systematic visits to various enterprises she served professional health care of the country's employed people with great energy and sense of responsibility.

Results of Mrs. Mzia's scientific researches are distinguished by the diversity of topics and the precision of analysis. She was incomparable in the area of summarizing and analyzing the results of scientific researches, showed in-depth knowledge of the problem, erudition, and analytical talent.

Ms. Mzia's had wide scientific interests. Special interest deserve her works devoted to the study of the problem of dust-induced occupational pathology. He detected and described the impact of tobacco dust on cardiovascular system; she determined that tobacco dust causes pathological changes in the heart muscle and coronary blood vessels. She played important role in determination of regional occupational pathology – manganese-induced disease.

ფილების ბაზაზე წარმატებული ექიმი-პროფპათოლოგების მრავალი თაობა გაიზარდა.

ფართო იყო ქალბატონ მზიას სამეცნიერო ინტერესების სფერო. უაღრესად საინტერესოა მტვრისმიერი პროფესიული პათოლოგიის პრობლემის შესწავლისადმი მიძღვნილი მისი შრომები. მან გამოავლინა და აღწერა თამბაქოს მტვრის გავლენა გულ-სისხლძარღვთა სისტემაზე; დაადგინა, რომ თამბაქოს მტვერი გულის კუნთსა და კორონარულ სისხლძარღვებში პათოლოგიურ ცვლილებებს იწვევს. მეტად მნიშვნელოვანია მისი დამსახურება სამხარეო პროფესიული პათოლოგიის - მანგანუმისმიერი დაავადების დადგენაში. მის მიერ შესწავლილია მანგანუმის აეროზოლებითა და საწარმოო ვიბრაციით გამოწვეული გულ-სისხლძარღვთა სისტემის სპეციფიკური და არასპეციფიკური რეაქციები.

განსაკუთრებით აღსანიშნავია ქალბატონი მზიას დამსახურება პროფესიულ დაავადებათა დამდგენი რესპუბლიკური კომისიის თავმჯდომარედ მუშაობაში. წლების მანძილზე მან დიდი ღვაწლი დასდო დასაქმებულთა ჯანმრთელობის მდგომარეობის შეფასებას პროფესიული მედიცინის თვალსაზრისით. ცნობილია მისი პრინციპულობა და სამართლიანობა სწორი პროფესიული დიაგნოზის დადგენის და დასმის, დროს.

ქალბატონი მზია გახლდათ საერთაშორისო, საკავშირო და რესპუბლიკური სამეცნიერო კონგრესების და კონფერენციების მონაწილე, მისი მოხსენებები დიდ ინტერესს იმსახურებდა მსმენელთა შორის, იგი არის 160-ზე მეტი სტატიის, მეთოდური მითითებებისა და სახელმძღვანელოს ავტორი.

ქალბატონი მზიას მრავალმხრივი პროფესიული საქმიანობა ღირსეულ ასახვას პოულობს მის რეგალიებში: იგი იყო იმუნოლოგიისა და ალერგოლოგიის საერთაშორისო ასოციაციის წევრი, საქართველოს პროფილაქტიკური მედიცინის მეცნიერებათა აკადემიის აკადემიკოსი, ღირსების ორდენის კავალერი.

ქალბატონმა მზიამ შექმნა ღირსეული ქართული ოჯახი სასოფლო-სამეურნეო ინსტიტუტის პროფესორთან, ბატონ გივი ალასანიასთან ერთად; მათ აღზარდეს სასახელო შვილები: ქალბატონი გიული ალასანია, ისტორიკოსი, პროფესორი, საქართველოს უნივერსიტეტის ერთ-ერთი დამფუძ-

She has studied specific and non-specific reactions of cardiovascular system caused by manganese aerosols and industrial vibration.

It should be noted her role in education and formation of young doctors in the field of occupational pathologies. For years she was a Professor of the Chair of Healthy Lifestyle at Tbilisi State Medical University established under the aegis of UNISCO. Many generations of successful physicians in the field of occupational pathologies were grown under her leadership at the department of Occupational Diseases of the Institute.

Mrs. Mzia's merit is particularly remarkable in the work of as the Chairperson of the Republican Committee on Identification of Occupational Diseases. For years she made a significant contribution in the assessment of health status of employees in terms of occupational medicine. She was known for her adherence to principles and fairness in the process of determining the correct professional diagnosis.

Mrs. Mzia Tsereteli was participant of many international, All-Union and republican scientific congresses and conferences. His reports were of great interest among the listeners. She is the author of more than 160 articles, guidelines and textbooks.

Mrs. Mzia's versatile professional activity is worthily reflected in her regalia: she was a Member of International Association of Immunology and Allergology, Academician of the Georgian Academy of Preventive Medicine, holder of the Order of Honor.

Mrs. Mzia created a decent Georgian family with Professor of Agricultural Institute Mr. Givi Alasania. They brought up worthy children: Mrs. Giuli Alasania, historian, professor, one of the founder and president of the University of Georgia, and Mr. Temuri Alasania, diplomat, professor, who worked at the US and Canadian Embassies for years and was head of one of the important division at the United

ნებელი და პრეზიდენტი და თემურ ალასანია, დიპლომატი, პროფესორი, რომელიც წლების მანძილზე იყო აშშ-ში, კანადაში საელჩოების თანამშრომელი, აგრეთვე დიდი ხნის მანძილზე გაეროს ერთ-ერთი მნიშვნელოვანი სამსახურის ხელმძღვანელი; ქალბატონ მზიას დარჩა შვილიშვილები: მიხეილ სააკაშვილი- საქართველოს პრეზიდენტი 2004-2013 წლებში; ნიკა და გიორგი ალასანიები, რომლებიც წარმატებულად მოღვაწეობენ აშშ-ში; ამასთანავე - ხუთი შვილთაშვილი.

ქალბატონ მზიას ხანგრძლივმა და ნაყოფიერმა მოღვაწეობამ ღრმა კვალი დაამჩნია საქართველოში პროფესიულ დაავადებათა შესწავლას და დიდი წვლილი შეიტანა შრომის მედიცინის განვითარების საქმეში როგორც თავისი პრაქტიკული საქმიანობით, ასევე სათანადო კადრის აღზრდით. იგი ვალმოხდილი წავიდა ჩვენგან და სამუდამოდ დაგვიტოვა თბილი მოგონებები ამ ნათელ პიროვნებასთან ერთად გატარებულ წუთებზე.

ჩვენ, მისი კოლეგები და მეგობრები ამ სამაგალითო პიროვნებას მუდამ სითბოთი და მადლიერებით გავიხსენებთ.

თბილისის სახელმწიფო სამედიცინო უნივერსიტეტი

საქართველოს პროფილაქტიკური მედიცინის მეცნიერებათა აკადემია

ნ.მაზვილაძის შრომის მედიცინის და ეკოლოგიის ს/კ ინსტიტუტი

2017

Nations. Mrs. Mzia's left grandchildren: Mikheil Saakashvili, President of Georgia in 2004-2012; Nika and Giorgi Alasania, who successfully work in the United States; She also has five great-grandchildren.

Mrs. Mzia's long and fruitful activity has a deep trace in studying occupational diseases in Georgia and has contributed to the development of labor medicine with her practical activity and preparation and upbringing of qualified human resources in the field. She has gone from us and left warm memories of the times spent with her.

We, her colleagues and friends will always remember this exemplary person with warmth and gratitude.

Tbilisi State Medical University

Georgian Academy of Sciences of Preventive Medicine

N. Makhviladze Scientific-Research Institute of Labor Medicine and Ecology

2017

Healthcare Plus: Systemic Full Continuous Educational Program

Conception: Dedicated to the 100th Anniversary of the Independence of Georgia

Vasil Tkeshelashvili[1], Elza Nikoleishvili[2]

The University of Georgia, School of Health Sciences and Public Health

[1]MD, JD, PhD, ScD, Professor; [2]MD, PhD, Associate Professor

Systemic Full Continuous Educational Program Healthcare Plus is a unified platform, in the development of which all six healthcare sectors (09) are involved (0901 - medicine, 0902 - dentistry, 0903 - pharmacy, 0904 - public health, 0905 – nursing, 0906 - physical medicine and rehabilitation), plus two specialties (020303 – healthcare administration and 020304 – pharmacy administration) of business administration associated with healthcare. There are more than 100 additional professional educational and/or training programs of continuous education for full-time one-stage bachelor, master, doctoral plus full-time education.

Goal of the Systemic Full Continuous Educational Program Healthcare Plus is:

To give the students chance to get full continuous education in their chosen fields and specialties and within the competencies of relevant educational stages obtain advanced theoretical knowledge and develop practical, scientific-research and pedagogical skills in the fields of healthcare (medicine, dentistry, pharmacy, public health, nursing, physical medicine and rehabilitation) as well as in the specialties of business administration (healthcare administration and pharmacy administration).

The Program is based on the National Educational Framework and The European Qualifications Framework for Lifelong Learning (LLL) (https://ec.europa.eu/ploteus/sites/eac-eqf/files/leaflet_en.pdf).

Main basis of the presented conceptual system of full continuous education is three-stage educational system with relevant structure:

1st Stage:

One-stage undergraduate:

Healthcare (09) fields:

- ◊ 0901 Medicine (one-stage)
- ◊ 0902 Dentistry (one-stage)
- ◊ 0903 Pharmacy (undergraduate)
- ◊ 0904 Public health (undergraduate)
- ◊ 0905 Nursing (undergraduate)
- ◊ 0906 Physical medicine and Rehabilitation (undergraduate)

სისტემური სრული უწყვეტი საგანმანათლებლო პროგრამა: ჯანდაცვა პლუსი

კონცეფცია: ეძღვნება საქართველოს დამოუკიდებლობის 100 წლისთავს

ვასილ ტყეშელაშვილი[1], ელზა ნიკოლეიშვილი[2]

საქართველოს უნივერსიტეტი, ჯანმრთელობის მეცნიერებათა და საზოგადოებრივი ჯანდაცვის სკოლა

[1]მედიცინის მეცნიერებათა დოქტორი, პროფესორი, [2]მედიცინის აკადემიური დოქტორი, ასოცირებული პროფესორი

სისტემური სრული უწყვეტი საგანმანათლებლო პროგრამა „ჯანდაცვა პლუსი“ წარმოადგენს ერთიან პლატფორმას, რომლის შექმნაში ჩართულია ჯანდაცვის (09) ექვსივე დარგი (0901 მედიცინა, 0902 სტომატოლოგია, 0903 ფარმაცია, 0904 საზოგადოებრივი ჯანდაცვა, 0905 საექთნო საქმე, 0906 ფიზიკური მედიცინა და რეაბილიტაცია) პლუს ბიზნესის ადმინისტრირების (02) დარგის-მენეჯმენტის (0203) ჯანდაცვასთან ასოცირებული ორი სპეციალობა (020303 ჯანდაცვის ადმინისტრირება, 020304 ფარმაციის ადმინისტრირება). უწყვეტი განათლების დამოუკიდებელი ერთსაფეხურიანი, საბაკალავრო, სამაგისტრო, სადოქტორო პლუს, სრული განათლებისათვის, დამატებითი პროფესიული სასწავლო და/ან ტრეინინგის პროგრამების საერთო რაოდენობა, რომლებიც ჰქმნიან ერთიან პლატფორმას, აჭარბებს 100.

სისტემური სრული უწყვეტი საგანმანათლებლო პროგრამის, „ჯანდაცვა პლუსის“ მიზანია:

სტუდენტებს მისცეს სრული უწყვეტი განათლების მიღების შანსი მათ მიერვე არჩეულ დარგებსა და სპეციალობებში, რომ სასწავლო საფეხურების შესაბამისი კომპენტენციების ფარგლებში მიიღონ თანამედროვე თეორიული ცოდნა და განივითაროონ პრაქტიკული, სამეცნიერო-კვლევითი და/თუ პედაგოგიური უნარები ჯანდაცვის დარგებში (მედიცინა, სტომატოლოგია, ფარმაცია, საზოგადოებრივი ჯანდაცვა, საექთნო საქმე, ფიზიკური მედიცინა და რეაბილიტაცია) პლუს ბიზნესის ადმინისტრირების სპეციალობებში (ჯანდაცვის ადმინისტრირება, ფარმაციის ადმინისტრირება).

Plus

Specializations in Business Administration (02) and Management (0203):

◊ 020303 Healthcare Administration (undergraduate)

◊ 020304 Pharmacy Administration (undergraduate)

2nd Stage:
Post-graduate:
Healthcare (09) fields:

◊ 0901 Medicine

◊ 0902 Dentistry

◊ 0903 Pharmacy

◊ 0904 Public Health

◊ 0905 Nursing

◊ 0906 Physical medicine and rehabilitation

Plus

Specializations in Business Administration (02) and Management (0203):

◊ 020303 Healthcare Administration

◊ 020304 Pharmacy Administration

3rd Stage:
Doctoral studies:
Healthcare (09) fields:

◊ 0901 Medicine

◊ 0902 Dentistry

◊ 0903 Pharmacy

◊ 0904 Public Health

◊ 0905 Nursing

◊ 0906 Physical medicine and rehabilitation

Plus

Specializations in Business Administration (02) and Management (0203):

◊ 020303 Healthcare Administration

◊ 020304 Pharmacy Administration

Programs of three-stage educational system plus additional programs aimed at full systemic coverage of education:

Healthcare (09) fields:

◊ 0901 Medicine - specialized residency programs
Professional education and/or training:
⇒ 090151 Assistant physician

◊ 0902 Dentistry - specialized residency programs
Professional education and/or training:
⇒ 090251 Dental Technician

პროგრამა ეფუძნება ეროვნულ საკვალიფიკაციო ჩარჩოს, მთელი სიცოცხლის მანძილზე სწავლების ევროპულ საკვალიფიკაციო ჩარჩოს (The European Qualifications Framework for Lifelong Learning - LLL) (https://ec.europa.eu/ploteus/sites/eac-eqf/files/leaflet_en.pdf).

სრული უწყვეტი განათლების წარმოდგენილი კონცეპტუალური სისტემის ძირითად საფუძველს, წარმოადგენს სამსაფეხურიანი საგანმანათლებლო სისტემა შესაბამისი სტრუქტურით:

1-ლი საფეხური:
ერთსაფეხურიანი და ბაკალავრიატი:
ჯანდაცვის (09) დარგები:

◊ 0901 მედიცინა (ერთსაფეხურიანი)

◊ 0902 სტომატოლოგია (ერთსაფეხურიანი)

◊ 0903 ფარმაცია (ბაკალავრიატი)

◊ 0904 საზოგადოებრივი ჯანდაცვა (ბაკალავრიატი)

◊ 0905 საექთნო საქმე (ბაკალავრიატი)

◊ 0906 ფიზიკური მედიცინა და რეაბილიტაცია (ბაკალავრიატი)

პლუს

ბიზნესის ადმინისტრირების (02), მენეჯმენტის (0203) დარგის სპეციალიზაციები:

◊ 020303 ჯანდაცვის ადმინისტრირება (ბაკალავრიატი)

◊ 020304 ფარმაციის ადმინისტრირება (ბაკალავრიატი)

მე-2 საფეხური:
მაგისტრატურა:
ჯანდაცვის (09) დარგები:

◊ 0901 მედიცინა

◊ 0902 სტომატოლოგია

◊ 0903 ფარმაცია

◊ 0904 საზოგადოებრივი ჯანდაცვა

◊ 0905 საექთნო საქმე

◊ 0906 ფიზიკური მედიცინა და რეაბილიტაცია

პლუს

ბიზნესის ადმინისტრირების (02), მენეჯმენტის (0203) დარგის სპეციალიზაციები:

◊ 020303 ჯანდაცვის ადმინისტრირება

◊ 020304 ფარმაციის ადმინისტრირება

- ◊ 0903 Pharmacy - Professional education and/or training:
  - ⇒ 090351 Assistant Pharmacist
  - ⇒ 090301 Industrial Pharmacy
  - ⇒ 090302 Pharmaceutical Analysis
  - ⇒ 090303 Pharmaceutical cosmetics and perfumery
  - ⇒ 090304 Veterinary Pharmacy
  - ⇒ 090305 Biopharmacy
  - ⇒ 090306 Clinical Pharmacy
- ◊ 0904 Public Health - Professional education and/or training:
  - ⇒ 090401 Environmental Medicine
  - ⇒ 090402 Epidemiology
  - ⇒ 090403 Medical Ecology
  - ⇒ 090404 Health Promotion
  - ⇒ 090405 Public Health and Health Policy
  - ⇒ 090406 Nutrientology
  - ⇒ 090407 Social Psychiatry
  - ⇒ 090408 Psycho-Traumatology
- ◊ 0905 Nursing - Professional education and/or training:
  - ⇒ 090551 Assistant Nurse
  - ⇒ 090552 Practice Nurse
  - ⇒ 090553 Practice Midwife
- ◊ 0906 Physical Medicine and Rehabilitation:
  - ⇒ 090601 Cardio-Pulmonary Resuscitation
  - ⇒ 090602 Pediatric Rehabilitation
  - ⇒ 090605 Pain Medicine
  - ⇒ 090606 Hospice and Palliative Medicine
  - ⇒ 090607 Sports rehabilitation
  - ⇒ 090608 Physical Therapy
  - ⇒ 090609 Kineziotherapy
  - ⇒ 090610 Post-Traumatic Rehabilitation
  - ⇒ 090611 Reiten-therapy
  - ⇒ 090612 Rehabilitation of Musculoskeletal System Pathologies
  - ⇒ 090613 Neuro-Rehabilitation
  - ⇒ 090614 Wellness Therapy
  - ⇒ 090651 Masseur

Plus

- ◊ 02 Business Administration, Management (0203) - Professional education and/or training:

მე-3 საფეხური:
დოქტორანტურა:
ჯანდაცვის (09) დარგები:

- ◊ 0901 მედიცინა
- ◊ 0902 სტომატოლოგია
- ◊ 0903 ფარმაცია
- ◊ 0904 საზოგადოებრივი ჯანდაცვა
- ◊ 0905 საექთნო საქმე
- ◊ 0906 ფიზიკური მედიცინა და რეაბილიტაცია

პლუს

ბიზნესის ადმინისტრირების (02), მენეჯმენტის (0203) დარგის სპეციალიზაციები:

- ◊ 020303 ჯანდაცვის ადმინისტრირება
- ◊ 020304 ფარმაციის ადმინისტრირება

სამ საფეხურიანი საგანმანათლებლო სისტემის პროგრამებს პლუს დამატებითი პროგრამები განათლების სრული სისტემური მოცვისათვის:

ჯანდაცვის (09) დარგები:

- ◊ 0901 მედიცინა - დარგობრივი რეზიდენტურების პროგრამები პროფესიული განათლება და/ან ტრეინინგი:
  - ⇒ 090151 მედიკოსის თანაშემწე
- ◊ 0902 სტომატოლოგია - დარგობრივი რეზიდენტურების პროგრამები პროფესიული განათლება და/ან ტრეინინგი:
  - ⇒ 090251 კბილის ტექნიკოსი
- ◊ 0903 ფარმაცია -პროფესიული განათლება/ ტრეინინგი:
  - ⇒ 090351 ფარმაცევტის თანაშემწე
  - ⇒ 090301 სამრეწველო ფარმაცია
  - ⇒ 090302 ფარმაცევტული ანალიზი
  - ⇒ 090303 ფარმაცევტული კოსმეტოლოგია და პარფიუმერია
  - ⇒ 090304 სავეტერინარო ფარმაცია
  - ⇒ 090305 ბიოფარმაცია
  - ⇒ 090306 კლინიკური ფარმაცია
- ◊ 0904 საზოგადოებრივი ჯანდაცვა- პროფესიული განათლება და/ან ტრეინინგი:

⇒ 020303 Health Management, Assistant Healthcare Administrator
⇒ 020304 Pharmacy Management, Assistant Pharmacy Administrator

Thus, continuous full educational program ensures preparation of human resources with following degrees:

Program stage, field/specialty, degree:

1) 0901 Physician, Medical Doctor - MD
2) 0902 Dentist, Dentistry doctor - DnD
3) 0903 Bachelor in Pharmacy- BPha
4) 0904 Bachelor in Public Health - BPH
5) 0905 Bachelor in Nursing - BNu
6) 0906 Bachelor in Physical Medicine and Rehabilitation-BPMR
7) 020303 Bachelor in Healthcare Administration- BHA
8) 020304 Bachelor in Pharmacy Administration-BPA
9) 0901 Master in Medicine - MM
10) 0902 Master in Dentistry - MDn
11) 0903 Master in Pharmacy - MPha
12) 0904 Master in Public Health - MPH
13) 0905 Master in Nursing-MNu
14) 0906 Master in Physical Medicine and Rehabilitation - MPMR
15) 020303 Master in Healthcare Administration - MHA
16) 020304 Master in Pharmacy Administration - MPA
17) 0901 PhD in Medicine
18) 0902 PhD in Dentistry
19) 0903 PhD in Pharmacy
20) 0904 PhD in Public Health
21) 0905 PhD in Nursing
22) 0906 PhD in Physical Medicine and Rehabilitation
23) 020303 PhD in Healthcare Administration
24) 020304 PhD in Pharmacy Administration

Additional – Professional specialty/degree, diploma/ certificate:

◊ 0901 Medicine - specialized residency programs – plus professional education/training:
1. 090151 Assistant physician
◊ 0902 Dentistry - specialized residency programs – plus professional education/training:
2. 090251 Dental Technician

⇒ 090401 გარემოს მედიცინა
⇒ 090402 ეპიდემიოლოგია
⇒ 090403 სამედიცინო ეკოლოგია
⇒ 090404 ჯანმრთელობის ხელშეწყობა
⇒ 090405 საზოგადოებრივი ჯანმრთელობა და ჯანდაცვის პოლიტიკა
⇒ 090406 ნუტრიციოლოგია
⇒ 090407 სოციალური ფსიქიატრია
⇒ 090408 ფსიქოტრამვატოლოგია

◊ 0905 საექთნო საქმე- პროფესიული განათლება და/ან ტრეინინგი:
⇒ 090551 ექთნის თანაშემწე
⇒ 090552 პრაქტიკოსი ექთანი
⇒ 090553 პრაქტიკოსი ბებიაქალი

◊ 0906 ფიზიკური მედიცინა და რეაბილიტაცია- პროფესიული განათლება და/ან ტრეინინგი:
⇒ 090601 კარდიოპულმონური რაბილიტაცია
⇒ 090602 პედიატრიული რეაბილიტაცია
⇒ 090605 ტკივილის მედიცინა
⇒ 090606 ჰოსპისი და პალიატიური მედიცინა
⇒ 090607 სპორტული რეაბილიტაცია
⇒ 090608 ფიზიკური თერაპია
⇒ 090609 კინეზოთერაპია
⇒ 090610 პოსტტრავმული რეაბილიტაცია
⇒ 090611 რაიტთერაპია
⇒ 090612 საყრდენ - მამოძრავებელი სისტემის პათოლოგიათა რეაბილიტაცია
⇒ 090613 - ნეირორეაბილიტაცია
⇒ 090614 - ველნეს თერაპია
⇒ 090651 მასაჟისტი

პლუს

◊ 02 ბიზნესის ადმინისტრირება, მენეჯმენტი (0203) - პროფესიული განათლება/ტრეინინგი:
⇒ 020303 ჯანდაცვის მენეჯმენტი, ჯანდაცვის ადმინისტრატორის თანაშემწე
⇒ 020304 ფარმაციის მენეჯმენტი, ფარმაციის ადმინისტრატორის თანაშემწე

ამდენად, უწყვეტი სრული საგანმანათლებლო პროგრამა ჯანდაცვა პლუსი უზრუნველყოფს კადრების მომზადებას შემდეგი ხარისხებით:

პროგრამის საფეხური, დარგი/სპეციალობა, ხარისხი:

♦ 0901 ექიმი, მედიცინის დოქტორი- Physician, Medical doctor- MD
♦ 0902 ექიმი-სტომატოლოგი, სტომატოლოგიის დოქტორი- Dentistry doctor- DnD

- ◊ 0903 Pharmacy - professional education/training:
  3. 090351Assistant Pharmacist
  4. 090301 Industry Pharmacist
  5. 090302 Pharmaceutical Analysis
  6. 090303 Pharmaceutical cosmetics and perfumery
  7. 090304 Veterinary Pharmacy
  8. 090305 Biopharmacy
  9. 090306 Clinical Pharmacy
- ◊ 0904 Public health - professional education/training:
  10.090401 Environmental Medicine
  11.090402 Epidemiology
  12.090403 Medical Ecology
  13.090404 Health Promotion
  14.090405 Public health and health Policy
  15.090406 Nutrientology
  16.090407 Social Psychiatry
  17.090408 Psycho-traumatology
  18.0905 Nursing - professional education/training:
  19.090551 Assistant Nurse
  20.090552 Practice Nurse
  21.090553 Practice Midwife
- ◊ 0906 Physical Medicine and Rehabilitation - professional education/training:
  22.090601 Cardio-Pulmonary Resuscitation
  23.090602 Pediatric rehabilitation
  24.090605 Pain Medicine
  25.090606 Hospice and Palliative Medicine
  26.090607 Sports Rehabilitation
  27.090608 Physical Therapy
  28.090609 Kineziotherapy
  29.090610 Post-Traumatic Rehabilitation
  30.090611Reiten-therapy
  31.090612 Rehabilitation of Musculoskeletal System Pathologies
  32.090613 Neurorehabilitation
  33.090614 Wellness Therapy
  34.090651 Masseur

Plus

02 Business Administration, Management (0203) - professional education/training:

35.020303 Health Management, Assistant Healthcare Administrator
36. 020304 Pharmacy Management, Assistant Pharmacy Administrator

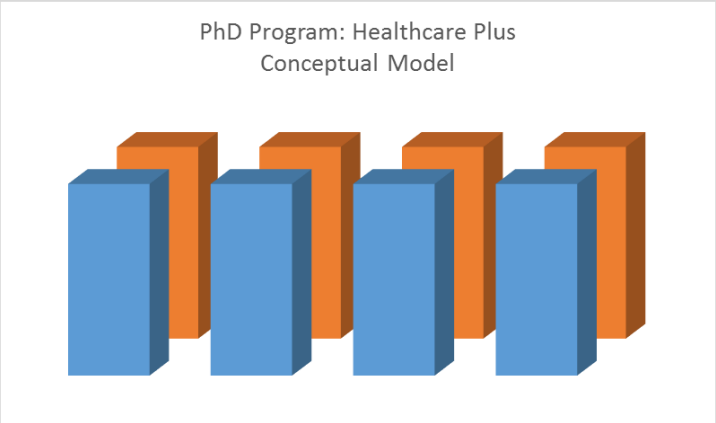
- ♦ 0903 ფარმაციის ბაკალავრი- Bachelor in Pharmacy- BPha
- ♦ 0904 საზოგადოებრივი ჯანდაცვის ბაკალავრი- Bachelor in Public Health –BPH
- ♦ 0905 საექთნო საქმის ბაკალავრი- Bachelor in Nursing –BNu
- ♦ 0906 ფიზიკური მედიცინისა და რეაბილიტაციის ბაკალავრი- Bachelor in Physical Medicine and Rehabilitation -BPMR
- ♦ 020303 ჯანდაცვის ადმინისტრირების ბაკალავრი- Bachelor in Healthcare Administration - BHA
- ♦ 020304 ფარმაციის ადმინისტრირების ბაკალავრი- Bachelor in Pharmacy Administration -BPA
- ♦ 0901 მედიცინის მაგისტრი -Magister in Medicine- MM
- ♦ 0902 სტომატოლოგიის მაგისტრი- Magister in Dentistry- MDn
- ♦ 0903 ფარმაციის მაგისტრი- Magister in Pharmacy –MPha.
- ♦ 0904 საზოგადოებრივი ჯანდაცვის მაგისტრი - Magister in Public Health-MPH
- ♦ 0905 საექთნო საქმის მაგისტრი- Magister in Nursing -MNu
- ♦ 0906 ფიზიკური მედიცინისა და რეაბილიტაციის მაგისტრი-Magister in Physical Medicine and Rehabilitation - MPMR
- ♦ 020303 ჯანდაცვის ადმინისტრირების მაგისტრი- Magister in Healthcare Administration- MHA
- ♦ 020304 ფარმაციის ადმინისტრირების მაგისტრი -Magister in Pharmacy Administration- MPA
- ♦ 0901 მედიცინის აკადემიური დოქტორი- PhD in Medicine
- ♦ 0902 სტომატოლოგიის აკადემიური დოქტორი- PhD in Dentistry
- ♦ 0903 ფარმაციის აკადემიური დოქტორი- PhD in Pharmacy
- ♦ 0904 საზოგადოებრივი ჯანდაცვის აკადემიური დოქტორი- PhD in Public Health
- ♦ 0905 საექთნო საქმის აკადემიური დოქტორი- PhD in Nursing
- ♦ 0906 ფიზიკური მედიცინისა და რეაბილიტაციის აკადემიური დოქტორი-PhD in Physical Medicine and Rehabilitation

Demonstration case of the continuous full education program:

3rd stage education

Doctoral Program “Healthcare Plus”
Deposited by the SakPatent (Georgian Patent) on February 2, 2018, certificate #7243

Main 8 directions of the research (see picture).



1. Medicine
2. Dentistry
3. Pharmacy
4. Public Health
5. Nursing
6. Physical medicine and rehabilitation
7. Healthcare Administration
8. Pharmacy Administration

Goal of the program “Healthcare Plus”
Give the doctoral students contemporary theoretical knowledge and develop practical, scientific-research and pedagogical skills according to elected field of healthcare (medicine, dentistry, pharmacy, public health, nursing, physical medicine and rehabilitation).

New knowledge based on evidence obtained through epidemiological, clinical, and experimental studies will facilitate preparation of qualified scientific and academic staff and expand their current knowledge in effective control, screening, early diagnosis, and treatment of diseases, physical rehabilitation, disease prevention, health promotion and protection.

- 020303 ჯანდაცვის ადმინისტრირების აკადემიური დოქტორი- PhD in Healthcare Administration
- 020304 ფარმაციის ადმინისტრირების აკადემიური დოქტორი- PhD in Pharmacy Administration

პლუს დამატებით- პროფესიული სპეციალობა/ხარისხი, დიპლომი/ სერტიფიკატი:

- 0901 მედიცინა - დარგობრივი რეზიდენტურები პროფესიული განათლება/ ტრეინინგი:
  - ⇒ 090151 მედიკოსის თანაშემწე
- 0902 სტომატოლოგია - დარგობრივი რეზიდენტურები პლუს პროფესიული განათლება/ტრეინინგი:
  - ⇒ 090251 კბილის ტექნიკოსი
- 0903 ფარმაცია -პროფესიული განათლება/ ტრეინინგი:
  - ⇒090351 ფარმაცევტის თანაშემწე
  - ⇒090301 სამრეწველო ფარმაცია
  - ⇒090302 ფარმაცევტული ანალიზი
  - ⇒090303 ფარმაცევტული კოსმეტოლოგია და პარფიუმერია
  - ⇒090304 სავეტერინარო ფარმაცია
  - ⇒090305 ბიოფარმაცია
  - ⇒090306 კლინიკური ფარმაცია
- 0904 საზოგადოებრივი ჯანდაცვა- პროფესიული განათლება/ტრეინინგი:
  - ⇒ 090401 გარემოს მედიცინა
  - ⇒ 090402 ეპიდემიოლოგია
  - ⇒ 090403 სამედიცინო ეკოლოგია
  - ⇒ 090404 ჯანმრთელობის ხელშეწყობა
  - ⇒ 090405 საზოგადოებრივი ჯანმრთელობა და ჯანდაცვის პოლიტიკა
  - ⇒ 090406 ნუტრიციოლოგია
  - ⇒ 090407 სოციალური ფსიქიატრია
  - ⇒ 090408 ფსიქოტრამვატოლოგია
- 0905 საექთნო საქმე- პროფესიული განათლება/ტრეინინგი:
  - ⇒ 090551 ექთნის თანაშემწე
  - ⇒ 090552 პრაქტიკოსი ექთანი
  - ⇒ 090553 პრაქტიკოსი ბებიაქალი
- 0906 ფიზიკური მედიცინა და რეაბილიტაცია - პროფესიული განათლება/ტრეინინგი:
  - ⇒ 090601 კარდიოპულმონური რაბილიტაცია
  - ⇒ 090602 პედიატრიული რეაბილიტაცია
  - ⇒ 090605 ტკივილის მედიცინა

In the perspective, enhanced knowledge in the elective fields of health care and business administration and preparation of scientific-pedagogic staff will create favorable environmental conditions and facilitate promotion and protection of the health of population, disease prevention and reduction of their burden, increase the average life expectancy, improvement of quality of life, community wellness, social benefits and economic progress.

Structure of the Program

Program consists of research (120 ECTS) and educational (60ECTS) components.

Educational component consists of 7 modules:

1st module: specialty educational module (specialty)* - is a main elective discipline (10ECTS), which is elected by the doctoral student and before the beginning of the study presents the concept of the dissertation theme in the field of elected field or specialty.

Thus, the program has a total of 8 main elective educational modules (specialty)*:

1. Educational module in Medicine (HCPH0901)
2. Educational module in Dentistry (HCPH0902)
3. Educational module in Pharmacy (HCPH0903)
4. Educational module in Public Health (HCPH0904)
5. Educational module in Nursing (HCPH0905)
6. Educational module in Physical Medicine and Rehabilitation (HCPH0906)
7. Educational module in Healthcare Administration (BAPH020303)
8. Educational module in Pharmacy Administration (BAPH020304)

Two modules (teaching methods 5 ECTS and pedagogical practice 5 ECTS) are presented in the form of general university subjects and are aimed at development of pedagogical skills in doctoral students.

Four modules (HCPD7110 Medicine, healthcare and philosophy 5 ECTS, HCPD7120 epidemiology and biostatistics 10 ECTS, HCPD7220 evidence-based medicine and social-statistical research methods 15 ECTS and HCPD7210 research project 10 ECTS), together with main elective educational module prepares the doctoral student for effective implementation of research component and helps to develop academic and research activity skills.

⇒ 090606 ჰოსპისი და პალიატიური მედიცინა
⇒ 090607 სპორტული რეაბილიტაცია
⇒ 090608 ფიზიკური თერაპია
⇒090609 კინეზოთერაპია
⇒090610 პოსტტრავმული რეაბილიტაცია
⇒090611 რაიტთერაპია
⇒090612 საყრდენ - მამოძრავებელი სისტემის პათოლოგიათა რეაბილიტაცია
⇒090613 - ნეირორეაბილიტაცია
⇒090614 - ველნეს თერაპია
⇒090651 მასაჟისტი

პლუს

♦ 02 ბიზნესის ადმინისტრირება, მენეჯმენტი (0203) - პროფესიული განათლება/ტრეინინგი:
⇒020303 ჯანდაცვის მენეჯმენტი, ჯანდაცვის ადმინისტრატორის თანაშემწე
⇒020304 ფარმაციის მენეჯმენტი, ფარმაციის ადმინისტრატორის თანაშემწე

უწყვეტი სრული განათლების საფეხურებრივი პროგრამის სადემონსტრაციო ქეისი:

მე-3 საფეხურის განათლება-

სადოქტორო პროგრამა „ჯანდაცვა პლუსი“

დეპონირ. საქპატენტის მიერ 2018 წ., მოწმობა #7243

კვლევის 8 ძირითადი მიმართულება (იხ. სურათი).

სადოქტორო პროგრამის: „ჯანდაცვა პლუსის“ მიზანია დოქტორანტებს მისცეს თანამედროვე თეორიული ცოდნა და პრაქტიკულად განუვითაროს სამეცნიერო-კვლევითი და პედაგოგიური უნარები ჯანდაცვის (მედიცინა, სტომატოლოგია, ფარმაცია, საზოგადოებრივი ჯანდაცვა, საექთნო საქმე, ფიზიკური მედიცინა და რეაბილიტაცია) ან ბიზნესის ადმინისტრირების (ჯანდაცვის ადმინისტრირება, ფარმაციის ადმინისტრირება) არჩევითი სპეციალობების მიხედვით. ეპიდემიოლოგიური, კლინიკური და ექსპერიმენტული კვლევებით მიღებულ მტკიცებულებებზე დაფუძნებული ახალი ცოდნა ხელს შეუწყობს კვალიფიციური სამეცნიერო-აკადემიური კადრების მომზადებას და მათ მიერ დაავადებათა ეფექტური კონტროლის, დაავადებების სკრინინგის, ადრეულ დიაგნოსტიკის, მკურნალობის, ფიზიკური რეაბილიტაციის, დაავადებათა პრევენციის, ჯანმრთელობის პრომოციისა და პროტექციის შესახებ უკვე არსებული ცოდნის გაფართოებას.

Component	Subjects	Status	Duration	Credits ECTS
Educational component	Educational module (specialty)*	Main Elective	22 weeks	10
	HCPD7110 Healthcare and Philosophy	Main	22 weeks	5
	HCPD7120 Epidemiology and Biostatistics	Main	22 weeks	10
	Teaching methods	Main	22 weeks	5
	HCPD7220 Evidence-based Medicine and Social-Statistical Research methods	Main	22 weeks	15
	HCPD7210 Research Project	Main	22 weeks	10
	Pedagogical Practice	Main	22 weeks	5
Research	Dissertation Thesis (Roadmap)	Main	3 years	120

"Dissertation Thesis" is a research component of doctoral program and consists of the following major activities (fragments to be implemented in 4 stages:

1. Literature review on research topic
2. Research protocol
3. Scientific research
4. Dissertation thesis defense

Scientific Supervisor determines the start of the research component by the doctoral student. In the 1st year of study (in the 1st and 2nd semesters) the doctoral student passes the subjects of the educational component. The pedagogical practice can be massed in the next semesters. In case when the doctoral student easily learns the educational component subjects, he/she can start the research component activities from the first year, namely – Literature review on research topic and preparation of research protocol. In this case, the doctoral student is given three semesters for conducting scientific research (3rd, 4th and 5th semesters), and 6th semester – for defending dissertation thesis. Alternative – in the 1st year of study doctoral student prepares only literature review on research topic, begins preparation of research protocol in 3rd semester, in 4th and 5th semesters conducts scientific research, and in 6th semester defends dissertation thesis.

პერსპექტივაში, ჯანდაცვისა და ბიზნესის ადმინისტრირების არჩევით დარგებში ცოდნის გაფართოებითა და სამეცნიერო-პედაგოგიური კადრების მომზადებით, შეიქმნება ხელსაყრელი გარემო პირობები და ხელი შეეწყობა მოქალაქეების ჯანმრთელობის პრომოციასა და პროტექციას, დაავადებათა პრევენციასა და მათი ტვირთის შემცირებას, ადამიანების სიცოცხლის საშუალო ხანგრძლიობის გაზრდას, ცხოვრების ხარისხის გაუმჯობესებას, საზოგადოების კეთილდღეობას (Wellness), სოციალური ბენეფიტის მიღებასა და ეკონომიკურ პროგრესს.

პროგრამის სტრუქტურა

პროგრამა შედგება კვლევითი (120 ECTS) და სასწავლო (60 ECTS) კომპონენტებისაგანს.
სასწავლო კომპონენტი შედგება 7 მოდულისაგან:
1-ლი მოდული- დარგობრივი სასწავლო მოდული (სპეციალობა)* - არის ძირითადი არჩევითი საგანი (10 ECTS), რომელსაც დოქტორანტი ირჩევს თვითონ და სწავლის დაწყებამდე არჩეულ დარგსა თუ სპეციალობაში წარმოადგენს სადისერტაციო თემის კონცეფციას.

ამდენად, პროგრამას სულ გააჩნია 8 ძირითადი არჩევითი დარგობრივი სასწავლო მოდული (სპეციალობა)*:

1. მედიცინის სასწავლო მოდული (HCPH0901)
2. სტომატოლოგიის სასწავლო მოდული (HCPH0902)
3. ფარმაციის სასწავლო მოდული (HCPH0903)
4. საზოგადოებრივი ჯანდაცვის სასწავლო მოდული (HCPH0904)
5. საექთნო საქმის სასწავლო მოდული (HCPH0905)
6. ფიზიკური მედიცინისა და რეაბილიტაციის სასწავლო მოდული (HCPH0906)
7. ჯანდაცვის ადმინისტრირების სასწავლო მოდული (BAPH020303)
8. ფარმაციის ადმინისტრირების სასწავლო მოდული (BAPH020304)

Recommended approach while creating new professional, bachelor's and master programs:

10 priority objectives of Public Health:

1. Facilitate preparation of highly qualified specialists with multiprofile skills in population education in public health.
2. Promote implementation of health advocacy.
3. Promote monitoring of population health status indicators, diseases prevalence and monitoring the causes, rate and structure of deaths of patients based on the data of the population health register and evidences.
4. Support identification and control of the burden of diseases.
5. Promote control of the prevalence and exposure of environmental factors affecting the health of the population, monitoring of the quality, expected risk assessment and their reduction.
6. Support promotion of the health of the population.
7. Promote prevention of disease development and early deaths.
8. Promote prolonged life expectancy and active living of the population, increasing the quality of life and social welfare of the society.
9. Promote improvement of legislative framework, material and technical capacities of the executive system, provision of the system with qualified human resources and development of public health networks.
10. Facilitate achievement of global public health goals (UN, NY; WHO, Geneva) 2020, 2025, 2030.

In order to promote solution of 10 priority problems of public health, a continuous full educational program in public health 2020-2029 should be developed in 2018-2019.

Professional training programs should be prepared:

- ◊ 30 ECTS, one semester (diploma)
- ◊ 60 ECTS, two semesters (diploma)
- ◊ One-week (5 training days, 1 travel day, 7th day – business trip report) professional training programs 5 ECTS (certificate)
- ◊ One-day (4-5 hrs) professional training programs (certificate)

It is necessary to develop and include in the national qualification framework new public health professions, for example – health advocate.

ორი მოდული (სწავლების მეთოდები 5 ECTS და პედაგოგიური პრაქტიკა 5 ECTS) წარმოდგენილია საუნივერსიტეტო ზოგადი საგნების სახით და მიმართულია დოქტორანტისათვის პედაგოგიური საქმიანობის უნარების გამომუშავებისაკენ.

ოთხი მოდული (HCPD7110 მედიცინა, ჯანდაცვა და ფილოსოფია 5 ECTS, HCPD7120 ეპიდემიოლოგია და ბიოსტატისტიკა 10 ECTS, HCPD7220 მტკიცებულებითი მედიცინა და სოციალურ-სტატისტიკური კვლევის მეთოდები 15 ECTS და HCPD7210 კვლევის პროექტი 10 ECTS), ძირითადი არჩევითი დარგობრივ სასწავლო მოდულთან ერთად, ამზადებს დოქტორანტს კვლევითი კომპონენტის ეფექტიანი განხორციელებისათვის და უვითარებს მას აკადამიური და სამეცნიერო საქმიანობის უნარებს.

„სადისერტაციო ნაშრომი“ წარმოადგენს დოქტორანტურის კვლევით კომპონენტს და შედგება 4 ეტაპად განსახორციელებელი შემდეგი ძირითადი აქტივოვებისაგან (ფრაგმენტებისაგან):

1. საკვლევ საკითხზე ლიტერატურის მიმოხილვა,
2. კვლევის პროტოკოლი,
3. სამეცნიერო კვლევა,
4. სადისერტაციო ნაშრომის დაცვა.

დოქტორანტის მიერ კვლევითი კომპონენტის დაწყებას განსაზღვრავს სამეცნიერო ხელმძღვანელი. დოქტორანტურაში სწავლების პირველ წელს (1-ლ და მე-2 სემესტრებში) დოქტორანტი გადის სასწავლო კომპონენტის საგნებს. შესაძლებელია პედაგოგიური პრაქტიკა გაიაროს მომდევნო სემესტრებში. იმ შემთხვევაში, როდესაც დოქტორანტი ადვილად სძლევს სასწავლო კომპონენტის საგნებს, მას პირველი წლიდან შეუძლია დაიწყოს პროგრამის კვლევითი კომპონენტის აქტივობები, კერძოდ- საკვლევ საკითხზე ლიტერატურის მიმოხილვა და კვლევის პროტოკოლის მომზადება. ასეთ შემთხვევაში დოქტორანტს სამეცნიერო კვლევის ჩასატარებლად ეძლევა სამი სემესტრი (მე-3, მე-4 და მე-5), ხოლო მე-6 სემესტრი- სადისერტაციო ნაშრომის დაცვისათვის. ალტერნატივა: დოქტორანტი სწავლების 1-ლ წელს ამზადებს მხოლოდ საკვლევ საკითხზე ლიტერატურის მიმოხილვას, ხოლო კვლევის პროტოკოლის მომზადებას იწყებს მე-3 სემესტრში, მე-4 და მე-5 სემესტრებში ატარებს სამეცნიერო კვლევას, ხოლო მე-6 სემესტრში იცავს სადისერტაციო ნაშრომს.

Professional training programs should be prepared:

- ◊ 30 ECTS, one semester (diploma)
- ◊ 60 ECTS, two semesters (diploma)
- ◊ One-week (5 training days, 1 travel day, 7th day – business trip report) professional training programs 5 ECTS (certificate)
- ◊ One-day (4-5 hrs) professional training programs (certificate)

It is necessary to develop and include in the national qualification framework new public health professions, for example – health advocate.

It is also necessary to develop bachelor's and master programs:
It is possible that bachelor's program, from 240 ECTS (4 years, 8 semesters *30 ECTS), be changed to 180 ECTS (3 tears, 6 semesters *30ECTS), and master's program, from 120 ECTS (2 years, 4 semesters *30ECTS), be changed to 90ECTS (1.5 year, 3 semesters *30 ECTS).

When the obtained results make it possible to achieve program objectives in shorter period of time, it is acceptable to make adjustment and reduce the number of mandatory subjects and credits.

While receiving professional education in public health under the programs of two 60 ECTS, 2 semesters (diploma) and one 30ECTS, one semester (diploma), or under the program with five 30 ECTS, one semester (diploma), in addition to 30 ECTS, one semester (diploma) student should be able to perform a research and defend bachelor's thesis – collect 180 ECTS and in addition to 3 or 5 professional diplomas, obtain diploma and academic degree of the Bachelor in Public Health.

Student is motivated to achieve the goal by saving 1 year period and finances. Similarly will save the time and money master program student.

In order to simply assess the cost-effectiveness, the current study fees on bachelor's (240 ECTS) and master's programs (120 ECTS) at the School of health Sciences and Public health of the University of Georgia are reviewed as an example.

რეკომენდებული მიდგომა ახალი პროფესიული, საბაკალავრო და სამაგისტრო პროგრამების შექმნისას:

საზოგადოებრივ ჯანდაცვაში პროფესიული, საბაკალავრო და სამაგისტრო პროგრამების მომზადებისას რეკომენდებული მიდგომები:

[1]

საზოგადოებრივი ჯანდაცვის 10 პრიორიტეტული ამოცანა:

1. საზოგადოებრივ ჯანდაცვაში მოსახლეობის განათლებისა და მაღალი კვალიფიკაციის მულტიპროფილური უნარების მქონე სპეციალისტების მომზადების ხელშეწყობა;
2. ჯანმრთელობის ადვოკატობის ინპლემენტაციის ხელშეწყობა;
3. საზოგადოების ჯანმრთელობის პოპულაციური რეგისტრის მონაცემებით, ფაქტებზე დაფუძნებული მტკიცებულებებით, ჯანმრთელობის მდგომარეობის ინდიკატორების მონიტორინგის, დაავადებების გავრცელების და პაციენტების გარდაცვალების მიზეზების, სიხშირის, სტრუქტურის კონტროლის ხელშეწყობა;
4. დაავადებათა ტვირთის განსაზღვრისა და კონტროლის ხელშეწყობა;
5. საზოგადოების ჯანმრთელობაზე მოქმედი გარემო ფაქტორების გავრცელებისა და მათი მოსახლეობაზე ექსპოზიციის პროტექციის, ხარისხის მონიტორინგის, მოსალოდნელი რისკების შეფასებებისა და მათი რედუქციის ხელშეწყობა;
6. მოსახლეობის ჯანმრთელობის პრომოციის ხელშეწყობა;
7. დაავადებების განვითარებისა და ადრეული გარდაცვალების პრევენციის ხელშეწყობა;
8. მოსახლეობის სიცოცხლისა და აქტიური ცხოვრების გახანგრძლივების, საზოგადოების ცხოვრების ხარისხის ამაღლებისა და სოციალური კეთილდღეობის გაზრდის ხელშეწყობა;

ECTS	Annual fee GEL	Years	Total GEL	One semester/ GEL
240	3500	4	14000	1750
120	3000	2	6000	1500

ECTS	One semester/ GEL	Se-mester	Total GEL	Difference
180	1750	6	10500	3500
90	1500	3	4500	1500

In case of modification of the programs (Bachelor's - 180ECTS, Master's - 90ECTS) and leaving the same fees, the bachelor student will save 3500 GEL and the master - 1500 GEL. With the modified programs the universities' semester income from each student will remain the same, and increasing number of students will increase their total revenues.

Thus, in the case if the recommended changes are taken into account, in addition to maintaining or improving the quality of education and achieved results, educational programs will become more cost-effective, competitive and stable.

It is likely that the systemic full continuous educational program Healthcare Plus will become a demonstration-guidance model for local, as well as international academic and scientific organizations.

Deposited by the SakPatent (Georgian Patent) on March 16, 2018, certificate #7281

9. საკანონმდებლო გარემოს, აღმასრულებელი სისტემის მატერიალურ-ტექნიკური ბაზების გაუმჯობესების, ადამიანური რესურსებით სისტემის უზრუნველყოფისა და საზოგადოებრივი ჯანდაცვის ქსელების შექმნის ხელშეწყობა;
10. საზოგადოების ჯანმრთელობის გლობალური (UN, NY; WHO, Geneva) მიზნების 2020, 2025, 2030 მიღწევის ხელშეწყობა.

2018-2019 წწ. საზოგადოებრივი ჯანდაცვის 10 პრიორიტეტული პრობლემის გადაჭრის ხელშეწობის მიზნით, მოსამზადებელია საზოგადოებრივ ჯანდაცვაში უწყვეტი სრული საგანმანათლებლო პროგრამა 2020-2029.

მოსამზადებელია პროფესიული სწავლების პროგრამები:

- ◊ 30 ECTS, ერთი სემესტრი (დიპლომი)
- ◊ 60 ECTS, ორი სემესტრი (დიპლომი)
- ◊ ერთკვირიანი (5 სასწავლო დღე, 1 სამგზავრო დღე, მე-7 დღე-სამივლინებო ანგარიში) პროფესიული ტრეინინგების პროგრამები 5 ECTS (სერტიფიკატი)
- ◊ ერთდღიანი (4-5 სთ) პროფესიული ტრეინინგების პროგრამები (სერტიფიკატი)

შესაქმნელია და ეროვნულ საკვალიფიკაციო ჩარჩოში შესატანია საზოგადოებრივი ჯანდაცვის ახალი პროფესიები, მაგ.: ჯანდაცვის ადვოკატი.

ასევე მოსამზადებელია საბაკალავრო და სამაგისტრო პროგრამები:
საბაკალავრო პროგრამა ნაცვლად 240 ECTS (4 წელი, 8 სემესტრი* 30 ECTS), დასაშვებია გახდეს 180 ECTS (3 წელი, 6 სემესტრი *30 ECTS), ხოლო სამაგისტრო პროგრამა ნაცვლად 120 ECTS (2 წელი, 4 სემესტრი *30 ECTS)- 90 ECTS (1.5 წელი, 3 სემესტრი *30 ECTS).

როდესაც მიღებული შედეგებით მიღწეულია პროგრამით დასახული მიზნები დროის უფრო ხანმოკლე პერიოდში, დასაშვებია კორექტირება სასწავლო დროსთან ერთად სავალდებულო საგნებისა და კრედიტების რაოდენობის შესამცირებლად.

საზოგადოებრივ ჯანდაცვაში პროფესიული განათლების მიღებისას ორი 60 ECTS, 2 სემესტრი (დიპლომი) და ერთი 30 ECTS, ერთი სემესტრი (დიპლომი) პროგრამებით, ან ხუთი 30 ECTS, ერთი სემესტრი (დიპლომი) პროგრამით, სტუდენტს უნდა შეეძლოს 30 ECTS, ერთი სემესტრის (დიპლომი) დამატებით - კვლევის ჩატარება და საბაკალავრო ნაშრომის დაცვა - დააგროვოს 180 ECTS და 3 ან 5 პროფესიული დიპლომის დამატებით მიიღოს საზოგადოებრივ ჯანდაცვის ბაკალავრის დიპლომი და აკადემიური ხარისხი.

აბიტურიენტი მოტივირებულია 1 წლის ხანგრძლიობის დროის და ფინანსების დაზოგვით მიაღწიოს მიზანს. დროსა და ფინანსებს ანალოგიურად დაზოგავს სტუდენტი მაგისტრანტიც.

ხარჯთ-ეფექტიანობის მარტივი შეფასებისათვის, მაგალითად განხილულია საქართველოს უნივერსიტეტის ჯანმრთელობის მეცნიერებათა და საზოგადოებრივი ჯანდაცვის სკოლაში საბაკალავრო (240 ECTS) და სამაგისტრო (120 ECTS) პროგრამებზე სწავლის საფასური დღეისათვის არსებული ტარიფებით.

ECTS	წლიური საფასური ლარი	წელი	სულ ლარი	ერთი სემესტრი/ ლარი
240	3500	4	14000	1750
120	3000	2	6000	1500

ECTS	ერთი სემესტრი/ ლარი	სემესტრი	სულ ლარი	სხვაობა
180	1750	6	10500	3500
90	1500	3	4500	1500

პროგრამების მოდიფიცირებისა (საბაკალავრო 180 ECTS, სამაგისტრო 90 ECTS) და სწავლების იგივე საფასურების დატოვების შემთხვევაში, ბაკალავრიატის სტუდენტი დაზოგავს 3500 ლარს, ხოლო მაგისტრატურის -1500 ლარს. უნივერსიტეტების, მოდიფიცირებული პოროგრამებით, სემესტრული შემოსავალი თითოეული სტუდენტისაგან დარჩება იგივე, ხოლო სტუდენტების რაოდენობის მატებასთან ერთად გაიზრდება მათი საერთო შემოსავლები.

ამადენად, რეკომენდებული ცვლილებების გათვალისწინების შემთხვევაში, სწავლების ხარისხისა და მიღებული შედეგების შენარჩუნების ან გაუმჯობესების პარალელურად, სასწავლო პროგრამები გახდება უფრო მეტად ხარჯთ-ეფექტიანი, კონკურენტუნარიანი და სტაბილური.

სავარაუდოა, რომ სისტემური სრული უწყვეტი საგანმანათლებლო პროგრამა „ჯანდაცვა პლუსი“, როგორც ადგილობრივი, ისე საერთაშორისო აკადემიური და სამეცნიერო ორგანიზაციებისათვის, გახდება სასწავლო სისტემების სადემონსტრაციო-სახელმძღვანელო მოდელი.

კონცეფცია დეპონირებულია საქპატენტის მიერ 2018 წლის 16 მარტს, მოწმობა #7281)

სექსუალური ცხოვრების თავისებურებები და კიბოს რისკი*

ვასილ ტყეშელაშვილი

საქართველოს უნივერსიტეტი, ჯანმრთელობის მეცნიერებათა და საზოგადოებრივი ჯანდაცვის სკოლა
მედიცინის მეცნიერებათა დოქტორი, პროფესორი

I. ქ.თბილისის ქალთა მოსახლეობის სექსუალური ფუნქციის ზოგიერთი თავისებურებები მე-20 საუკუნის 80-იანი წლების მეორე ნახევრის მონაცემებით.

ეპიდემიოლოგიური ანკეტის საშუალებით, რომელიც შეიცავდა 100 შეკითხვას, 1987-1989 წლებში ქ.თბილისში მცხოვრები 5,300 ქალის სელექციური ინტერვიურების საფუძველზე, შეფასება მიეცა მენსტრუალური, რეპროდუქციული და სექსუალური ფუნქციების თავისებურებებს და მიღებული იქნა ზოგადი წარმოდგენა ქალთა საერთო პოპულაციაში რისკის ფაქტორების გავრცელების შესახებ ასაკის, ეროვნებისა და სოციალური მდგომარეობის მიხედვით.

სქესობრივ ცხოვრებას ქ.თბილისში ქალები ძირითადად (50,0%) იწყებდნენ 19-27 წლის ასაკში. გამოიკვეთა ტენდენცია ქალთა რაოდენობის შემცირების, რომლებიც სქესობრივ ცხოვრებას იწყებენ 28 წლის ასაკის შემდეგ და ახალგაზრდა ასაკის კოჰორტაში ქალთა რაოდენობის რამდენადმე გაზრდის, რომლებიც სქესობრივ ცხოვრებას იწყებენ 18 წლის ასაკამდე.

ქალთა ნახევარზე მეტი (59,6%) ეწეოდა არარეგულარულ სქესობრივ ცხოვრებას. მისი არარეგულაროობა და არქონა 10 და მეტი წლის განმავლობაში აღნიშნა, შესაბამისად, ქალთა 17,2% და 8,9%-ში. ასაკის მატებასთან ერთად იზრდებოდა უკანასნელ მაჩვენებლების სიხშირე.

ცხოვრების განმავლობაში ქალთა უმრავლესობა (77,8%) აღნიშნავდა მხოლოდ ერთი სქესობრივი პარტნიორის ყოლას. 2 და მეტი სქესობრივი პარტნიორის შესახებ აჩვენა ქალთა მხოლოდ 7,0%-მა.

*) ფრაგმენტები სადოქტორო დისერტაციიდან: Эпидемиологический подход к ранней диагностике и рофилактике предрака и рака шейки и тела матки, Санкт-Петербург, 1991.-347с.

Sexual Life Style Variables and Risk of Cancer*

Vasil Tkeshelashvili

The University of Georgia, School of Health Sciences and Public Health
MD, JD, PhD, ScD, Professor

I. Some of the peculiarities of the sexual function of Tbilisi women population according to the data from the second half of the 80s of the 20th century.

Based on the selective interviews of 5,300 women living in Tbilisi in 1987-1989, peculiarities of menstrual, reproductive and sexual functions have been evaluated with the use of epidemiological questionnaire containing 100 questions and a general picture on the spread of risk factors among the general women population in terms of age, nationality and social status was obtained.

Women in Tbilisi mainly (50%) began their sexual life in the age of 19-27. There was a tendency of decrease in the number of women who started sexual life after the age of 28 and slight increase of the number of young women who start sexual life before age of 18.

More than half of women (59.6%) have had an irregular sexual life. Its irregularity and absence for 10 and more years have been reported, respectively, in 17.2% and 8.9% of women. Frequency of the latter indicators increased with age.

Majority of women (77.8%) reported that they had only one sexual partner in their lives. Only 7.0% reported that they had two and more sexual partners. Proceeding from the confidentiality of this intimate issue, the latter figures, presumably, do not reflect the reality. Women often left the question unanswered.

Frequency of two or more sexual partners in life has culminated in all ethnic groups of women with the increase of age.

Most women have denied the history of sexually transmitted diseases (STDs). At the same time, the incidence of inflammatory diseases of genital organs (31.1%), including chronic adnexitis (28.0%), were cumulated in late reproductive (352 cases per 1000 women) and premenopausal (359‰) age periods.

According to socio-ethnic groups, the highest peak levels of inflammatory diseases of the genital organs were recorded in women of Russian nationalities (492‰) and service field employed females (457‰) living in industrial districts of Tbilisi.

*) Fragments from postgraduate study in oncology, ScD diploma: Epidemiological approach to early detection and prevention of cervical and endometrial precancerous lesions and cancer, St.-Petersburg, 1991.– 347p.

ამ ინტიმური საკითხის კონფიდენციალობიდან გამომდინარე, ეს უკანასკნელი მაჩვენებლები, სავარაუდოთ, არ ასახავენ რეალობას. ქალები ხშირად პასუხის გარეშეც კი ტოვებდნენ აღნიშნულ შეკითხვას.

ცხოვრების განმავლობაში 2 და მეტი სქესობრივი პარტნიორის ყოლის სიხშირე ქალთა ყველა ეთნიკურ ჯგუფებში კუმულირდებოდა ასაკის მატებასთან ერთად.

ქალთა უმრავლესობამ უარყო ანამნეზში სქესობრივი გზით გადამდები დაავადებები (STD- Sexually Transmitted Diseases). ამავე დროს, სასქესო ორგანოების ანთებითი დაავადებების (31,1%), მათ შორის ქრონიკული ადნექსიტების (28,0%) სიხშირე კუმულირდებოდა გვიან რეპროდუქციულ (352 შემთხვევა 1,000 ქალზე) და პრემენოპაუზის (359‰) ასაკობრივ პერიოდებში.

სოციალურ-ეთნიკური ჯგუფების მიხედვით, სასქესო ორგანოების ანთებადი დაავადებების გარცელების ყველაზე მაღალი პიკური დონეები აღინიშნა თბილისის სამრეწველო რაიონებში მცხოვრები რუსი ეროვნების მუშებში (492‰) და მომსახურეობის სფეროში დასაქმებულ ქალებში (457‰).

ინტერესს იწვევს ის ფაქტი, რომ ქალთა აღნიშნულ სოციალურ-ეთნიკურ ჯგუფებში აღინიშნა შემდეგი სიმპტომების პიკები: აციკლიური სისხლდენა საშვილოსნოდან 45 წლის ასაკამდე, თეთრად შლა, ტკივილი მცირე მენჯის არეში. სავარაუდოა, რომ საშვილოსნოს აციკლიურ სისხლდენებს ჰქონდათ ჰორმონალურის ალტერნატიული, ინფექციური გენეზი. სხვა სიტყვებით, რეპროდუქციული ასაკობრივი პერიოდის (45 წლამდე) ქალებში აციკლიური სისხლდენა საშვილოსნოდან შესაძლებელია იყოს სქესობრივი გზით გადამდები დაავადებების კლინიკური გამოვლინება.

II. საშვილოსნოს ყელისა და ტანის კიბოს შეფარდებითი რისკი რეპროდუქციული და სექსუალური ფუნქციების დამახასიათებელი თავისებურებებისა და სექსუალური გზით გადამდები დაავადებების (STD) ექსპოზიციის დროს

საქართველოს ჯანდაცვის სამინისტროს ონკოლოგიის სამეცნიერო ცენტრში 1987-1989 წლებში, ეპდემიოლოგური კვლევით "შემთხვევა-კონტროლი" შესწავლილი იქნა საშვილოსნოს

Particular Interest causes the fact that women in the above socio-ethnic groups the pick of following symptoms have been observed: acyclic uterine bleeding under the age of 45, discharge, pain in the small pelvic area. It is likely that acyclic uterine bleeding had a hormonal alternative, infectious genesis. In other words, acyclic bleeding from the uterus in the females of reproductive age (under 45 years) may be clinical manifestation of sexually transmitted diseases.

II. Relative risk of cervical and endometrial cancer at the exposure of peculiarities of reproductive and sexual functions and sexually transmitted diseases (STDs).

In 1987-1989 the relative risk of cervical and endometrial cancer at the exposure of peculiarities of reproductive and sexual functions and sexually transmitted diseases (STDs) have been studies through epidemiological "case-control" study at the Research center of Oncology of the Ministry of Health of Georgia. With the help of epidemiological questionnaire, which included 100 questions, 126 patients with the diagnosis of cervical cancer and 126 patients with diagnosis of endometrial cancer have been interviewed. Control groups were selected from 5300 women of the total population of Tbilisi. Selection was conducted on the basis of age, nationality, marital and social status (including education, profession, workplace and position, place of residence). Initial control groups consisted of 1049 and 908 women respectively. On the next stage structured stratification and correction of merging of these factors have been performed. As a result, control groups of 199 and 168 women were selected and the impact of these factors on the results of the research was excluded. At the first stage the numbers of Relative Risk (RR) indicators during the exposure of factors were studied. Statistical confidence was calculated by 95% confidential interval (95% CI) of relative risk and additionally by X^2. On the second stage, relative risk rates were studied by exposure and confound factors. Cervical and endometrial cancer relative risk indicators were studied during STD exposure. Stratified analysis during the "case control" epidemiological study was performed under Mantel-Haenszel method.

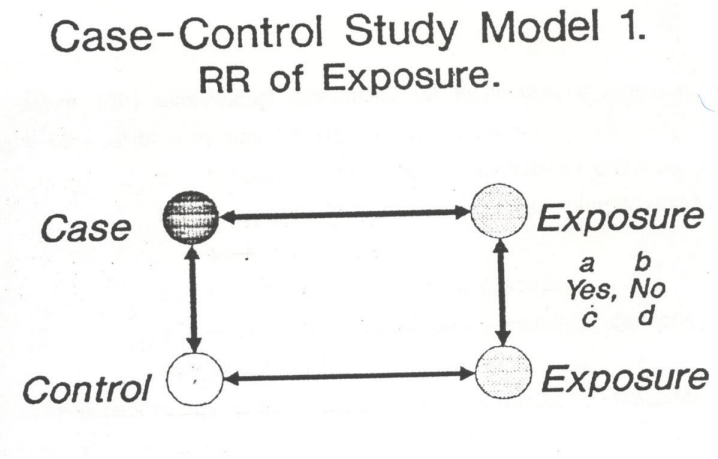


Fig.1

ყელისა (სყკ) და ტანის კიბოს (სტკ) შეფარდებითი რისკი რეპროდუქციული და სექსუალური ფუნქციების დამახასიათებელი თავისებურებებისა და სექსუალური გზით გადამდები დაავადებების (STD) ექსპოზიციის დროს. ეპიდემიოლოგიური ანკეტის საშუალებით, რომელიც შეიცავდა 100 შეკითხვას, ინტერვიუირებული იქნა 126 პაციენტი სყკ და 126 პაციენტი სტკ დიაგნოზით. საკონტროლო ჯგუფები შეირჩა თბილისის საერთო პოპულაციის 5,300 ქალიდან. შერჩევა წარმოებდა ასაკის, ეროვნების, ოჯახური მდგომარეობისა და სოციალური სტატუსის (განათლების, პროფესიის, სამუშაო ადგილისა და თანამდებობის, საცხოვრებელი ადგილის ჩათვლით) გათვალისწინებით. პირველადმა საკონტროლო ჯგუფებმა შეადგინა შესაბამისად, 1049 და 908 ქალი. შემდგომ ეტაპზე ჩატარდა აღნიშნული ფაქტორების ერთმანეთ-თან შერწყმის სტრუქტურული სტრატიფიკაცია და კორექცია. შედეგად, შერჩეული იქნა 199 და 168 ქალისაგან შემდგარი საკონტროლო ჯგუფები და გამოირიცხა აღნიშნული ფაქტორების ზემოქმედება კვლევის შედეგებზე. პირველ ეტაპზე შესწავლილი იქნა შეფარდებითი რისკის (RR– Relative Risk) მაჩვენებელთა ოდენობები ფაქტორების ექსპოზიციის დროს. სტატისტიკური სარწმუნოება გამოითვლებოდა შეფარდეფითი რისკის 95%-იანი კონფიდენციალური ინტერვალისა (95% CI) და, დამატებით, χ2-ის საშუალებით. მეორე ეტაპზე შეფარდებითი რისკის მაჩვენებლები შეისწავლებოდა ექსპოზიციური (Exposure) და შერევის (Confound) ფაქტორების გათვალისწინებით (სურათები 1, 2, 3 და 4).

სყკ და სტკ შეფარდებითი რისკის მაჩვენებლები შეისწავლებოდა STD-ს ექსპოზიციის დროს. სტრატიფიცირებული ანალიზი ეპიდემიოლოგიური კვლევისას "შემთხვევა კონტროლი" ჩატარდა Mantel-Haenszel-ის მეთოდით. კვლევის შედეგები მოცემულია ცხრილებში.

საშვილოსნოდან აციკლიური სისხლდენის სახით მენსტრუალური ფუნქციის დარღვევა სყკ-ს დროს აღინიშნება რეპროდუქციულ პერიოდში, 45 წლის ასაკამდე (RR= 2,1), ხოლო სტკ-ს - პრემენოპაუზაში, 45-49 წლის ასაკში (RR= 2,8). პოსტმენოპაუზაში (50 წლის შემდეგ) საშვილოსნოდან სისხლდენა წარმოადგენს სყკ-ს და, განსაკუთრებით, სტკ-ს სიმპტომს.

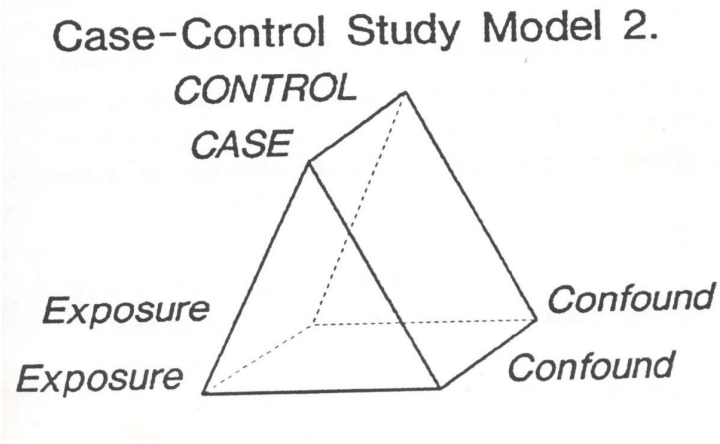


Fig.2

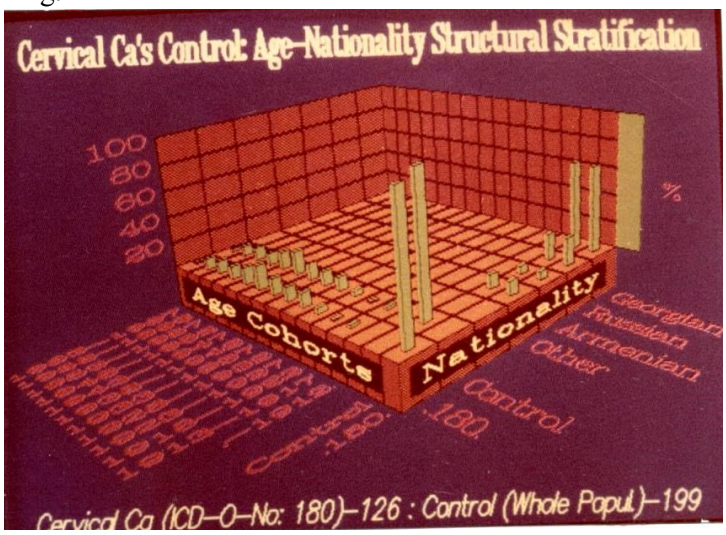


Fig.3

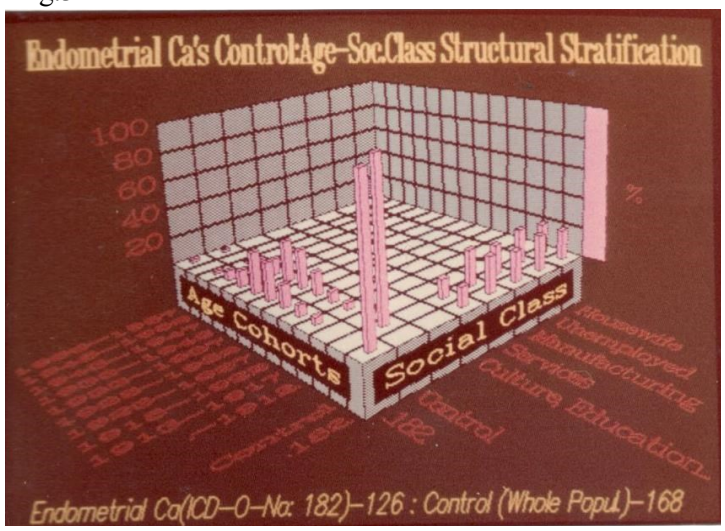


Fig.4

Menstrual function disorder in the form of acyclic uterine bleeding in case of cervical cancer is observed in the reproductive age, under 45 (RR=2.1) and in case of endometrial cancer – in menopause period at the age of 45-49 (RR= 2.8). In post-menopause period (after 50 years of age) uterine bleeding is a symptom of cervical cancer, and especially of endometrial cancer.

მენოპაუზის დადგომა 50 წლის შემდგომ ასაკში 2,2 -ჯერ ზრდის სტკ-ს I პათოგენური ვარიანტის (პვ), პროფ. იან ბოხმანის კლასიფიკაციით (1972), რისკს. პირველი მშობიარობა ადრეულ ასაკში (18 წლამდე) დამახასიათებელია პაციენტებისათვის სყკ-ს დიაგნოზით (RR= 7,4). სყკ-თან ასევე სტატისტიკურად სარწმუნო კორელაციაშია სქესობრივი ცხოვრების ადრეულ ასაკში (18 წლამდე) დაწყება (RR= 3,3). 6 და მეტი ორსულობა (RR=1,7), ცხოვრებაში ერთზე მეტი სქესობრივი პარტნიორი (RR= 2,1).

საშვილოსნოს ყელის ეროზია წარმოადგენს სყკ-ს ფონურ დაავადებას და, შესაბამისად, წლების განმავლობაში მისი მკურნალობის (ექსციზია, კონიზაცია) გარეშე დატოვების შემთხვევაში ძალზე მაღალია (RR= 6,0) სყკ-ს განვითარების რიკი.

I პათოგენური ვარიანტის სტკ-ს განვითარების შეფარდებითი რისკის მაჩვენებლებმა შეადგინეს, შესაბამისად, 2,2 და 3,5, 0-1 მშობიარობისა და 0-1 აბორტის დროს. მონაცემები მშობიარობისა და აბორტის არარსებობის ან შეზღუდული რაოდენობის შესახებ, სქესობრივი ცხოვრების შემთხვევებში, როდესაც პაციენტებს არ გამოუყენებიათ კონტრაცეპციული საშუალებები, მეტყველებენ ჰორმონოდამოკიდებული პათოგენური ვარიანტის (I პვ) სტკ-თი დაავადებულ ქალებში რეპროდუქციული ფუნქციის შესაძლო დარღვევაზე ენდოკრინული გენეზის მქონე უშვილობის სახით.

I პათოგენური ვარიანტის სტკ-ს დროს აღინიშნება კავშირი სიმსუქნესთან (RR= 5,4), საშვილოსნოს მიომასთან (RR=5,2), ჰიპერტონულ დაავადებასთან (RR=2,5), ქრონიკულ ქოლეცისტიტთან (RR=2,8), ვეგეტაციურ-სისხლძარღვოვან დისტონიასთან (RR= 3,6).

ყურადღებას იპყრობს სყკ-ს და ჰორმონოდამოუკიდებელი, ავტონომიური პათოგენური ვარიანტის (II პვ) სტკ-ს კავშირი ანამნეზში გენიტალური ინფექციური დაავადებების (შესაბამისად, RR= 1,8 და RR= 2,9), მათ შორის ქრონიკული ადნექსიტების (შესაბამისად, RR= 1,6 და RR= 2,9) არსებობასთან. ქრონიკულ გენი-

Table 1

Case-Control Study of Risk Factors of Cervical Cancer

Factors	Relative Risk
Early 1st sexual experience (-18)	3,3
2 and more sexual partners	2,1
Early 1st delivery (-18)	7,4
6 and more pregnancy	1,7
Acyclic bleedings in the reproductive period (-45)	2,1
Chronicle genital infections (STD)	1,8
Chronicle ovarian infections (STD)	1,6
In the persons with STD	
6 and more pregnancies	2,1
3 and more abortions	2,9
3 and more deliveries	1,9

According to Prof. Jan Bokhman's classification (1972) menopause after 50 of age 2.2 times increases the risk of I pathogenic variant (PV) of endometrial cancer.

The first delivery at an early age (under 18) is characteristic for patients with diagnosis of cervical cancer (RR = 7.4). Starting of sexual life at the early age (under 18) is also in statistically confident correlation with cervical cancer. 6 and more pregnancies (RR=1.7), more than one sexual partner (RR=2.1).

Cervical erosion is a background disease of cervical cancer and if left without treatment (excision, conization) for years, the risk of cervical cancer development is very high (RR=6.0).

Indicators of development of cervical cancer of I pathogenic variant made up 2.2 and 3.5 during 0-1 delivery and 0-1 abortion respectively. Data on the absence or limited number of delivery or abortion in cases of sexual life when patients have not used contraceptive methods indicate on possible disorder of reproductive function in the form of infertility of endocrine genesis in women with hormone-dependent I PV endometrial cancer.

I PV endometrial cancer, there is a link with obesity (RR =5.4), uterine myoma (RR=5.2), hypertonic disease (RR=2.5), chronic cholecystitis (RR=2.8), vegetative-vascular dystonia (RR=3.6).

Attention should be paid to the association of cervical cancer and II PV hormone-independent endometrial cancer with the presence of genital infections (RR=1.8 and RR=2.9 relatively), including chronic adnexitis (RR=1.6 and RR=2.9 relatively) in the medical history.

ტალურ ინფექციურ დაავადებებთან არის დაკავშირებული ანამნეზში კლინიკური სიმპტომების არსებობა: ტკივილი მცირე მენჯის არეში (შესაბამისად, RR= 3,8 და RR= 7,6), თეთრად შლა (შესაბამისად, RR=6,5 და RR= 9,8) და, განსაკუთრებით, საშვილოსნოდან აციკლიური სისხლდენა რეპროდუქციულ პერიოდში (სყკ-ს დროს RR= 2,1).

ინფექციური ხასიათის მაღალი ხარისხის ალბათობის გათვალისწინებით, გენიტალუ-რი ორგანოების გადატანილი ანთებითი პროცესები, ქრონიკული ადნექსიტების პერიოდული გამწვავებების ჩათვლით, პირობითად აღნიშნული იქნა, როგორც ჰორიზონტალურად, ძირითადად სქესობრივი გზით, გადამდები დაავადებები (STD - Sexually Transmitted Diseases). პაციენტებში, სყკ-ს და სტკ-ს ავტონომიური პათოგენური ვარიანტის (II პვ) დიაგნოზით, STD ფაქტორის არსებობა შესაძლოა დაკავშირებულია ქალების მაღალ ფერტილობასთან.

STD ფაქტორის არსებობისას პაციენტებში სყკ-ს დიაგნოზით ანამნეზში აღინიშნებოდა ორსულობა (RR= 6,8), მათ შორის– 6 და მეტი ორსულობა (RR= 2,1), 3 და მეტი აბორტი (RR= 2,9), 3 და მეტი მშობიარობა (RR=1,9), მშობიარობა ადრეულ ასაკში (RR=5,4). STD ფაქტორის არსებობისას პაციენტებში სტკ-ს II პვ-ით ანამნეზში ასევე აღინიშნებოდა ორსულობა (RR=3,6), მშობიარობა (RR= 3,7) და აბორტები (RR=3,1). ქალებში, რომლებმაც სქესობრივი ცხოვრება დაიწყეს 18 წლის ასაკამდე და ანამნეზში ჰქონდათ STD, სყკ-ს განვითარების შეფარდებითი რისკის მაჩვენებელმა შეადგინა, ხოლო სტკ-ს II პვ-ის - 10,1.

სტრატიფიცირებული ანალიზით, 100 შესწავლილი ფაქტორით კორექციის შედეგად Mantel-Haenszel-ის მეთოდით, დადგენილი იქნა სტკ-ს I პვ-თან შედარებით (RR= 2,3), STD ფაქტორის ექსპოზიციის უფრო მაღალი დონე სტკ-ს II პვ-ის დროს (RR= 2,9). და პირიქით, ვეგეტაციურ-სისხლძარღვოვანი დისტონიის (ვსდ) ექსპოზიციის შეფარდებითი რისკის მაჩვეებელმა სტკ-ს I პვ- ის დროს შეადგინა 3,6, ხოლო სტკ-ს II პვ-ის დროს—0,4 (უარყოფითი კორელაციის გამო სტკ-ს II პვ-ის დროს ვსდ წარმოადგენს რედუქციულ ფაქტორს).

Table 2

Case-Control Study of Risk Factors of Endometrial Cancer

Risk Factors of Endometrial Cancer of I Pathogenic variant (prof. Jan Bokhman's classification, 1972)	Relative Risk
Irregular Sexual Life	2,7
Absence of Sexual Life in 10 and more years	2,0
Prolongation of menstrual bleeding	3,6
Acyclic bleeding in premenopausal period (45-49)	3,0
0-1 abortion	3,5
0-1 delivery	2,2
Obesity	5,4
Hypertonic disease	2,5
Myoma of uteri	5,2
Chronical cholecystitis	2,8
Vegetative-vascular dystonia	3,6
Risk Factors of Endometrial Cancer of II Pathogenic variant (prof. Jan Bokhman's classification, 1972)	**Relative Risk**
Early 1st sexual experience (-18)	3,4
0-1 abortion	3,6
Chronicle genital infections (STD)	2,9
Chronicle ovarian infections (STD)	2,9
In the persons with STD	**In the persons with STD**
Early 1st sexual experience (-18)	10,1

Presence of clinical symptoms in anamnesis is associated to the chronic genital infections: pain in the small pelvic area (RR=3.8 and RR=7.6 respectively), discharge (RR=6.5 and RR=9.8) and especially acyclic uterine bleeding in the reproductive period (in case of cervical cancer RR=2.1).

Considering high probability of infectious nature, the inflammatory processes of genital organs, including periodic exacerbations of chronic adnexitis, were fixed as horizontally, mostly sexually transmitted diseases (STDs). Presence of STD factors in women with autonomous II PV

“შემთხვევა კონტროლი”-ს ტიპის ეპიდემიოლოგიური კვლევით მიღებული მონაცემების რეზიუმირებით შესაძლებელია ვივარაუდოთ ჰორმონოდამოუკიდებელი, ავტონომი-ური პვ-ის სტკ-ს ალტერნატიული, ინფექციური გენეზი. ნათლად იკვეთება მიზეზ-შედეგო ბრივი კავშირი ქალების სქესობრივი ცხოვრების თავისებურებებს (სქესობრივი ცხოვრების ადრეულ ასაკში დაწყება), გენიტალური ორგანოების ანთებადი პროცესების სინდრომის განვითარებას (STD, ვირუსულიინფექციის გამური -ცხავად) და მენსტრუალური ფუნქციის დარღვევას (აციკლიური სისხლდენა საშვილოსნოდან) შორის. შესაძლებელია, რომ სწორედ ეს არის ის ფონი, რომელზეც ვითარდება ენდომეტრიუმის კიბოს ჰორმონო-დამოუკიდებელი, ავტონომიური პვ. მაშინ როდესაც გამოვლინდა კავშირი ვსდ-ს, ერთის მხრივ, და ენდოკრინულ და ნივთიერებათა ცვლის დარღვევებს შორის, რომლებიც დამახასიათებელია სტკ-ს I, ჰორმონო- დამოკიდებული, პვ-თვის.

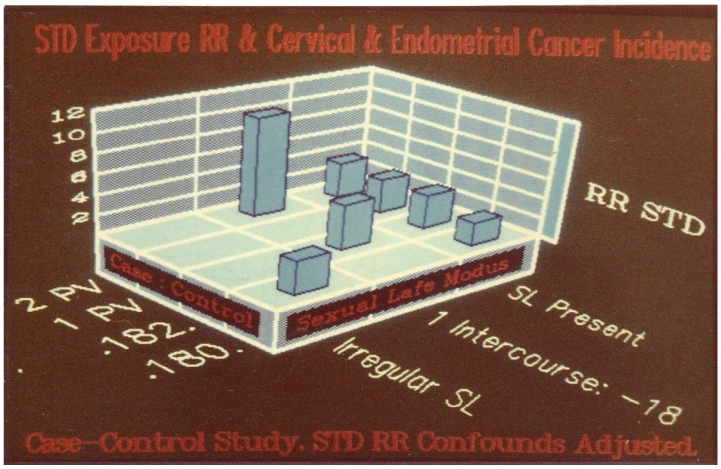


Fig. 5

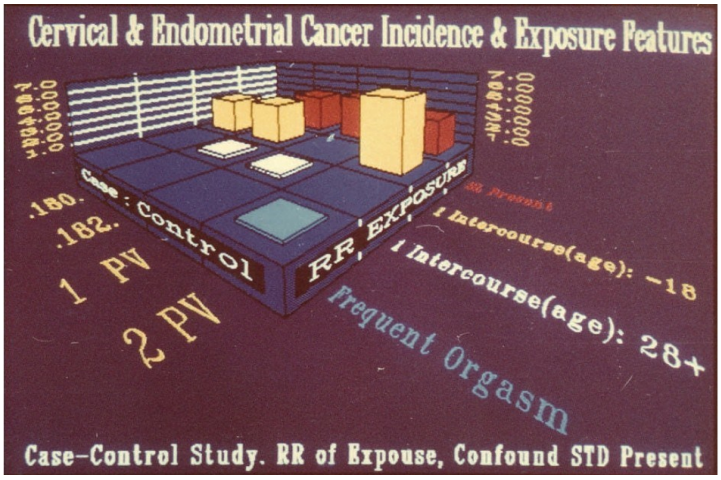


Fig. 6

III სექსუალური ფუნქციის თავისებურებები, ვირუსული ინფექციის ექსპოზიცია და საშვილოსნოს ყელისა და ტანის კიბოს რისკი

პროფ. იან ბოხმანთან და თანაავტორებთან ერთად (1991) სანქტ-პეტერბურგში ჩატარებული პროსპექტული Follow-up კვლევისას წარმოებული იქნა 5 წლიანი დაკვირვება 211 პაციენტზე, რომელთაც 1983-1985 წლებში ჩატარებული პოპულაციური ციტოლოგიური სკრინინგის დროს გამოუვლინდათ საშვილოსნოს ყელის დისპლაზია (CIN–Cervical Intraepithelial Neoplasia) დიაგნოზის შემდგომი ჰისტოლოგიური დადასტურებით. 211-დან 70 შემთხვევაში დადგინდა CIN I, 94-ში -CIN II, ხოლო 47-ში-CIN III. პაციენტებს უტარდებოდათ ექტო- და ენდო- ცერვიკალური ნაცხების ციტოლოგიური კვლევა და სისხლის სეროლოგიური ანალიზი ჰერპესის მარტივი ვირუსის მე-2 გენოტიპზე (HSV-2).

სეროლოგიური კვლევით გამოვლენილი იქნა CIN-ით დაავადებულ ქალებში HSV-2-ით ექსპოზიციის მაღალი დონე (72,0%), რაც აიხსნება ამ ტიპის ვირუსული ინფექციის საერთო პოპულაციაში ფართო გავრცელების ცნობილი ფაქტით. CIN-ით დაავადებულ ქალებში HSV-2-ით

cervical and endometrial cancers may be associated with high fertility of women.

In case of STD factor presence, patients with cervical cancer diagnosis had history of pregnancy (RR=6.8), including 6 and more pregnancies (RR=2.1), 3 and more abortions (RR=2.9), 3 and more deliveries (RR=1.9), delivery at an early age (RR=5.4). In case of STD factor presence in patients with II PV endometrial cancer diagnosis also had history of pregnancy (RR=3.6), deliveries (RR=3.7), and abortions (RR=3.1). In women, who started sexual life under 18 of age and had the history of STDs, relative risk of cervical cancer development made up 3.5, and for II PV endometrial cancer – 10.1.

Under the stratified analysis due to correction with 100 studied factors by Mantel-Haenszel method higher level of STD factor exposure compared to II PV endometrial cancer was observed. On the contrary, the relative risk of exposure of the vegetative-vascular dystonia (VVD) at I PV endometrial cancer was 3.6, and for II PV endometrial cancer – 0.4 (due to negative correlation VVD is a reductive factor for II PV endometrial cancer).

Based on the summarizing of the data obtained through case-control epidemiological study, alternative, infectious genesis of hormone-independent, autonomous PV

ექსპოზიციის პიკური დონე (საერთო ჯამური სიხშირე 1:20 + 1:40 და 1:80+1:160 ტიტრების დროს) - 80,9%- აღინიშნა მძიმე დისპლაზიის, ანუ CIN III-ის შემთხვევებში. პაციენტებში CIN III-ის დიაგნოზით HSV-2-ით ინფიცირების ყველაზე მაღალი დონე (51,1%) იდენტიფიცირებული იქნა 1:80 და 1:160 ტიტრების დროს.

HSV-2-ით ექსპოზიციის დონეების მიხედვით, CIN-ის დიაგნოზით პაციენტებზე კოჰორტული დაკვირვება 6, 12, 18, 24 და 30 თვის განმავლობაში, მორფოლოგიური კონტროლით, განხორციელებული იქნა ეპიდემიოლოგიური კვლევით "შემთხვევა-კონტროლი". დისპლაზიის პროგრესირების შემთხვევები: CIN I-CIN II, CIN II-CIN III, CIN III–CIS (Carcinoma In Situ-ინტრაეპითელიალური კარცინომა, ანუ საშვილოსნოს ყელის კიბოს 0 სტადია) შედარებული იქნა CIN-ის რეგრესიისა და სტაბილიზაციის შემთხვევებთან. პროცესის პროგრესირების შეფარდებითი რისკის მაჩვენებლები შესწავლილი იქნა HSV-2-ის ექსპოზიციისა და მისი ხარისხის (1:20, 1:40 და 1:80, 1:160 ტიტრების დროს).

CIN-ის პროგრესირების შეფარდებითი რისკის მაჩვენებელთა დონეები კორელაციაში იყო HSV-2-ით ექსპო- ზიციის ხარისხთან. მაღალი ხარისხით (1:80, 1:160) HSV-2-ით ექსპოზიციის დროს 24 თვის შემდეგ იზრდებოდა CIN I-ის CIN II-ში და CIN II-ის CIN III-ში პროგრესირების შეფარდებითი რისკი. ამავე დროს HSV-2-ით ექსპოზიციის დროს CIN I-ის CIN II-ში პროგრესირების რისკი აღემატებოდაCIN II-ის CIN III-ში პროგრესირების რისკს.

5 წლიანი Follow-up კვლევით, მკურნალობის გარეშე საშვილოსნოს ყელის დისპლაზიის ბიოლოგიური მიმდინარეობის შესწავლამ საშუალება მოგვცა დაგვედგინა, რომ HSV-2-ით ინფიცირება გარკვეულ როლს თამაშობს დისპლა- ზიის განვითარებასა და მის სტაბილიზაციაში. ამავე დროს საეჭვოა ამ ვირუსული ინფექციის მნიშვნელობა CIN–ის Ca in situ-თ და საშვილოსნოს ყელის ინვაზიურ კიბოთ ტრანსფორმაციაში.

ხელშეკრულების შესაბამისად, კანცერო-გენეზის სამეცნიერო-კვლევით ინსტიტუტსა (მოსკოვი, დირექტორი- პროფ. დავით ზარიძე) და endometrial cancer can be considered.

The causal link between peculiarities of women's sexual life (start of sexual life at an early age), development of the syndrome of inflammatory processes of genital organs (STD, without excluding viral infection) and the disturbance of menstrual function (acyclic uterine bleeding) becomes clear. Possibly this is the background that develops the hormone-independent, autonomous PV of endometrial cancer. While association between VVD, on the one hand and between endocrine and metabolism disorders, were detected, which are characteristic of hormone-dependent I PV endometrial cancer.

III. Peculiarities of sexual function, exposure of viral infection and risk of cervical and endometrial cancer.

During the prospective follow-up study with Prof. Jan Bokhman and co-authors (1991) in Saint Petersburg 5-year observation of 211 patients was performed, who were diagnosed with cervical dysplasia (CIN–Cervical Intraepithelial

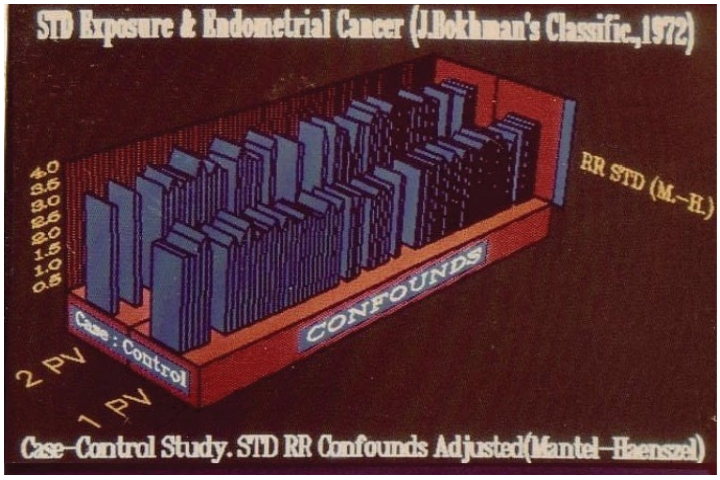


Fig. 7

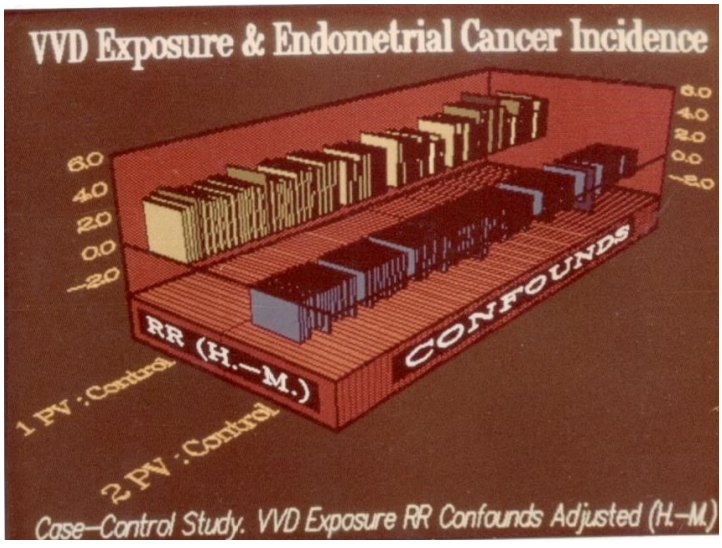


Fig. 8

ხელშეკრულების შესაბამისად, კანცეროგენეზის სამეცნიერო-კვლევით ინსტიტუტსა (მოსკოვი, დირექტორი- პროფ. დავით ზარიძე) და საქართველოს ჯანდაცვის სამინისტროს ონკოლოგიის სამეცნიერო ცენტრს (თბილისი, დირექტორი- პროფ. ლუარსაბ შარაშიძე, პასუხ. შემსრულებელი-მ.მ.კ. ვასილ ტყეშელაშვილი) 1987-1991 წლებში ჩატარებული იქნა კოოპერირებული ეპიდემიოლოგიური კვლევა. თბილისში, გინეკოლოგიურ განყოფილებაში (ხელმძ.- პროფ. ლევან ჩარკვიანი) 1987-1989 წლებში განხორციელდა ბიოპტატების აღება საშვილოსნოს ყელისა და ტანის სიმსივნეებიდან, ასევე კონტროლისათვის, საშვილოსნოს მიომის გამო ნაოპერაციები პაციენტების ექტო-, ენდო- ცერვიქსიდან და ენდომეტრიუმიდან. ბიოპტატების აღება ხორციელდებოდა უშუალოდ ოპერაციის შემდგომ მაკროპრეპარატების პრეპარირების დროს. ყველა შემთხვევის დროს კეთდებოდა 3 სინჯი, თითოეული სინჯის ათვის იღებოდა 1-2 გრ. ბიოპტატი, რომელიც მაშინვე თავსდებოდა სპეციალურ პოლიეთილენის სინჯარაში. ჰერმეტიული დახურვისა და მარკირების შემდეგ ეს უკანასნელი თავსდებოდა თხიერი აზოტით სავსე დიუვარის ჭურჭელში. ასეთი სახით, სინჯების გარკვეული რაო- დენობის დაგროვების შემდეგ, ბიოპტატები იგზავნებოდა მოსკოვში, კანცეროგენეზის სამეცნიერო-კვლევითი ინსტიტუტის ვირუსების მოლეკულური ბიოლოგიის ლაბორატორიაში (ხელმძ.- პროფ ფ.კისილიოვი) HPV (Human Papil- loma Virus) ინფექციის იდენტიფიცირების მიზნით. HPV-ის გენოტიპები 6ა, 11, 16 და 18 შეისწავლე-ბოდა დნმ -ის ჰიბრიდიზაციის მეთოდით. HPV-6ა შესწავლილი იქნა სყკ-ს 16 და სტკ-ს 20 ბიოპტატში HPV-11, შესაბამისად, 14 და 7, HPV-16-31 და 39, HPV-18-14 და 5 ბიოპტატში. სყკ-ს და სტკ-ს საკონტროლო 20 და 25 ბიოპტატში შესწავლილი იქნა HPV-16, 7 და 8 ბიოპტატში-HPV-6ა, 2 და 1 ბიოპტატში-HPV-11, 2 და 2 ბიოპტატში-HPV-18. 9 ბიოპტატში (6-სყკ-ს და 3- საკონტროლო) HPV-16-ს დნმ-ის დამატებით შესწავლილი იქნა პოლიმერაზული ჯაჭვური რეაქციის (PCR) მეთოდით (აღსანიშნავია, რომ იმ პერიოდისათვის თანამედროვე ეს მეთოდები სსრკ-ს მასშტაბით ხორციელდებოდა მხოლოდ აღნიშნულ ლაბორატორიაში).

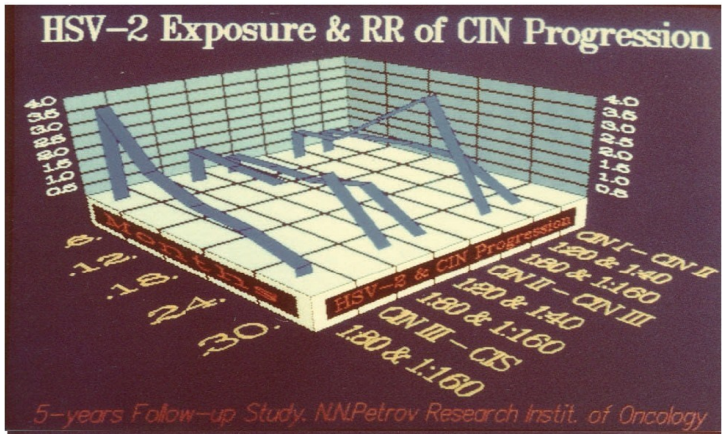


Fig. 9

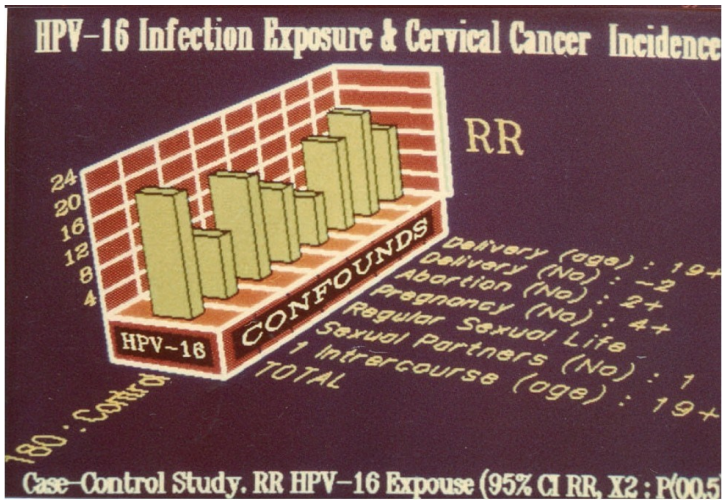


Fig. 10

Neoplasia) during the population cytological screening conducted in 1983-1985 and confirmed with post-diagnose histology. Among 211 patients CIN I was detected in 70 cases, CIN II in 94 cases and CIN III in 47 cases. Patients were given cytological study of ecto- and endo-cervical smears and blood serologic testing on the 2nd genotype of the Herpes Simplex Virus (HSV-2).

Serological testing detected high level (72%) of HSV-s exposure in women with CIN that can be explained with high prevalence of viral infections in general population. In women with CIN peak levels of HSV-2 exposure (total summative rate 1:20+1:40 and 1:80+1:160 titters) were observed in cases of severe dysplasia, i. e. CIN III cases.

In patients with CIN III diagnosis the level (51.1%) of HSV -2 infection was detected at 1:80 and 1:160 titters.

According to HSV-2 exposure levels, cohort observation of patients with CIN diagnosis was performed by epidemiological "case-control" study through morphological controls during 6, 12, 18, 24 and 30 months. Cases of dysplasia progression: CIN I-CIN II, CIN II-CIN III, CIN III-CIS (Carcinoma In Situ-Intraepithelial Carcinoma, or 0 Stage cervical cancer) was compared to CIN regression and stabilization cases. RR indicators of the process progress were

2 შემთხვევაში, როდესაც დნმ-ის ჰიბრიდიზაციის მეთოდით HPV-16-ით ინფიცირებაზე მიღებული იქნა უარყოფითი შედეგი, PCR-ის მეთოდით დამატებითმა შესწავლამ მოგვცა დადებითი შედეგი. ვირუსოლოგიური კვლევების შედეგები შეტანილი იქნა მონაცემთა ბაზაში დამატებითი ცნობების სახით.

სყკ-ს 31 შემთხვევიდან HPV-16 გამოვლენილი იქნა 16-ში (51,6%), სტკ-ს 39-დან - მხოლოდ 2-ში (5,1%). სყკ-ს საკონტროლო ჯგუფის 20 პაციენტიდან HPV-16 გამოვლენილი იქნა დნმ-ის ჰიბრიდიზაციის მეთოდით საშვილოსნოს მიომის 1 შემთხვევაში თანმხლები ენდოცერვიციტით. სტკ-ს საკონტროლო ჯგუფის 25 სინჯიდან HPV-16-ზე დადებითი შედეგი მიღებული იქნა 1 შემთხვევაში პოლიმერაზული ჯაჭვური რეაქციის (PCR) მეთოდით.

სყკ-გან განსხვავებით, სტკ-ს დროს (39-დან 2 შემთხვევაში) საკონტროლო ჯგუფთან შედარებით (25-დან 1 შემთხვევაში) არ იქნა გამოვლენილი HPV-16-ს ექსპოზიციაში სტატისტიკურად სარწმუნო სხვაობა ($p>0,05$). ამავე დროს, ყურადღებას იპყრობს HPV-16-ს იდენტიფიკაციის ფაქტი ენდომეტრიუმის პაპილარული ადენოკარცინომის შემთხვევებში. HPV ინფექციის სხვა გენოტიპებზე ცნობების არ არსებობის გამო გაძნელებულია საბოლოო პასუხის გაცემა შეკითხვაზე არის თუ არა მიზეზ-შედეგობრივი კავშირი HPV ინფექციის ექსპოზიციასა და სტკ-ს შორის.

ჩატრებული იქნა ეპიდემიოლოგიური კვლევა "შემთხვევა-კონტროლი" HPV-16-ს ექსპოზიციის თავისებურებების შესწავლის მიზნით სყკ-ს დროს.

სყკ-ს შეფარდებითი რისკის მაჩვენებელმა HPV-16-ს ექსპოზიციის დროს შეადგინა 20,3 ($\chi2=11,7$; $p<0,05$). HPV-16-ს ექსპოზიციის დონეები სყკ-ს დროს იცვლებოდა პაციენტების სექსუალური და რეპროდუქციული ფუნქციების თავისებურებების მიხედვით. ყურადღებას იპყრობს HPV-16-ს ექსპოზიციის მაღალი დონე მხოლოდ 1 სქესობრივი პარტნიორის დროს. ეს მონაცემები ასაბუთებენ მამაკაცი პარტნიორების სექსუალური ქცევის თავისებურებების, მათი ქალი პარტნიორების რაოდენობის (მამაკაცთა პრომისკუიტეტი), მნიშვნელობას.

studied according to HSV-s exposure and its degree (1:20, 1:40 and 1:80, 1:160 titters).

Levels of RR of CIN progression were in correlation with HSV-2 exposure degree. In cases of high degree of HSV-2 exposure (1:80, 1:160) the relative risk of progressing of CIN I into CIN-II and CIN-II into CIN-III was increasing after 24 months. At the same time the risk of progressing CIN-I into CIN-II at HSV-s exposure was higher of the risk of progressing CIN-II into CIN-III.

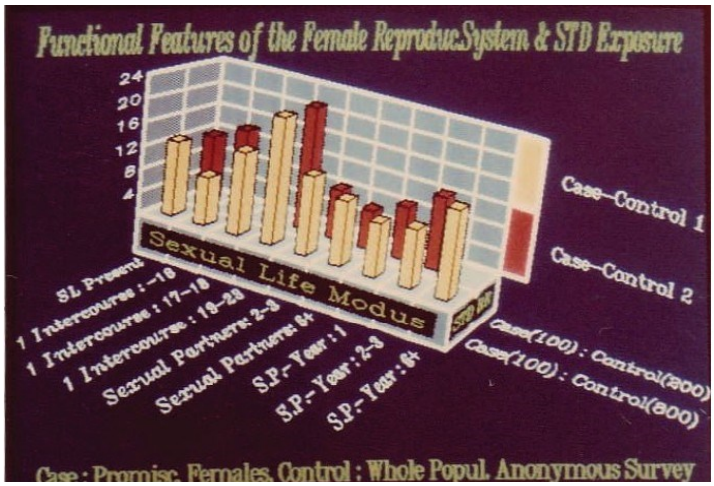


Fig. 11

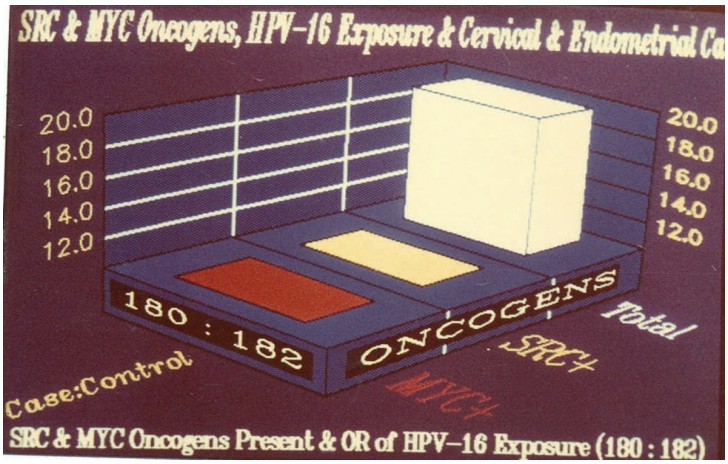


Fig. 12

Study of biological course of untreated cervical dysplasia by 5-year follow-up research made it possible to determine that infection with HSV-2 plays a definite role in the development and stabilization of dysplasia. At the same time, the role of this viral infection in transformation of CIN into Ca In situ and invasive cervical cancer is doubtful.

According to the agreement between the Research Institute of Carcinogenesis (Moscow, Director – Prof. David Zaridze) and Research Center of Oncology of the Ministry of Health of Georgia (Tbilisi, Director – Prof. Luarsab Sharashidze, responsible executor – CMS Vasil Tkeshelashvili) joint epidemiological research was conducted in 1987-1991.

ბიოპტატების ნაწილში (შესაბამისად, სყკ-ს 16, 13, 14 და 15 შემთხვევაში და სტკ-ს 7, 4, 4 და 7 შემთხვევაში) შესწავლილი იქნა ონკოგენები src, sis, ras და myc.

სტკ-თან შედარებით, სყკ-ს დროს HPV-16-ს ექსპოზიციის შეფარდებითი რისკის მაჩვენებლების დონეები მკვეთრად მცირდებოდა სიმსივნეებში src და myc ონკოგენების იდენტიდიკაციის შემთხვევებში. სხვა სიტყვებით, სყკ-ს დროს აღნიშნული src და myc ონკოგენების ექსპრესიის ტენდენცია დამახასიათებელია სტკ-თვისაც.

IV. სექსუალური ცხოვრების სტილის თავისებურებები და პოპულაციაში სქესობრივი გზით გადამდები დაავადებების (STD) ექსპოზიციის რისკი

ონკოლოგისა და ეპიდემიოლოგის ინტერესს იწვევს კავშირი გენიტალური ორგანოების ინფექციურ დაავადებებს, გადამდებს, ძირითადად, სქესობრივი გზით (STD- Sexually Transmitted Diseases) და სექსუალური ცხოვრების სტილს შო-რის. საკითხის კონფიდენციალურობიდან გამომდინარე გაძნელებულია სტატისტიკურად სარწმუნო ცნობების მიღება კავშირის შესახებ სექსუალური ცხოვრების სტილისა და გენიტალური ორგანოების კიბოს განვითარებას შორის . ამ გარემოების გათვალისწინებით, ჩვენს მიერ შემუშავებული იქნა ეპიდემიოლო-გიური ანკეტა, ქალის რეპროდუქციული სისტემის ორგანოების ფუნქციური თავისებურებების ანონიმურად შესწავლისათვის. ანონიმური ანკეტა შეავსო 100 ქალმა ქ.თბილისის, 100 - ქ.სანქტ-პეტერბურგის, 600- ქ.სოფიის (Dr. G.Chakalova-თან ერთად) საერთო პოპულაციებიდან, 100 ქალმა ქ.სანქტ- პეტერბ ურგის პრომისკუიტეტ ური ჯგუფიდან, რომლებიც სფეციფიკური დაავადებების გამო იმყოფებოდნენ ადმინისტრაციულად სავალდებულო გამოკვლევაზე და მკურნალობაზე ქ.სანქტ-პეტერბურგის #44 საავადმყოფოში, და 56 ავადმყოფმა საშვილოსნოს ყელისა და ტანის კიბოსწინა დაავადებებით, რომლებიც იმყოფებოდნენ გამოკვლევაზე და მკურნალობაზე ნიკოლოზ პეტროვის სახ. ონკოლოგიის სამეცნიერო-კვლევით ინსტიტუტში (ქ.სანქტ-პეტერბურგი) 1990 წელს. ანკეტების მონაცემები შეყვანილი იქნა მონაცემთა ელექტრონულ ბაზაში და დამუშავდა პროგრამულად.

In 1987-1989 at gynecological department (Head – Prof. Levan Charkviani) in Tbilisi samples of biopsy material were taken from cervical and endometrial tumors, and for control purposes, from ecto- and endo- cervix and endometrium on patients who underwent surgery due to uterine myoma. Taking of biopsy material was performed directly after surgery. In all cases 3 samples were taken, with 1-2 gr biopsy material for each sample, which was immediately put into Polyethylene Tube. After hermetically closing and marking, the latter was placed in a water collecting vessel filled with liquid nitrogen. In such form, after a number of samples were collected, biopsy material were sent to Moscow, Viral Molecular Biology Laboratory (Head – Prof. F. Kiselev) of the Research Institute of Carcinogenesis, for identification of Human Papilloma Virus (HPV). HPV genotypes 6a, 11, 16 and 18 were studied by DNA hybridization method. HPV-6a was studied in 16 biopsy material of cervical cancer and 20 biopsy material of endometrial cancer; HPV-11 respectively, in 14 and 7, HPV-16 – in 31 and 39, HPV-18 – in 14 and 5 biopsy material. In 20 and 25 control biopsy material of cervical cancer and endometrial cancer was studied HPV -16, in 7 and 8 biopsy material – HPV-6a, in 2 and 1 biopsy material – HPV-11, in 2 and 2 biopsy material – HPV-18. In 9 biopsy material (6 – cervical cancer and 3 – control) in addition to DNA HPV-16 was studied with the use of Polymerase Chain Reaction technique (It must be mentioned that in the whole USSR these advanced for that times methods were performed in above laboratory only). In 2 cases, when DNA hybridization method gave negative results on infecting with HPV-16, additional study with the use of PCR technique gave positive result. Results of the virological study were entered in the database as additional information.

In 31 cases of cervical cancer HPV-16 was detected in 16 (51.6%) cases, from 39 cases of endometrial cancer – only in 2 cases (5.1%). In 20 patients of cervical cancer control group HPV-16 was detected by DNA hybridization method in 1 case of uterine myoma with concomitant endocervicitis. In 25 samples of endometrial cancer control group positive result on HPV-16 was obtained with PCR technique in 1 case. Unlike cervical cancer, in cases of endometrial cancer (2 cases from 39) compared to control group (1 case from 25) statistically significant difference in HPV-16 exposure was not revealed ($p>0.05$). At the same time, special attention should be paid to identification of HPV-16 in cases of endometrial papillary adenocarcinoma. Epidemiological "case-control" study was conducted to study the peculiarities of HPV-16 exposure during cervical cancer.

ეპიდემიოლოგიური კვლევით "შემთხვევა-კონტროლი" შესწავლილი იქნა ქალების სექსუალური ქცევის თავისებურებების კორელაცია სქესობრივი გზით გადამდები დაავადებების (STD) ექსპოზიციასთან. პრომისკუიტეტური ჯგუფი და ქალთა საერთო პოპულაცია. I საკონტროლო ჯგუფი ფორმირებული იქნა სოფიის, თბილისისა და სანქტ-პეტერბურგის 800 ქალისაგან. მეორე ეტაპზე შემცირებული იქნა საკონტროლო ჯგუფში შემავალი ქალების რაოდენობა საცხოვრებელი ადგილის მიხედვით. II საკონტროლო ჯგუფი ფორმირებული იქნა სანქტ -პეტერბურგისა და თბილისის საერთო პოპულაციის 200 ქალისაგან. STD-ს ექსპოზიციის შეფარდებითი რისკის მაჩვენებლები შესწავლილი იქნა ორი საკონტროლო კვლევის მონაცემებით. ფაქტორების შეფარდებითი რისკის მაჩვენებლების დონეები ვსდ-ს (სიმპატიკოტონიის) ექსპოზიციის დროს შესწავლილი იქნა II საკონტროლო ჯგუფის გამოყენებით.

პრომისკუიტეტური ჯგუფის ქალებში STD-ს ექსპოზიციის დონე 11,5-13,3-ჯერ მაღალია საერთო პოპულაციასთან შედარებით. პრომისკუიტეტური ჯგუფის ქალებში STD-ს შეფარდებითი რისკის დონე კუმულირდებოდა ასაკის მატებასთან ერთად. STD-ს პიკი (RR=31,0 -36,9) აღინიშნა დაწყებითი განათლების მქონე ქალთა სოციალურ ჯგუფში.

STD-ს დროს მკვეთრად იზრდებოდა ორსულობის არქონის რისკი (RR=43,0-48,1), მასთან ერთად უკანასკნელი წლის განმავლობაში (0 ორსულობა/წელის RR=13,2 -18,7). STD-ს დროს 56,1-ჯერ აღემატებოდა მთელი ცხოვრების მანძილზე აბორტების არქონა, და 18,4-21,5-ჯერ - უკანასნელი წლის განმავლობაში (0 აბორტი/წელი). ეს მონაცემები მიუთითებენ უშვილობის რისკის ზრდაზე ანამნეზში STD-ს არსებობისას, შესაბამისად-რეპროდუქციული ფუნქციის ამ სახის დარღვევის ინფექციური მექანიზმის შესაძლებლობაზე.

მთელი ცხოვრების მანძილზე სქესობრივი პარტნიორების რაოდენობასა და STD-ს ექსპოზიციის შეფარდებით რისკის დონეებს შორის კორელაცია

Fig. 13

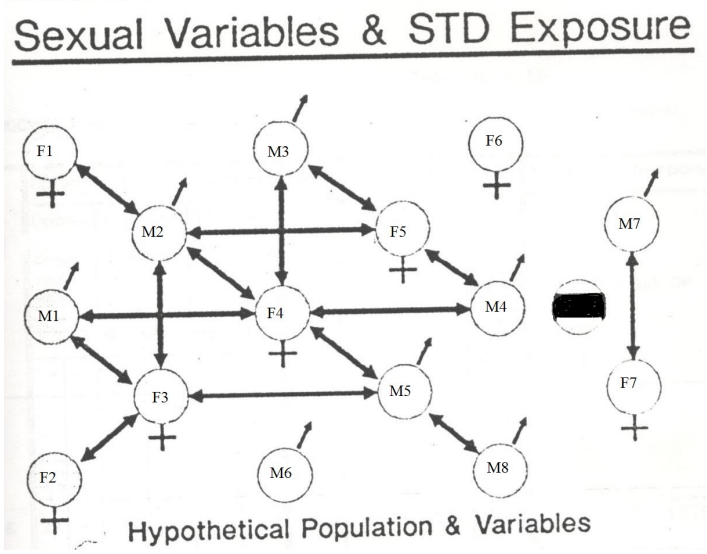


Fig. 14

Cervical cancer relative risk indicator at HPV-16 exposure made up 20.3 ($\chi 2=11.7$; $p<0.05$).

HPV-16 exposure levels in cases of cervical cancer varied according to peculiarities of sexual and reproductive functions of patients. Special attention deserves high level of HPV-16 exposure in case of only 1 sexual partner. These
data outline the importance of peculiarities of sexual behaviors of male partners, the number of their female partners (male promiscuity).

In the biopsy material part (in 16, 13, 14 and 15 cases of cervical cancer and 7, 4, and 4 7 of endometrial cancer respectively) **src, sis, ras and myc** oncogenes have been studied.

Compared to endometrial cancer, RR levels of HPV-16 exposure in case of cervical cancer were sharply decreasing in tumors when identifying src and myc oncogenes. In other words, the tendency of src and myc oncogenes expression in case of cervical cancer is also characteristic for endometrial cancer.

მთელი ცხოვრების მანძილზე სქესობრივი პარტნიორების რაოდენობასა და STD-ს ექსპოზიციის შეფარდებით რისკის დონეებს შორის კორელაცია არ იქნა გამოვლენილი. STD-ს ექსპოზიციის შეფარდებით რისკის დაახლოებით ერთნაირი ოდენობები იქნა დადგენილი 2-3 (RR=8,5-13,2) და 6+ (RR=6,7-10,9) სქესობრივი პარტნიორის შემთხვევებში. ამავე დროს, დიდი მნიშვნელობა აქვს დროის პერიოდის ხანგრძლივობას, რომლის განმავლობაში ქალს ჰყავდა ამა თუ იმ რაოდენობის სქესობრივი პარტნიორი. სხვა სიტყვებით, საერთო რაოდენობრივი მაჩვენებლების განხილვას იმდენად გადამწყვეტი მნიშვნელობა არა აქვს, რამდენადაც რაოდენობის განსაზღვრას დროში, მაგალითად, სქესობრივი პარტნიორების რაოდენობას წლის განმავლობაში (სქესობრივი პარტნიორი/წელი, სპ/წელი).

STD-ს ექსპოზიციის შეფარდებითმა რისკმა 2-3 სპ/წელი-ს დროს შეადგინა 9,8-12,5, ხოლო 6 და მეტი სპ/ წელი-ს დროს-14,7. უნდა აღინიშნოს არა მხოლოდ რაოდენობრივი მაჩვენებლების მნიშვნელობა. მაშინ როდესაც, საკმარისია თუნდაც ერთი შემთხვევითი და დაუცველი სქესობრივი კონტაქტიც კი, რომ ადამიანი დასნებოვნდეს შიდს-ით ისევე, როგორც სქესობრივი გზით გადამდები ნებისმიერი ინფექციური დაავადებით.

დადგენილი იქნა კორელაცია, ერთის მხრივ, ლიბიდოს ადრეულ ასაკში გამოვლინებას, ისევე როგორც პირველი ორგაზმის გვიან ასაკში მიღებასა და, მეორეს მხრივ, STD-თ ექსპოზიციის შეფარდებითი რისკის მაღალ დონეებს შორის.

STD-ს შეუძლია გავლენა მოახდინოს საშვილოსნოდან აციკლიური სისხლდენების არსებობაზე (RR=7,9-13,2). საშვილოსნოდან აციკლიური სისხლდენის სახით მენსტრუალური ციკლის დარღვევას სავსებით შესაძლებელია ჰქონდეს ჰორმონალურის ალტერნატიული- ინფექციური გენეზი.

“შემთხვევა-კონტროლის” ტიპის ეპიდემიოლოგიური კვლევის ჩატარებით სტკ-ს ჰორმონოდამოუკიდებელი, ავტონომიური პვ-ის რისკის ფაქტორების ძიებამ საშუალება მოგვცა თვალყური მიგვედევნებინა სექსუალური ცხოვრების სტილსა (სექსუალური ცხოვრების ადრეულ ასაკში დაწყება) და STD-ს (ვირუსული ინფექციის ჩათვლით) ექსპოზიციას შორის მიზეზ-შედეგობ-

IV. Peculiarities of sexual life style and risk of sexually transmitted diseases exposure in population

The interest of oncologist and epidemiologist is the link between infectious diseases of genital organs, mainly transmitted through sexual life (STDs) and sexual life style. Due to the confidentiality of the issue, it is difficult to obtain statistically reliable information on the link between the sexual life style and the development of cancer of genital organs.

Taking into consideration this circumstance, we developed an epidemiological card for anonymous questionnaire of functional peculiarities of women's reproductive system organs. Anonymous questionnaire was completed by 100 women in Tbilisi, 100 - St. Petersburg, 100 - from Sofia (with Dr. G. Chakalova) the general populations, 100 women from St. Petersburg promiscuity group, who were on administratively mandatory examinations and treatment due to their specific diseases at St. Petersburg clinical hospital N44, and 56 patients with cervical and endometrial pre-cancerous diseases, who were on examinations and treatment at N. Petrov Research Institute of Oncology (St. Petersburg) in 1990. Data obtained from the questionnaires was entered in the database and processed with special software.

By epidemiological case-control study correlation of peculiarities of women's sexual behavior with the exposure of sexually transmitted diseases has been studied. The control group I was formed from 800 women in Sofia, Tbilisi and St. Petersburg. In the second stage, the number of women in the control group was reduced according to the place of residence. The control group II was formed from 200 women of St. Petersburg and Tbilisi general population. The relative risk indicators of STD exposure have been studied by data of two control studies. The levels of factors relative risk at VVD (sympathicotonia) exposure was studied by control group II. In promiscuity group women STD exposure level is 11.5-13.3 higher in comparison to general population. In promiscuity group women the RR level of STD cumulated with age increase. The STD peak (RR=31.0-36.9) was observed in the social group of women with primary education.

In the case of STDs, the risk of not having a pregnancy was in creasing (RR=43.0-48.1), over the last year (0 pregnancy/year RR=13.2-18.7). In the case of STDs 56.1 times exceeded not having abortions for the whole life span and 18.4-21.5 times – during last tear (0 abortion/year). These data indicate on increased infertility risk in the case of the history of STD, and accordingly on the probability of infectious nature of such disorder. No correlation has been detected between the number of sexual partners throughout the lifetime and the levels of relative risk of exposure to STD. Almost similar levels of relative risk of exposure to STD were detected in cases of having 2-3 (RR=8.5-13.2)

რივი კავშირისათვის, რომელიც არ გამორიცხავს სტკ-ს განვითარების ინფექციურ გენეზს.

STD-ს სინდრომის დასაბუთება, როგორც რისკისა სყკ-ს და სტკ-ს ჰორმონოდამოუკიდებელი, ავტონომიური პვ-ის განვითარებისათვის, წარმოადგენს ამ ლოკალიზაციების კიბოს ადრეულ დიაგნოსტიკისა და პრევენციის საკითხებისადმი ეპიდემიოლოგიურ მიდგომას, რაც საჭიროებს კოჰორტული რონდომიზირებული კონტროლირებადი ეპიდემიოლოგიური კვლევების შემდგომ ჩატარებას.

V. დასკვნითი კონცეფცია: სექსუალური ცხოვრების თავისებურებები და კიბოს რისკი

ეპიდემიოლოგიური კვლევით მიღე- ბული შედეგების გათვალისწინებით, ჰიპოტეტური პოპულაციის მაგალითზე, ნაჩვენები სქემის მიხედვით, თუ განვიხილავთ სექსუალური ცხოვრების შესაძლო თავისებურებებს, დამატებით წარმოდგენას მივიღებთ STD ფაქტორის (ვირუსული ინფექციის ჩათვლით) ექსპოზიციის და, შესაბამისად, კიბოს მოსალოდნელი განვითარების რისკზე.

სექსუალური ცხოვრების თავისებურებები, სექსუალური ორიენტაციისა და პარტნიორების რაოდენობის მიხედვით, სქემაზე ნაჩვენებია 15 პერსონის მაგალითზე, რომელთაგან 7 ქალია (Female– F) და 8 მამაკაცი (Male– M).

STD ფაქტორის (ვირუსული ინფექციის ჩათვლით) ექსპოზიციის პიკი აღენიშნება და, შესაბამისად, სყკ -ს და სტკ-ს II პვ განვითარების ყველაზე მაღალი რისკი აქვს F4 ნომრით აღნიშნულ ქალბატონს (ქალთა პრომისკუიტეტი). მას ჰეტერო სექსუალური კავშირი აქვს 5 პარტნიორ მამაკაცთან (M1, M2, M3, M4, M5), რომელსაგან ჰეტერო სექსუალური ორიენტაციის, პირობითად პირველ პარტნიორს (M1) დამატებითი კავშირი აქვს ბისექსუალური ორიენტაციის F3 ქალთან, რომელსაც თავის მხრივ აქვს 4 სქესობრივ პარტნიორთან კავშირი, მათ შორის 3 ჰეტერო (M1, M2, M5) და 1 ჰომო-სექსუალური F2 ლესბოსელ ქალთან.

F4 ქალბატონის მეორე პარტნიორ მამაკაცს (M2) ჰეტერო სექსუალური კავშირი აქვს 4 პარტნიორ ქალთან (მამაკაცთა პრომისკუიტეტი): F4-ის დამატებით F1, F3, F5, რომელთაგან ჰეტერო-სექსუალური ორიენტაციის F5 ქალს, თავის მხრივ, and 6+ (RR=6,7-10,9) sexual partners. At the same time, it is of great importance the duration of the period, during which the woman had particular number of sexual partner. In other words, considering the overall quantitative indicators is not so important, as identification of the number in the time, for example, the number of sexual partners during the year (sexual partner (SP)/year).

Relative risk of STD exposure in case of 2-3 SP/year made up 9.8-12.5 and 6+ SP/year – 14.7. It should be mentioned that not only quantitative indicators are of great importance, while even one random and unprotected sexual contact may result in infecting with HIV, like with any other STDs.

Correlation between manifestation of libido in early age, like experiencing first orgasm in late age from one hand and high levels of RR of STD exposure from the other. STD can affect the presence of acyclic uterine bleeding (RR=7.9-13.2). It is quite possible that menstrual cycle disorder in the form of acyclic uterine bleeding to have a hormonal alternative - infectious genesis.

Searching for hormone-independent, autonomous PV risk-factors through performing epidemiological case-control study made it possible to observe causal relationship between sexual life style (starting of sexual life at an early age) and exposure to STD (including viral infection), that doesn't exclude infectious genesis of endometrial cancer development.

Justification for STD syndrome as the risk for development of hormone-independent, autonomous PV of cervical and endometrial cancers is the epidemiological approach to early diagnosis and prevention of cancers of these localizations, which requires further conducting of randomized, controlled epidemiological cohort studies.

V. Final Concept: sexual life style variables and risk of cancer

If we consider the possible peculiarities of sexual life taking into consideration the results obtained from epidemiological study, on the example of hypothetical populations according to given chart, we will receive additional feedback on the risk of exposure of STD factor (including viral infection) and on the risk of development of cancer.

Peculiarities of sexual life, according to the sexual orientation and number of partners, on the diagram are shown on the example of 15 individuals, from which 7 are females (F) and 8 males (M).

The STD factor (including viral infection) peak exposure and, therefore, the highest risk for cervical cancer and II PV endometrial cancer has a female under F4 number

დამატებითი კავშირი აქვს კიდევ 2 (სულ 3) ჰეტერო სექსუალური ორიენტაციის მამკაცთან (M3 და M4). ამ უკანასნელებს (M3 და M4) ასევე კავშირი აქვთ F4 ქალთან. F4 ქალბატონის მეორე პარტნიორ მამაკაცს (M2) ასევე დამატებითი კავშირი აქვს ბისექსუალური ორიენტაციის F3 ქალთან, რომელსაც თავის მხრივ აქვს 4 სქესობრივ პარტნიორთან კავშირი, მათ შორის 3 ჰეტერო (M1, M2, M5) და 1 ჰომოსექსუალური F2 ლესბოსელ ქალთან. ამავე მაღალი სესუალური აქტივობით გამორჩეულ ჰეტეროსექსუალური ორიენტაციის M2 მამაკაცს კავშირი აქვს ჰეტერო სექსუალური ორიენტაციის F1 ქალბატონთან. F1 ქალბატონს (შესაძლოა M2-ს ცოლს), მიუხედავად იმისა, რომ ჰყავს მხოლოდ 1 სექსუალური პარტნიორი (M2), ამ უკანასკნელის (შესაძლოა ქმრის) პრომისკუეტიდან გამომდინარე, მითუმეტეს როდესაც ის სათანადოდ თავს არ და/ან ვერ იცავს შემთხვევითი სქესობრივი კავშირების დროს, ასევე მაღალი აქვს STD ფაქტორის (ვირუსული ინფექციის ჩათვლით) ექსპოზიციის დონე და, შესაბამისად, სყკ-ს და სტკ-ს II პვ განვითარების რისკი.

F4 ქალბატონის მესამე და მეოთხე პარტნიორ ჰეტერო სექსუალურიორიენტაციის M3 და M4 მამაკაცებს დამატებით კავშირი აქვთ ჰეტერო სექსუალური ორიენტაციის F5 ქალთან, რომელსაც თავის მხრივ მესამეპარტნიორული კავშირი აქვს ზემოთ აღნიშნულ პრომისკუიტეტურ ჯგუფში შემავალ M2 მამაკაცთან.

F4 ქალბატონის მეხუთე პარტნიორ ბისექ -სუალური ორიენტაციის M5 მამაკაცს იმავდრო-ულად აქვს დამატებითი ჰეტეროსექსუალური კავშირი ასევე ბისექსუალ F3 ქალთან და ჰომოსექსუალური-M8 ჰომოსექსუალ მამაკაცთან. და ა.შ.

საბოლოო ჯამში სქემაზე ნაჩვენები 15 პირიდან 11, ანუ ჰიპოტეტური პოპულაციის უდიდესი (73%) ნაწილი, რომელთაგან ზოგიერს სავსებით შესაძლებელია ეჭვიც კი არ ეპარებოდეს ამის თაობაზე (მაგ.: F1-ს), მონაწილეობს საერთო პრომისკუიტეტში. ამდენად, სოციალურ-კულტ ურულ-ჰიგიენური ფაქტორების გათვალისწინე-ბით, საერთო პოპულაციის დიდი ნაწილი იმყოფება STD ფაქტორის (ვირუსული ინფექციის ჩათვლით) ექსპოზიციის მაღალი რისკის ქვეშ.

(females' promiscuity). She has heterosexual relationships with 5 male partners (M1, M2, M3, M4, M5) from which first partner of hetero sexual orientation (M1) has additional relationships with bisexual F3 female, who, in turn has relationships with 4 sexual partners, from which 3 (M1, M2, M5) are hetero and 1 homo-sexual F2 lesbian female.

Second partner (M2) of F4 female has hetero sexual relationships with 4 partner females (males' promiscuity): besides F4 with F1, F3, F5, from which F5 female of hetero sexual orientation, in turn, has additional relationships with 2 more (3 in total) males of hetero sexual orientation (M3 and M4). The latter (M3 and M4) also have Fifth (M5) bisexual partner of F4 female has additional hetero sexual relationships with bisexual F3 female and M8 homosexual male, etc.

Ultimately, 11 out of the 15 people shown on the chart, or the largest (73%) part of hypothetical populations, some of whom (e. g. F1) may not be suspicious about the fact that participates in the general promiscuity. Hence, considering social-cultural-hygienic factors, the majority of the general population is at high risk of exposure to STD factor (including viral infection). Females in this group of population also are at a high risk of development of cervical cancer and II PV endometrial cancer. In addition, it should be noted that according to conditional chart, in F4 female, who has 5 sexual partners, will be accumulated the risk of infecting from 10 persons.

According to the chart 4 persons don't participate in promiscuity, from which one male and one female, together with young age and/or unmarried status, possibly due to cultural -traditional or religious (monk or nun) or other reasons. In order not to be too long, here we don't review the cases of aged unmarried women, when in conditions of not having reproductive function, endocrine and metabolism disorders and psycho-neurotic deviations, increases the risk of development of hormone-dependent tumors, including breast and I PV cervical cancer.

Two persons who also don't participate in a population promiscuity, a heterosexual female (F7) and a male (M7), represent a family couple with monogamous principles. So, they are protected from STD factor exposure. In this case, it should be taken into account the theoretical probability of their infection, which can be related to medical interventions using non-sterile instruments, such as performing, for example, abortion, endoscopic, dental, etc. invasive diagnostic-medical manipulations.

Finally, it should be noted that oncogenic viruses cause not only the risk of infection of genital and urinary organs and the risk of cancer development. Infecting is also possible according to sexual orientation, libido activity, partner's requirements and fantasies through oral, rectal and ductal ways.

პოპულაციის ამ ჯგუფის ქალებში ასევე მაღალია სყკ-ს და სტკ-ს II პვ განვითარების რისკი. დამატებით აღსანიშნავია, რომ 5 სექსუალური პარტნიორის მქონე F4 ქალში აკუმულირდება, პირობითი სქემის შესაბამისად, 10 პირისაგან ინფიცირების საშიშროება. სქემის მიხედვით საერთო პრომისკუიტეტში არ მონაწილეობს 4 პირი. მათგან თითო-თითო მდედრობითი და მამრობითი სქესის პირი, შესაძლოა, ახალგაზრდა ასაკის და/ან ოჯახის შეუქმნელობასთან ერთად კულტურულ-ტრადიციული ან რელიგიური (ბერმონაზონი) და სხვა მოსაზრებების გამო. აქ, შორს რომ არ წავიდეთ, სპეციალურად არ განვიხილავთ შინაბერა ქალებში რეპროდუქციული სისტემის უფუნქციო- ბის პარალელურად ენდოკრინულ და ნივთიერე-ბათა ცვლის დარღვევებთან და ფსიქონევროტულ გადახრებთან ერთად იზრდება ჰორმონო-დამოკიდებული სიმსივნეების, მათ შორის ძუძუს და სტკ-ს I პვ-ს განვითარების რისკი. ორი პირი, რომელიც ასევე არ მონაწილეობს პოპულაციურ პრომისკუიტეტში, ჰეტეროსექსუალური ორიენტაციის ქალბატონი (F7) და მამაკაცი (M7), წარმოადგენს მონოგამიური პრინციპების მქონე ოჯახურ წყვილს. შესაბამისად, ისინი დაცული არიან STD ფაქტორის ექსპოზიციისაგან. ამ შემთხვევაში, რათქმა უნდა გასათვალისწინებელია მათი ინფიცირების თეორიული ალბათობა, რომელიც შესაძლებელია დაკავშირებული იყოს არასტერილური იარაღების გამოყენებით სამედიცინო ჩარევებთან, მაგ.: აბორტის, ენდოსკოპიური, სტომატოლოგიური და ა.შ. ინვაზიური სადიაგნოსტიკო-სამკურნალო მანიპულაციების ჩატარებასთან.

და ბოლოს, უნდა აღინიშნოს ონკოგენური ვირუსებით არა მხოლოდ გენიტალური და საშარდე სისტემების ორგანოების ინფიცირებისა და კიბოს განვითარების რისკი. სქესობრივი ორიენტაციის, ლიბიდოსთან დაკავშირებული აქტივობის, პარტნიორების მოთხოვნილებისა და ფანტაზიების მიხედვით ინფიცირება შესაძლებელია ორალური, რექტალური და დუქტალური გზებითაც. ამ სისტემების ორგანოების (პირის ღრუს, ხორხის, საყლაპავის, სწორი ნაწლავის, პროსტატის, შარდის ბუშტის, ძუძუს და ა.შ.) კიბოს განვითარებაში ვირუსული ეთიოლოგიის დაზუსტება საჭიროებს დამატებით ეპიდემიოლოგიური კვლევების ჩატარებას.

Clarification of viral etiology in the development of cancers of organs of these systems (mouth cavity, larynx, esophagus, rectum, prostate, bladder, breast, etc.) requires additional epidemiological studies.

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Pap ტესტის და კოლპოსკოპიის დიაგნოსტიკური ღირებულების შეფასება საშვილოსნოს ყელის კიბოსწინა დაზიანებების დეტექციაში

თ.გოგოლაძე[1], ვ.ტყეშელაშვილი[2],
თ.ალიბეგაშვილი[3], ქ.მანჯგალაძე[4], მ.ჯორბენაძე[5]

საქართველოს უნივერსიტეტი, ჯანმრთელობის მეცნიერებათა და საზოგადოებრივი ჯანდაცვის სკოლა[1]; ეროვნული სკრინინგ ცენტრი[2]; ი.ჟორდანიას სახ. კლინიკა[3]
[1]დოქტორანტი, საზოგადოებრივი ჯანდაცვა[1,2]; [2]მედიცინის მეცნიერებათა დოქტორი, პროფესორი[1];
[3]ექიმი გინეკოლოგი, მედიცინის აკადემიური დოქტორი[2]; [4]ექიმი გინეკოლოგი[2]; [5]რეპროდუქტოლოგი, მედიცინის აკადემიური დოქტორი[3]

რეზიუმე

ეროვნული სკრინინგ ცენტრის მიერ ორგანიზებული Pap ტესტზე დაფუძნებული საშილოსნოს ყელის კიბოს სკრინინგული პროგრამა საქართველოში ამოქმედდა 2008 წლიდან. საეჭვო მაღალი ხარისხის დაზიანება გამოვლენილი Pap ტესტით (ASC -H,HSIL) ან კოლპოსკოპიით, ან დამიზნებითი ბიოფსიით, ისევე როგორც პერსისტირებადი დაბალი ხარისხის დაზიანება 2 წელზე მეტი ან/და CIN1 ის ლოკალიზაცია ცერვიქსულ არხში წარმოადგენს ჩვენებას საშვილოსნოს ყელის ექსციზიური მკურ -ნალობის. მიზანი: Pap ტესტის და კოლპოკოპიური კვლევის დიაგნოსტიკური ღირებულების შეფასება. მეთოდები: 613 შემთხვევის რეტროსპექტური ანალიზი. ყველა ქალს ჩაუტარდა PAP ტესტი, კოლპოსკოპია საშვილოსნოს ყელის კონიზაცია დიათერმიის გამოყენებით და შესაბამისად ექსცირირებული ქსოვილის ჰისტომორფოლოგიური კვლევა. მონაცემთა ანალიზისას გამოყენებილ იქნა SPSS 21 დისკრიფციული სტატისტიკის მეთოდები. შედეგები: გამოკვლეულ ქალთა საშუალო ასაკი იყო 41 წელი (25-60), Pap ტესტის შედეგები გადანაწილდა შემდეგნაირად: AGUS- 3 (0.5%), ASC-H-65 (10.6%) ,ASCUS-113 (18.4%), HSIL-220 (35.9%), LSIL -130 (21.2 %),NILM -82 (13.4%) კოლპოსკოპიური გამოკვლევის შედეგები: GR1-262 (42.7%), GR2-329 (53.7%), ნორმული კოლპოსკოპიური მახასიათებლები -19 (3.1%), არაადეკვატური კოლპოსკოპია -3 (0.5%). ჰისტომორფოლოგიური კვლევით მიღებული შედეგები: AIS-1 (0.2%) , კარცინომა -12 (2.0%) , CIN- 304 (49.6%) , CIN2 -153 (25.0%) ,CIN3-115 (18.8%) , CIS -2 (0.3%) , ნეგატიური ინტრაეპითელურ დაზიანებაზე- 26 (4.2%) განისაზღვრა PAP ტესტის და კოლპოსკოპიური კვლევის მგრძნობელობის, სპეციფიურობის, პოზიტიური შეგედების წინასწარმეტყველე-ბის და ნეგატიური შედეგების წინასწარმეტყველების მაჩვენებლები მაღალი ხარის -ხის ცერვიქსის ინტრაეპითელურ ნეოპლაზიასთან (CIN2+) მიმართებაში. PAP (HSIL): SE- 64.81 , SP -86.4%. PPV -79.5% , NPV-72.5%. PAP (ASC-H/HSIL): SE- 83.4%, SP-76.4%, PPV-72.6%, NPV-76.8% . კოლპოსკოპია: SE -83.4%, SP -69.4% , PPV-69.3%, NPV -80.6% . დასკვნა: ციტოლოგიური კვლევა დაბალ სენსიტიურია და მაღალსპეციფიური, კოლპოსკოპიური კვლევა კი მაღალსენტიტიური და დაბალსპეციფიური. ჩვენი კვლევის შედეგები მსგავსია ევროპის ქვეყნებში ჩატარებული მსგავსი კვლევებით მიღებულ შედეგებთან, ამიტომ შეიძლება მოიაზრებოდეს როგორც ნაციონალურ პარამეტრებად საქართველოსთვის.

საკვანძო სიტყვები: *PAP ტესტი, კოლპოსკოპია, სკრინინგი*

Diagnostic value of Pap smear cytology and colposcopy in detection of cervical premalignant lesions

T.Gogoladze[1], V.Tkeshelashvili[2], T.Alibegashvili[3], K.Manjgaladze[4], M.Jorbenadze[5]

The University of Georgia, School of Health Sciences and Public Health[1]; National Screening Centre[2], I. Jordania n.a. Clinic[3]
[1]PhD Student, Public Health[1,2]; [2]Supervisor, MD, JD, PhD, ScD, Professor[1]; [3]MD, PhD[2]; [4]MD[2]; [5]MD, PhD[3]

Summary

Cervical cancer screening based on conventional cytology was launched in Georgia from 2008 by Georgian National Screening Centre (GNSC). Suspicious on High Grade SIL based on the cytology (ASC-H, HSIL) and colposcopy, or punch biopsy (CIN2+) as well as persistence of CIN1 more than 2 years and/or CIN localization into cervical canal-are considered as indication for LEEP procedures. Objectives: Revealing the accuracy of PAP smear and colposcopy at GNSC. Methods: The retrospective analysis of 613 cases was performed. All woman underwent LEEP in GNSC at 2011-2017. PAP tests, colposcopy and following LEEP histopathology was done in all cases. The data were analyzed using SPSS version 21. By using descriptive indices we determined the sensitivity, specificity, positive and negative predictive value and accuracy of each method. Results: The main age of woman was 41 years (25-60). Distribution of referral cytology results was the following: AGUS- 3 (0.5%), ASC-H -65 (10.6%) ,ASCUS-113 (18.4%), HSIL-220 (35.9%), LSIL -130 (21.2 %),NILM -82 (13.4%) Colposcopy diagnoses were: GR1-262 (42.7%), GR2-329 (53.7%), normal colposcopic findings -19 (3.1%), inadequate colposcopy -3 (0.5%). The histological investigations of LEEP specimen showed: AIS-1 (0.2%) , Carcinoma-12 (2.0%) , CIN- 304 (49.6%) , CIN2 -153 (25.0%) ,CIN3-115 (18.8%) , CIS -2 (0.3%), Negative for intraepithelial lesion 26 (4.2%) Sensitivity, Specificity, PPV and NPV of PAP test and Colposcopy diagnoses were calculated. For prediction of CIN2+ accuracy of PAP (HSIL): Se- 64.8% , Sp -86.4%. PPV -79.5% , NPV-72.5%. PAP (ASC-H/HSIL): Se- 83.4%, Sp-76.4%, PPV-72.6%, NPV-76.8% . Colposcopy : Se -83.4%, Sp -69.4% , PPV-69.3%, NPV -80.6%, accuracy of colposcopy: Se- 83.4%, Sp- 69,4%, PPV- 69.3% , NPV-80.6%. Conclusion: Cytology is less sensitive but more specific, colposcopy is more sensitive but less specific for prediction of pre malignant lesions. As the GNSC data outcomes reveals the similarities with results of other European studies they could be considered as The National parameters for Georgia.

Abbreviations*: ASC-H - Atypical squamous cell-cannot exclude HSIL; ASCUS - Atypical squamous cell of undetermined significance; CIN- Cervical intraepithelial neoplasia, also known as cervical dysplasia; CIN1, CIN2, CIN3 - Cervical intraepithelial neoplasia grade 1,2,3; CIN2+ - CIN2, CIN3 and more; HPV – Human papilloma virus; HSIL – High grade squamous intraepithelial lesion; LSIL- Low grade squamous intraepithelial lesion; LEEP – Loop electrosurgical excision procedure.*

Key words: *PAP smear, colposcopy, screening*

პრობლემის აქტუალობა:

ადამიანის პაპილომავირუსული ინფექციით (HPV) გამოწვეული საშვილოსნოს ყელის კიბო და კიბოსწინა დაავადებები, ერთ-ერთ მთვარ პრობლემად რჩება მთელ მსოფლიოში. საშვილოსნოს ყელის კიბო, როგორც ავადობის ასევე სიკვდილობის მიხდვით ერთ-ერთი ყველაზე გავრცელებული ონკოლოგიური დაავადებაა ქალთა შორის. GLOBOCAN/IARC ის მონაცემებით 2012 წელს მსოფლიოში გამოვლენილი იქნა საშვილოსნოს ყელის კიბოს 528 000 ახალი შემთხვევა და 266 000 ქალის გარდაცვალების მიზეზი გახდა (Ferlay et al., 2015).

საშვილოსნოს ყელის კიბოს გლობალური ავადობის უდიდესი ტვირთი (დაახლოებით 85%) მსოფლიოს დაბალგანვითარებულ ქვეყნებში ვლინდება, კერძოდ კი იმ ქვეყნებში სადაც არ არსებოს საშვილოსნოს ყელის კიბოს პრევენციის სკრინინგული პროგრამა. აღსანიშნავია ის ფაქტი, რომ საშვილოსნოს ყელის კიბო ყველაზე პრევენტაბელური კიბოა სხვა ავთვისებიან სიმსივნურ დაავადებათა შორის, რაც შესაძლებელია კიბოსწინა პათოლოგიის ადრეული გამოვლენით და მკურნალობით.

საშვილოსნოს ყელის კიბო შემთხვევათა 99% დაკავშირებულია ადამიანის პაპილომა ვირუსის მაღალ ონკოგენური ტიპის არსებობასთან და პერსისტენციასთან. საშვილოსნოს ყელის კიბოსწინა პათოლოგიების - მაღალი ხარისხის ცერვიქსის ინტრაეპითელური ნეოპლაზიების (CIN2/3) და კიბოს გამომწვევი უსიმპტომოდ მიმდინარე, სქესობრივი გზით გადამდები ადამიანის პაპილომავირუსული ინფექციის მაღალონკოგენური ტიპებია, რომელთა შორის ყველაზე მეტი ონკოაგრესიულობით გამოირჩევა HPV 16 და 18 ტიპი (Walboomers et al., 1999; Bosch & de Sanjosé, 2003). სქესობრივად აქტიური ქალების 50-75% სიცოცხლეში ერთხელ მაინც ინფიცირდება ამ ვირუსით. ინფექციის პიკი მოდის მოზარდებზე და ადრეული რეპროდუქციული ასაკის მქონე ქალებზე.

განვითარებულ ქვეყნებში საშვილოსნოს ყელის კიბოთი ავადობის და სიკვდილობის მაჩვენებელმა კლება დაიწყო მას შემდეგ, რაც 1950 წელს შემოღებულ იქნა ციტოლოგიაზე დაფუზნებული სკრინინგი (Jemal, Ward, & Thun, 2010). PAP ტესტზე დაფუძნებული სკრინინგისთვის მეტად მნიშვნელოვანია ჩატარდეს ორგანიზებული სკრინინგის

Introduction:

Cervical Cancer and precancerous diseases, caused by the Human Papilloma Virus (HPV) infection, remains to be one of the main problems in the whole world. The Cervical Cancer is one of the most prevalent oncological diseases according to both morbidity and mortality. By the GLOBOCAN/IARC data, in 2012, 528 000 new cases of Cervical Cancer were revealed that caused deaths of 266 000 women (Ferlay et al., 2015).

The heaviest load of global morbidity with Cervical Cancer (about 85%) is revealed in developing countries of the world, particularly in those countries, where the Screening Program of Cervical Cancer Prevention does not exist.

It is worth to point out that Cervical Cancer is the most preventable cancer among other malignant tumorous diseases, that is achieved by early detection and treatment of precancerous pathologies.

99% of Cervical Cancer cases is associated with the presence and persistence of a high-rick oncogenic type Human Papilloma Virus infection, among which HPV16 and 18 are the most onco-aggressive (Walboomers et al., 1999; Bosch & de Sanjosé, 2003). 50-75% of sexually active women are infected at least once by HPV during their life. The peak of infection is among adolescents and women of early reproductive age.

In the developed countries, the index of cervical cancer morbidity and mortality started decreasing after the cytology based screening was adopted in 1950 (Jemal, Ward, & Thun, 2010). For the Pap test based screening, it is essential to be performed in conditions of organized screening in order to cover the most of the targeted population, to be systematic, to observe the screening interval and constant Follow up regime as well as systematically retrain the screening staff. All the above mentioned is not available in developing countries, where existence of an adequate screening program is the most necessary (Koss, 1989). It is worth to note that in spite of statistically convincing decrease in squamous cell cancer cases in the world, the number of adenocarcinoma cases is increased, which could be caused by the less sensitivity of the Pap test to reveal the glandular pathology and adenocarcinoma (Castanon, Landy, & Sasieni, 2016; Castle et al., 2011).

According to Gold M.A. 2006) the cervical Pap test, which is performed while screening in many countries of the world, allows to detect patients with cervical precancerous disease, to perform treatment and follow-up. In the developed countries, 70-80% decrease in cervical cancer morbidity is achieved by the Pap test screening. The following atypias are detected by the Pap test: ASCUS, ASC-H, LSIL, HSIL, AGC, which are managed by various algorithms.

პირობებში, რათა სამიზნე პოპულაციის დიდი ნაწილის მოცვა განხორციელდეს, დაცული იყოს სისტემატიურობა, სკრინინგის ინტერვალი, მუდმივი დაკვირვების რეჟიმი (Follow up), სკრინინგში მომუშავე კადრის სისტემატური გადამზადება. სწორედ ეს ყოველივე ზემოთ აღნიშნული არ არის ხელმისაწვდომი განვითარებადი ქვეყნებისთვის, სადაც ყველაზე მეტად საჭიროა ადეკვატური სკრინინგული პროგრამის არსებობა (Koss, 1989). აღსანიშნავია ის ფაქტიც, რომ მიუხედავად ბრტყელუჯრედული კიბოს შემთხვევების სტატისტიკურად სარწმუნო კლებისა მსოფლიოში, აღინიშნება ადენოკარცინომის შემთხვევების მატება რაც შესაძლოა განპირობებული იყოს PAP ტესტის ნაკლებ მგრძნობელობაზე გამოავლინოს ჯირკვლოვანი პათოლოგია და ადენოკარცინომა (Castanon, Landy, & Sasieni, 2016; Castle et al., 2011).

Gold M.A. 2006 მიხედვით, ცერვიკალური PAP ტესტირება, რომელიც სკრინინგის დროს ტარდება მსოფლიოს მრავალ ქვეყანაში, საშუალებას იძლევა გამოვლენილი იქნან პაციენტები საშოლოსნოს ყელის კიბოსწინა დაავადებით, ჩაუტარდეთ მკურნალობა და აწარმოონ მათზე follow-up დაკვირვება. განვითარებულ ქვეყნებში PAP ტესტით სკრინინგით მიღწეულია საშვილოსნოს ყელის კიბოთი ავადობის 70-80% ით შემცირება. განასხვავებენ PAP ტესტის შედეგად გამოვლენილ შემდეგ ატიპიებს: ASCUS, ASC-H, LSIL, HSIL, AGC, რომლის მართვის სხვადასხვა ალგორითმები არსებობს.

მიუხედავად PAP ტესტის დიდი წარმატებისა საშვილოსნოს ყელის კიბოს პრევენციაში არა ერთი მასშტაბური კვლევით დადგინდა ცრუ უარყოფითი შედეგების მაღალი მაჩვენებელი (გაიპაროს მაღალი ხარისხის ინტრაეპითელური ნეოპლაზია CIN2+), კვლევების თანახმად ასევე ცნობილი გახდა 20% დან 40% მდე საშვილოსნოს ყელის კიბოს ახალი შემთხვევები დიაგნოსტირებულია იმ ქალებში, რომელთაც ჰქონდა მანამდე ჩატარებული PAP ტესტზე დაფუძნებული სკრინინგი (Subramaniam et al., 2011; Leyden et al., 2005; Jack Cuzick et al., 2006).

Nanda et al., 2000 მონაცემებით, საშოლოსნოს ყელის CIN 2.3 დროს PAP ტესტის მგრძნობელობა მერყეობს 47%დან 62% მდე, ხოლო სპეციფიურობა 60% დან 85% მდე.

ქ. თბილისში 2008 წლიდან ამოქმედდა საშვილოს-

Despite of the huge success of the Pap test in cervical cancer prevention, several wide scale studies have shown high incidence of false negative results (high grade intraepithelial neoplasia CIN2+ omitted). Studies also suggested that 20% to 40% of new cervical cancer cases were diagnosed in those women, who had previously received screening, based on Pap test (Subramaniam et al., 2011; Leyden et al., 2005; Jack Cuzick et al., 2006).

According to (Nanda et al., 2000) data, in cervical CIN 2.3 the PAP test sensitivity ranges from 47% to 62% , while specificity is within 60% to 85%.

In Tbilisi, since 2008, the Screening Program of Cervical Cancer has been working. For the detection of cervical pathology, the primary test is the Pap smear test. The above test involves taking samples of cervical epithelial cells and their morphological investigation under the microscope in order to detect the pathology. In case of atypical Pap smear test or the pathology, seen by the gynecologist, the colposcopy investigation and if required, the targeted biopsy is performed.

Since 2010, within the program, the treatment of precancerous conditions became possible, which involves the cervical conization using the diathermy. Suspicious on High Grade SIL based on the cytology (ASC-H, HSIL) and colposcopy, or punch biopsy (CIN2+) as well as persistence of CIN1 more than 2 years and/or CIN localization into cervical canal-are considered as indication for LEEP procedures.

Aim of the study:

Assessment of the diagnostic value of Pap smear test and Colposcopy for CIN2+ lesions. Detecting the sensitivity , specificity, positive predictive value and negative predictive value, is the aim of the study.

Object of the study:

During the research, materials of National Screening Center were used. Ambulatory cards of 613 women were studied to who the LEEP was performed in 2013-2017.

Targeted group and research methodology:

In Tbilisi, within the Cervical Cancer Screening, from 2013 to 2017, the LEEP was performed to 613 women, aged 25 to 60. This targeted group was chosen as the histomorphology Investigation of the excised tissue was performed to all of them and histomorphologic investigation is considered to be the Gold Standard in assessment of diagnostic test value. At first stage, each of them was examined by the gynecologist and the Pap test. In case of atypical result $\geq$ ASCUS women was referred to colposcopy. Results of the colposcopy investigation were classified in two categories: Low grade lesion GR1 (corresponds to C1N1) and high grade lesion GR2 (corresponds to CIN2.3). Colposcopy was recommended not only in cases of atypical Pap test,

ნოს ყელის კიბოს სკრინინგის პროგრამა, საშვილოსნოს ყელის პათოლოგიის გამოსავლენად პირველად ტესტად წარმოდგენილია PAP ტესტი,აღნიშნული ტესტი გულისხმობს საშვილოსნოს ყელის ეპითელიუმის უჯრედების ნიმუშის აღებას და მიკროსკოპის ქვეშ მათ მორფოლოგიურ გამოკვლევას პათოლოგიის აღმოსაჩენად. ატიპიური PAP ტესტის შემთხვევაში, ან გინეკოლოგის მიერ დანახული ხილული პათოლოგიის დროს საშვილოსნოს ყელზე ქალს უტარდება კოლპოსკოპიური კვლევა საჭიროების შემთხვევაში დამიზნებითი ბიოფსია.

2010 წლიდან პროგრამის ფარგლებში შესაძლებელი გახდა კიბოსწინა პათოლოგიების მკურნალობა,რაც გულისხმობს საშილოსნოს ყელის კონიზაციას დიათერმიის გამოყენებით. კონიზაციის ჩვენებას წარმოადგენს: საშვილოსნოს ყელის მაღალი ხარისხის დაზიანება HSIL გამოვლენილი PAP ტესტით ან კოლპოსკოპიური კვლევით, საშვილოსნოს ყელის მსუბუქი დაზიანება გამოვლენილი კოლპოსკოპიური კვლევისას, თუ მას წინ უძღვის PAP ტესტით გამოვლენილი ატიპია ASC-H, HSIL, საშვილოსნოს ყელის მსუბუქი ხარისხის დისპლაზია არხში მდებარეობით, რომელიც პერსისტირებს 2 წლის განმავლობაში.

კვლევის მიზანი:

სკრინინგული ტესტების, კერძოდ კი Pap ტესტის და კოლპოსკოპიის დიაგნოსტიკური ღირებულების შეფასება საშვილოსნოს ყელის მაღალი ხარისხის ინტრაეპითელურ ნეოპლაზიებთან მიმართებაში, მგრძნობელობის, სპეციფიურობის, პოზიტიური შედეგების წინასწარმეტველების მაჩვენებლის და ნეგატიური შედეგების წინასწარმეტყველების მაჩვენებლის კოეფიციენტების განსაზღვრით.

კვლევის ობიექტი:

სამეცნიერო კვლევისას გამოყენებული იქნა ეროვნული სკრინინგ ცენტრის მასალები. შესწავლილ იქნა 613 ქალის ამბულატორიული ბარათი, რომლებსაც 2013 -2017 წლებში ჩუტარდათ საშვილოსნოს ყელის კონიზაცია დიათერმიის გამოყენებით.

მიზნობრივი ჯგუფი და კვლევის მეთოდოლოგია:

ქ. თბილისში საშვილოსნოს ყელის კიბოს სკრინინგის ფარგლებში 2013 წლიდან 2017 წლამდე საშვილოსნოს ყელის კონიზაცია დიათერმიის

but by the gynecologist as well if the visual pathology was seen by the naked eye (large sized true erosion, bleeding mucosa, polypoid growth in cervix). Indication for Conization was: HSIL detected by the Pap test or colposcopy, low grade lesion, detected by colposcopy, if it was preceded by the high grade lesion, detected by the Pap test or suspicious high grade lesion (ASC-H , HSIL), low grade displasia, located in the chanal, ehich persisted for 2 years. While evaluating the diagnostic efficiency of the test, the result of each investigation was compared with the diagnoses, obtained by the morphologic investigations.

Study results:

The main age of woman was 41 years (25-60). PAP smear results: Total 613 cases: AGUS- 3 (0.5%), ASC-H-65 (10.6%), ASCUS-113 (18.4%), HSIL-220 (35.9%), LSIL -130 (21.2 %), NILM -82 (13.4%).

Table 1.

Pap	n	%
AGUS	3	0.5
ASC-H	65	10.6
ASCUS	113	18.4
HSIL	220	35.9
LSIL	130	21.2
NILM	82	13.4
Total	**613**	**100.0**

Colposcopy results:

Total 613 cases: GR1 -262 (42.7%), GR2 -329 (53.7%), normal colposcopy findings -19 (3.1%), inadequate colposcopy -3 (0.5%).

Table 2.

Colposcopy	n	%
GR1	262	42.7
GR2	329	53.7
Inadequate	3	0.5
Normal	19	3.1
Total	**613**	**100.0**

Morphology results:

Total 613 cases: AIS-1 (0.2%) , Carcinoma-12 (2.0%), CIN- 304 (49.6%), CIN2 -153 (25.0%), CIN3-115 (18.8%), CIS -2 (0.3%), Negative for intraepithelial lesion 26 (4.2%).

გამოყენებით ჩაურტარდა 25 დან 60 წლამდე ასაკობრივი ჯგუფის 613 ქალს. ეს მიზნობრივი ჯგუფი შეირჩა იქიდან გამომდინარე, რომ ყოველივე მათგანს ჩაუტარდა ექსციზირებული ქსოვილის ჰისტომორფოლოგიური კვლევა, დიაგნოსტიკური ტესტის ფასეულობის შეფასებისას კი ოქროს სტანდარტად მიჩნეულია ჰისტომორფოლოგიური კვლევა. ყოველ მათგანს პირველ ეტაპზე ჩაუტარდა გინეკოლოგის გასინჯვა და PAP ტესტი, ატიპიური შედეგის შემთხვევაში > ASCUS ქალის გადამისამართება ხდებოდა კოლპოსკოპიურ კვლევაზე და საჭიროების შემთხვევაში უტარდებოდა დამიზნებითი ბიოფსია. კოლპოსკოპიური გამოკვლევის შედეგები კლასიფიცირებული იქნა ორ კატეგორიად: დაბალი ხარისხის დაზიანება GR1 (შეესაბამება CIN1) და მაღალი ხარისხის დაზიანება GR2 (შეესაბამება CIN2.3). კოლპოსკოპიაზე გადამისამართება ხდებოდა არა მარტო ატიპიური პაპ ტესტის შემთხვევაში არამედ გინეკოლოგის რეკომენდაციითაც იმ შემთხვევაში, თუ ქალს აღენიშნებოდა შეუიარაღებელი თვალით ხილული პათოლოგია (დიდი ზომის ჭეშმარიტი ეროზია, სისხლმდენი ლორწოვანი გარსი, პოლიპოიდური წარმონაქმნი საშვილოსნოს ყელზე). კონიზაციის ჩვენებას წარმოადგენდა: საშვილოსნოს ყელის მაღალი ხარისხის დაზიანება გამოვლენილი PAP ტესტით ან კოლპოსკოპიური კვლევით, საშვილოსნოს ყელის მსუბუქი დაზიანება გამოვლენილი კოლპოსკოპიური კვლევისას, თუ მას წინ უძღვოდა PAP ტესტით გამოვლენილი მაღალი ხარისხის დაზიანება ან ეჭვი მაღალი ხარისხის დაზიანებაზე (ASC-H, HSIL), საშვილოსნოს ყელის მსუბუქი ხარისხის დისპლაზია არხში მდებარეობით, რომელიც პერსისტირებდა 2 წლის განმავლობაში. ტესტის დიაგნოსტიკური ეფექტიანობის შეფასების დროს თითოეული გამოკვლევის შედეგი შედარებული იქნა მორფოლოგიური კვლევით მიღებულ დიაგნოზებთან.

კვლევის შედეგები:

გამოკვლეულ ქალთა საშუალო ასაკი იყო 41 წელი (25-60). PAP ტესტის შედეგები გადანაწილდა შემდეგნაირად: სულ 613 ქალი, აქედან: AGUS- 3 (0.5%), ASC-H-65 (10.6%), ASCUS-113 (18.4%), HSIL-220 (35.9%), LSIL -130 (21.2 %), NILM -82 (13.4%).

Table 3.

Morphology	n	%
AIS	1	0.2
Carcinoma	12	2.0
CIN1	304	49.6
CIN2	153	25.0
CIN3	115	18.8
CIS	2	0.3
Negative	26	4.2
Total	**613**	**100.0**

Table 4.
Correlation between Pap smear HSIL and Histology CIN 2+

HSIL		CIN2+		
	Positive	Positive	Negative	Total
	Negative	175	45	220
		108	285	393
Total		283	330	613

PAP smear Sensitivity in case of HSIL 64.8%, Specificity -86.4%. PPV -79.5%, NPV-72.5%.

Table 5.

	%	95% CI
Accuracy	75.0	71.4-78.4
NPV	72.5	69.3-75.5
PPV	79.5	74.5-83.8
Specificity	86.4	82.2-89.9
Sensitivity	61.8	55.9-67.5

Table 6.
Correlation between Pap smear ASC-H/HSIL and Histology CIN 2+

ASC-H/ HSIL		CIN2+		
	Positive	Positive	Negative	Total
	Negative	207	78	285
		76	252	328
Total		283	330	613

PAP Sensitivity in case of ASC-H/HSIL 83.4%, Specificity 76.46%, PPV -72.6%, NPV- 76.8%.

კოლპოსკოპიური გამოკვლევის შედეგები:

სულ 613 ქალი, აქედან GR1 -262 (42.7%), GR2 -329 (53.7%), ნორმალური კოლპოსკოპიური მახასიათებლები -19 (3.1%), არაადეკვატური კოლპოსკოპია -3 (0.5%).

ჰისტომორფოლოგიური კვლევის შედეგები:

სულ 613 ქალი, აქედან AIS-1 (0.2%), Carcinoma-12 (2.0%), CIN- 304 (49.6%), CIN2 -153 (25.0%), CIN3-115 (18.8%), CIS -2 (0.3%), ნეგატიური ინტრაეპითელურ დაზიანებაზე 2-6 (4.2%).

PAP ტესტის მგრძნობელობა HSIL დროს 64.8%, სპეციფიურობა -86.4%. პოზიტიური შედეგების წინასტარმეტყველების მაჩვენებელი PPV -79.5%, ნეგატიური შედეგების წინასწარმეტყველების მაჩვენებელი NPV-72.5%.

ASC-H/HSIL კომბინაციის სენსიტიურობა 83.4%, სპეციფიურობა 76.4%, პოზიტიური შედეგების წინასწარმეტყველების მაჩვენებელი -72.6%, ნეგატიური შედეგების წინასწარმეტყველების მაჩვენებელი- 76.8%.

კოლპოსკოპიის სენსიტიურობა 83.49%, სპეციფიურობა 69.4%, პოზიტიური შედეგების წინასწარმეტყველების მაჩვენებელი -69.3%, ნეგატიური შედეგების წინასწარმეტყველების მაჩვენებელი -80.6%.

შედეგების განხილვა, დისკუსია:

ჩვენს მიერ ჩატარებული კვლევით დადგინდა რომ როგორც PAP ტესტის ,ისევე კოლპოსკოპიური კვლევების დიაგნოსტიკური ღირებულება მსგავსია სხვა ქვეყნებში ჩატარებული მსგავსი კვლევებით მიღებულ შედეგებთან. PAP ტესტის მგრძნობელობა HSIL დროს არის 64.8%, სპეციფიურობა -86.4%, პოზიტიური შედეგების წინასტარმეტყველების მაჩვენებელი -PPV -79.5% ნეგატიური შედეგების წინასწარმეტყველების მაჩვენებელი -NPV-72.5%. Huy et al., 2018 კვლევით PAP მგრძნობელობა 58.0%, სპეციფიურობა -85.2% , PPV- 68.9% , NPV- 83.3%. Ghosh et al., 2014) მიხედვით PAP სენსიტიურობა- 75.0% , სპეციფიურობა- 95.4%, PPV- 69.2%, NPV- 96.5%.

ASC-H/HSIL კომბინაციის სენსიტიურობა არის 83.4%, სპეციფიურობა კი -76,3%, რაც იმაზე მიგვანიშნებს, რომ ASC-H ის შემთხვევაში შედარებით მაღალია ალბათობა ცრუ უარყოფითი

Table 7.

	%	95% CI
Accuracy	74.9	71.2-78.3
NPV	76.8	73.0-80.2
PPV	72.6	68.3-76.5
Specificity	76.4	72.4-80.8
Sensitivity	83.4	78.5-87.5

Table 8.
Correlation between Colposcopy GR2 and Histology CIN 2+

GR2		CIN2+		
	Positive	Positive	Negative	Total
	Negative	228	101	329
		55	229	284
Total		283	330	613

Table 9.

	%	95% CI
Accuracy	74.5	70.9-78.0
NPV	80.6	76.5-78.0
PPV	69.3	65.5-72.8
Specificity	69.4	64.1-74.3
Sensitivity	83.4	78.5-87.5

Sensitivity of colposcopy 83.4%, Specificity 69.4%, PPV- 69.3%, NPV- 80.6%.

Review, discussion:

By the investigation, performed by us, it was stated that the diagnostic value of Pap test and colposcopy is similar to the results , obtained by similar research in other European countries. Pap test sensitivity at HSIL is 64.81%, specificity -86.36%. Positive predictive value is PPV -79.55%, negative predictive value is NPV-72.52%. By the (Huy et al., 2018) investigation, the Pap sensitivity is 58.0%, specificity is 85.2% , PPV 68.9% , NPV 83.3%. According to (Ghosh et al., 2014), PAP sensitivity is 75.0% , specificity is 95.45%, PPV- 69.23%, NPV-96.55%.

ASC-H/HSIL combination sensitivity is 83.39%, specificity is 76,3, which indicates that in case of ASC-H, the probability of false negative results and hence, unnecessary treatment is relatively high.

The study found that sensitivity of colposcopy is high - 83.39%, while the specificity is relatively low - 69.39%,the low index of test specificity raises the probability of unnecessary treatment and hence, the Healthcare expenditure, while one of the main goals of screening (besides

შედეგების და შესაბამისად არასაჭირო ექსციზიური მკურნალობის.

კვლევით დადგინდა რომ კოლპოსკოპიური კვლევის მგრძნობელობა აღმოაჩინოს CIN2+ მაღალია 83.4% სპეციფიურობა კი შედარებით დაბალი -69.4%. ტესტის სპეციფიურობის დაბალი მაჩვენებელი ზრდის არასაჭირო მკურნალობის ალბათობას და შესაბამისად ჯანდაცვის სისტემის დანახარჯებს, სკრინინგის ერთ ერთი მთავარი მიზანი კი კიბოს პრევენციის გარდა სწორედ ფინანსური დანახარჯების შემცირებაა.

კოლპოსკოპიური კვლევის შედარებით მაღალი მგრძნობელობა PAP ტესტთან შედარებით შესაძლოა განპირობებული იყოს ქალების რეფერალით, ყველა ქალი კოლპოსკოპიურ კვლევაზე მიდის PAP ტესტის შედეგით, რამაც შესაძლოა გავლენა იქონიოს კოლპოსკოპისტის მიერ დაზიანების ინტერპრეტაციაზე.

PAP ტესტზე დაფუძნებული სკრინინგის ერთ-ერთი მნიშვნელოვანი კომპონენტი სკრინინგის ინტერვალია. კვლევის შედეგებიდან გამომდინარე ეს ინტერვალი მერყეობს 6 თვიდან (ASC-H,HSIL) -3 წლამდე (NILM). სკრინინგის ინტერვალის დაუცველობა ხშირ შემთხვევაში განაპირობებს არაეფექტურ სკრინინგს (იზრდება მაღალი ხარისხის დაზიანების „გაპარვის“ ალბათობა). პაციენტების FOLLOW UP დაკვირვება და სკრინინგის ინტერვალის დაცვა ადეკვატურად შესაძლებელია მხოლოდ ორგანიზებული სკრინინგის პირობებში. საქართველოში დღესდღეობით სკრინინგი ოპორტუნისტულია (ქალი სკრინინგულ პროგრამაში ერთვება თვითდინებით). აქედან გამომდინარე მნიშვნელობანია სკრინინგული ტესტი იყოს მაღალსენსიტიური, სწორედ HPV ტესტი ხასიათდება მაღალი მგრძნობელობით და ნეგატიური შედეგების წინასწარმეტყველების NPV მაღალი მაჩვენებლით. არაერთი ფართომაშტაბური კვლევით დადასტურდა HPV ტესტის ეს უპირატესობა PAP და სითხეზე დაფუძნებულ ციტოლოგიურ ტესტთან შედარებით (J. Cuzick et al., 2003; Dillner et al., 2008). HPV ტესტზე დაფუძნებული სკრინინგით შესაძლებელია ერთი მხრივ უფრო მეტი სიზუსტით იქნეს გამოვლენილი კიბოსწინა დაავადება მეორე მხრის კი გაიზარდოს სკრინინგის ინტერვალი (Dijkstra et al., 2016).

prevention) is the reduction of expenses. The high sensitivity of Colposcopy, compared with the Pap test, can be caused by the women's referral. All the women undergo the Colposcopy with the result of Pap test, which can affect the interpretation of the lesion by the Colposcopist.

As the GNSC data outcomes reveals the similarities with results of other European studies they could be considered as The National parameters for Georgia.

One of the main components of screening, based on the Pap test is the screening interval. Hence from the results of investigation, this interval ranges from 6 months (ASC-H, HSIL) to 3 years (NILM). Unobserved screening interval often causes ineffective screening (odds to omit the high grade lesion increases). Observation of patients' follow-up and the screening interval are adequately possible only in conditions of organized screening.

Nowadays, in Georgia, screening is opportunistic (women are included into screening program by themselves). Hence from the above, it is essential to have the screening test, which is highly sensitive. The very NPV test has high sensitivity and high NPV value. A number of wide scale studies have proved this advantage of HPV test (J. Cuzick et al., 2003; Dillner et al., 2008). By the screening, based on HPV test, it is possible to reveal with more accuracy precancerous diseases – on the one hand, and on the othe hand –to increase the screening interval (Dijkstra et al., 2016).

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Influence of Some Environmental Factors on Manifestation of Familial Mediterranean Fever in Children: Clinical and Genetic Aspects

T.Avagyan[1], G.Amaryan[1,2,3], A.Budumyan[1], A.Hayrapetyan[1,4], A.Tadevosyan[1]

[1]Yerevan State Medical University after M. Heratsi
[2] "Arabkir" Medical Complex – Institute of Child and Adolescent Health
[3]National Pediatric Center for Familial Mediterranean Fever
[4]Center of Medical Genetics and Primary Health Care

Background

Familial Mediterranean Fever (FMF) is common in Armenia. Significant increase in number of cases has been registered in recent years, especially in children, including ones with atypical course. According to National Pediatric Center for Familial Mediterranean Fever (NPC FMF) during the last 13 years (from 2003 to 20016) annually diagnosed 300-350 new cases and has been recorded 6 fold increases of registered cases from 500 to more than 3000. According to Center of Medical Genetics and Primary Health Care (CMG) weekly visits for FMF diagnostics is exceeding 60, since 1997 to September 2016 there are registered more than 27000 FMF patients. Molecular-genetic testing is essential for diagnosis of FMF especially for cases with atypical course and coexistence with immune diseases as well.

It has been shown in many studies that genetic factors interacting in special way with some modifying environmental factors are able to change the character and frequency of clinical manifestation of disease (Rigante D. et al. 2006; Touitou I. et al, 2007; S. Ozen, E. Demirkaya et al, 2014).

From these aspects currently there are very intensive research on influence of modifying genes, some environmental, population factors on pathogenesis of FMF in ethnically match groups (genetic and demographic structure, climate, geography, etc.) (Livneh A., et al, 1997; Samuels J., Ozen S., 2006; S. Ozen, E. Demirkaya et al, 2014. Nevertheless, in overwhelming number of cases specific triggering factor for manifestation or the attacks of disease is not revealed.

Anyway, the dependence of phenotypic manifestations of FMF in children from certain demographic, biological, social and environmental factors (stress, diet, insolation level, etc.) was revealed in a number of studies. (Sargsyan S.1996; Amaryan G. 2010; Amaryan G. et al. 2012; Yenokyan G, Armenian HK, 2012; Karadag O, et al, 2013)

Some environmental factors, gender, serum amyloid A and number of genes, responsible for development of arthritis, Crohn's disease as well, interacting in specific way, can play a role of modifying factor in pathogenesis of FMF. In particular, the role of the environmental factor in FMF disease is also confirmed by the well-known fact of a temporary decrease in the frequency and intensity of attacks of the disease during climate change; characteristic attacks of aseptic inflammation can be triggered by stress or extreme physical exertion. Relatively often triggers of manifestation of FMF or its aggravation may become nonspecific effects like cold or prolonged exposure to cold (hypothermia), emotional stress, dietary factors, more rare – acute respiratory or intestinal infections, etc. (Karadag O, et al, 2013).

Based on above mentioned, we assessed some nonspecific enviromental factors such as cold/hypothermia, emotional stress (along with physical exhaustion), diet ("fat" food) as possible triggers of FMF manifestation in children and their interrelations with disease genotypes.

Material and methods

Medical records of 2774 children with FMF (1611 boys and 1163 girls) aged from 1 month to 18 years (mean age 7.80±0.09) have been analyzed. All patients were under follow up at National Pediatric Center for Familial Mediterranean Fever of the "Arabkir" MC-ICAH from 1997 to 2015. Diagnoses were confirmed by international criteria

Tel-Hashomer (*Livneh A. et al., 1997; Livneh A., Langevitz P., 2000)* and molecular genetic analyses of 12 most common for Armenian population mutations of MEFV *(Ajrapetyan H.., 2002).*

Only 413 (14.9% of sample) records contained information about possible triggering factors of FMF manifestation. In the rest of medical records data were either missing or patients could not mention any. Patient were questioned about cold/hypothermia, emotional stress/ physical exhaustion), diet ("fat" food) as possible triggers.

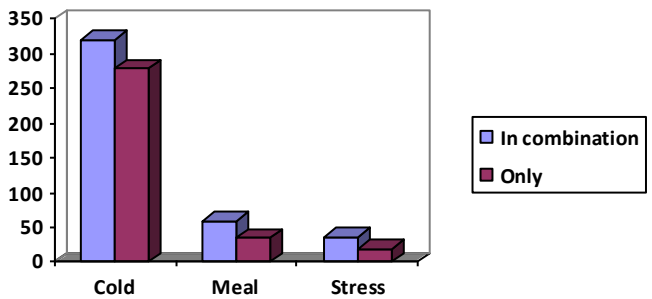
Genetic analyses were done in Center of Medical Genetics–Primary Health of Republic of Armenia on genome DNA extracted from peripheral blood of patients with FMF with special kit of regents "Puregene kit" (Gentra System, USA).

Statistical analyses were done with software SPSS 16. Categorical variables in contingency tables 2x2 were analyzed with Pearson's coefficient using Yates correction for continuity. In all cases statistical significance was considered at level $p<0.05$ (Dawson B., Trapp R., 2001).

Results and discussion

Anamnesis about some possible external factors provoking manifestation of FMF was retrieved from 413 medical records. Possible influence of most frequent mentioned factors, particularly, cold/hyperthermia, stress (emotional or prolonged physical exertion), food factor ("fat" food) on the disease onset have been analyzed (Chart 1).

Chart 1
Proposed triggers of FMF manifestation in children (numbers)



Analysis of anamnesis of children with FMF showed that the most common trigger of the manifestation of the disease was the cold factor in 319 patients out of 413 patients (77.2%). Cold factor as a separate triggering factor was mentioned in 278 (67%) children. Moreover, 41 patients along with the cold factor noticed the influence of stress and food factor as well. In the same time, as the result of MEFV testing 236 patients (74%), e.g. three quarter of diseased children were found as career of the most pathogen M694V mutation, and 56 of them (11%) had the most severe M694V homozygous genotype (M694V/M694V). Cold or hypothermia as the provoking factor of FMF onset followed by meal - "fat" food (60 patients), and less frequent - stress (36 children). One third of questioned patients were unable to point on a possible trigger of disease.

Table 1
Cold factor and genotypes of patients with FMF depending on main three *MEFV* mutations - M694V, M680I, V726A

Genotypes of MEFV	**Cold factor as the possible trigger of FMF manifestation (n= 319)**	
	Abs. Number	**%**
M694V: total	182	44.1
M694V /M694V NN..?/?M694V	56	13.6
M694V/ N	23	5.6
V726A/ other	8	1.9
V726A/ N	8	1.9
M680I/ other	2	0.5
M680I/ N	5	1.2

Thus, according to the presented data (Table 1) the most frequent triggering factor of the FMF manifestation in children was the cold / hypothermia. However, there was no significant difference in the frequency of the cold factor, depending on the type of *MEFV* mutations. It means, that, the frequency of the indications of the cold as a triggering factor for FMF onset did not depend on the type of MEFV gene mutations and this factor was equally often indicated by patients with different genotypes and mutations.

The exception was the most pathogenic M694V homozygous genotype (M694V / M694V) compared to the homozygotes for M680I mutation (M680I / M680I) (p = 0.055). In other words, the patients with M694V homozygous genotype significantly more often indicated cold as the possible trigger for FMF onset in comparison with the M680I homozygous patients.

Stress as a trigger for FMF manifestation compared with the common cold, was reported significantly less (36 patients - 8.6%). Among them 21 patients have been carriers of the M694V mutation, four patients - M680I. However, there was a statistically significant relationship between the frequency of stress indications and some MEFV genotypes (Tables 2, 3). i.e. that, the stress factor could provoke the FMF onset more often than cold. Thus, the stress as a trigger for FMF was significantly more often indicated by patients with certain MEFV mutations and genotypes, in particular, in patients with homozygous genotypes for three main MEFV gene pathogenic mutations: M694V (M694V / M694V), M680I (M680I / M680I), V726A (V726A / V726A). The carriers of M694V mutation, especially, M694V homozygotes (M694V / M694V) consisted the majority of enrolled FMF patients - 2.66 % and 0.48% respectively (Table 2). It means that stress factor significantly more frequent triggered the FMF onset than cold.

Table 2
Stress factor as the supposed trigger of FMF manifestation in children with the main three mutations M694V, M680I, V726A

Genotype MEFV	Stress factor (n = 36) as the supposed trigger of FMF manifestation	
	Abs. Number	%
M694V total	11	2.66
M694V / M694V	2	0.48
M694V/ N	4	0.97
V726A/ other	8	1.94
V726A/ N	2	0.48
M680I/ other	6	1.45
M680I/ N	1	0.24

Table 3
Stress factor and genotypes in children with FMF depending on M694V, M680I, V726A MEFV mutations

Genotypes of MEFV	Stress factor (n= 36)	
	X^2	P
M694V / M694V - M680I/other	0.172	0.288
M694V / M694V - M680I/N	3.16	0.07
M694V / M694V - M694V/other	0.093	0.129
M694V / M694V - M680I/ M680I	0.666	1
M694V /N - M680I/N	0.592	0.482
M694V /N - V726A/N	0.683	0.653
M694V /N - M694V/other	0.619	0.544
M694V / M694V - V726A/N	0.118	0.136
V726A/ V726A - V726A/N	0.751	1
V726A/ V726A - V726A/ other	0.243	0.234

According to the statistical analysis the food factor, particularly, "fat" food, did not increase the probability of the FMF manifestation.

Conclusion

Despite the fact that the cascade of inflammatory changes in FMF is partially known, triggers that provoked the onset of the disease and its attacks have not been fully studied. A number of publications indicate that factors associated with emotional or physical stress often precede attacks of the FMF and can provoke their development. It is known, that, a prolonged exposure to cold (cold / hypothermia) is also attributed to physical stress. From these positions it is supposed that stress (both emotional and physical) can be considered as the main trigger of the attacks of FMF.

The results of our study on the factors provoking the manifestation of FMF are consistent with the above data. The most frequent triggers of the onset of FMF in the sample of patients with FMF were the cold / hypothermia (67%), as well as meal (14.5%) and emotional stress (8.7%). Despite the relatively high frequency of cold indication as a trigger for the FMF manifestation, the frequency of its occurrence was widely independent of the type of MEFV mutations and genotypes, with the exception of homozygotes for the main pathogenic and the most penetrate M694V and

M680I mutations. At the same time, a statistically significant relationship was established between the emotional stress factor, which was accepted as the less frequent trigger of FMF and the three main pathogenic MEFV mutations M694V, M680I, V726A and their homozygous genotypes (M694V / M694V; M680I / M680I; V726A / V726A.

It is interesting to mention, that the common cold (as a type of physical stress) and emotional stress, as the most frequent triggers of FMF manifestation, were statistically significant more often indicated by patients with M694Vhomozygous genotype. We supposed, that on the whole, these data confirmed the role of stress - physical and emotional, as the main possible trigger for the manifestation of the FMF.

Acknowledgments

This work was supported by State Committee of Science at MES RA, in frames of the research project No. 13T-3D191.

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Sleep disorders and the memory processing at ethanol administration

M.Gogichadze[1], M.Nemsadze[2], N.Lortkipanidze[3], N.Oniani [4]

Research Center "T.Oniani Laboratory of Study Sleep-Wakefulness", Ilia State University, Tbilisi, Georgia
[1]PhD, Doctor of Biological Sciences, Main researcher, [2]PhD, Doctor of Biological Sciences, Professor- Emeritus, [3]PhD, researcher , [4]PhD, Associative Professor, Head of the research Center

Summary

The sleep wakefulness cycle (SWC) generally is sensitive to a variety of pharmacological and non-pharmacological impact, therefore, can be considered as valid model to study the effects of various substances, including ethanol (ET). ET, in various doses, may change excitability of nervous circles, which are involved in regulation of sleep-wakefulness cycle and learning and memory trace consolidation. The aim of the present study was to investigate effects of the various doses of 25% ET solution on the acquisition of the active avoidance reaction, memory trace processing and the sleep wakefulness cycle (SWC) in rats. Experiments conducted on inbred adult rats (weight 180-250 gr. N=50). The following methods used: 1. Stereotaxic, for implantation of electrodes in the brain, oculomotor and cervical muscles; 2. Polygraph registration of the SWC; 3. Passive avoidance test used for study of possibility of memory consolidation; 4. Active avoidance test for study of possibility learning processes (daily 20 trials during 20 days until achievement the learning criterion).5. Animals were injected intraperitonealy of 25% ET (1 ml/kg, 2 ml/kg, 4.5 ml/kg) solution during 20 days. 6. The obtained date treated statistically and significance of the observed changes evaluated according to the Student's *t*-criterion. Low doses of ET (0.5-1 ml/kg), facilitated elaboration of the avoidance reaction on the light compared with control intact group ($p<0.03$). Middle doses (2-2.5 ml/kg) inhibited of the acquisition of the avoidance. High doses (3-4.5 ml/kg) of ET completely blocked implementation of the elaborated reaction of avoidance ($p<0.03$). Consolidation of memory trace was not disturbed at administration of the low doses of ET. High doses (3-4.5 ml/kg) of ET blocked normal course of the phases and stages of SWC. The EEG wave's amplitude noticeably depressed. Recovery of the SWC structure observed after several days.

Abbreviations: Sleep wakefulness cycle – SWC, slow wave sleep - SWS, paradoxical sleep – PS, raped eye movement – REM, ethanol – ET, Electroencephalogram EEG, Electromyogram – EMG, mesencephalic reticular formation - MRF

Key words: sleep wakefulness EEG active avoidance memory, rats

Introduction

At the present time alcohol abuse and dependence are among the most common health problems worldwide. Excessive alcohol-drinking behavior induces development of addiction and in the end there is a development of the alcoholism syndrome that is a multigenic disorder. This problem is very important for those regions also, where wine production and consumption (and not of the high grade of drinks) is a part of the culture. The knowledge obtained during the researches of the factors, which causes alcoholism development, problems associated with the induced disorders becomes deeper. Sleep problems, which can have significant clinical and economic consequences, are more common among alcoholics than among nonalcoholics (Brower, 2009). Alcohol problem severity may be predictive of sleep disturbances (Hartwell et. al., 2015).

Despite the intensity of the study many issues regarding the development of alcoholism remain unclear and require further study, the creation of new models as it would be expedient from the point of view, study of other neurological and psychiatric diseases (Kalueff and Tuohimaa, 2004).

Sleep is a highly evolved global behavioral state in homeothermic vertebrates. Sleep in mammals can be defined by (Hobson, Pace-Schott. 2002) characteristic changes in EEG and posture (Datta, Patterson (2003).

On the basis of long-term investigation of the SWC neurobiological mechanisms and survey of scientific literature a view has been formulated according to the SWC as a valid physiological model. In the pointed cycle the ratio of the stages, their homeostatic nature, reciprocal interdependence, a delicate, regular and consecutive pattern of the phases alteration, make it possible to apply this model as a natural test for studying the pharmacological and non-pharmacological impacts (Oniani et al., 2001; Gogichadze et al., 2000, 2002; Maisuradze et al., 2003; Gvilia et. al ., 2006;Campbell et al., 2007). At the same time a number of psycho-nervous diseases including alcoholism are characterizing by disturbances of the SWC structure (Gillin et al., 1989; Brower 2000; Schreckenberger et al., 2004; Soderlund et al., 2007). The same effects have been observed in the researches connected to the animals (Gogichadze et al., 1988; Ehlers, Slaweski, 2000; Gogichadze et al., 2000, 2002, 2004; Kubota et al., 2002). Among them the problem of correlation of sleep disorders and cognitive deficit in the alcoholics is very interesting, as to a greater extent addiction is followed by cognitive deficit (Liapas et al., 2007; Nowakowska et al., 2008).

Despite the intensity of the study many issues regarding the development of alcoholism remain unclear and require further study, the creation of new models as it would be expedient from the point of view, study of other neurological and psychiatric diseases (Kalueff and Tuohimaa, 2004).

The SWC generally is sensitive to a variety of pharmacological and non-pharmacological impact, therefore, can be considered as valid model to study the effects of various substances, including ET. The animal models are important to study of alcohol effects because they allow researchers to use methods that cannot be used with human subjects. ET, in various doses, may change excitability of nervous circles, which are involved in regulation of SWC (Kubota et.al., 2002), and learning and memory trace consolidation (Söderlund et.al., 2007).

Despite alcohol being extensively studied and widely used, the biological processes underlying its beneficial effects on memory particularly in connection with sleep disorders (Silvers et.al. 2003; Matthews, Silvers, 2004) and consequence memory impairment remain unclear. The aim of the present study was to investigate effects of the various doses of 25% ET solution on the acquisition of the active avoidance reaction, memory trace processing and the SWC in rats and to make correlation between memory processing and alteration of the SWC evoked by administration of ET.

Methods and materials

Investigation of SWC structure

1.1. Animals and experimental environment

Inbred albino adult rats (weighing 280–320 g at the beginning of the experiments) were housed groups in the environmental chambers before the surgery. After the surgery the rats individually placed in the experimental cages in natural day/night conditions. Food and water were available *ad libitum* and the constant room temperature was maintained.

1.2. Surgical procedures and recording

Under Hexenal anesthesia (3-4 mg/kg, i.p.), the rats were surgically implanted with chronic constantan cortical (bilaterally sensorimotor area and hippocampal projection) and dorsal neck bipolar electrodes for assessment of sleep-wakefulness states in antiseptic conditions. The electrodes were implanted using stereotaxic coordinates (Buresh et al., 1991, Paxinos, Watson, 1997). The EEG electrodes screws threaded into holes drilled through locations on the skull; the indifferent (silver) electrode was fastened on the comb of the occipital bone. For registration of the rapid eye movement two electrodes were implanted in the oculomotor muscles. The diameter of the tip of uninsulated wires was 100-200 Mk.

Leads from the electrodes were soldered to a special bin and the complete assembly was anchored to the skull with dental acrylic. After rehabilitation period (5-7 days) after surgery, animals were connected to a recording cable and were adapted to the recording procedure for 12–24 h (beginning at 10:00 A.M.) each day. During experiments, EEG and EMG signals were recorded continuously using a polysomnograph recording devices {"Medicor" (Hungary) and 4 channel soviet EEG}. A baseline recording was conducted during several days and after completely stabilization of SWC alcoholization of the animals was begun.

The procedure of alcoholization:

2.1. Acute administration was conducted by 25% solution of ET intraperitoneal injection before10-20 min the registration of SWC or learning session in different doses (1, 2, 2.5 and 4.25 g/kg). The high (narcotic) dose has been taken for define "long sleeper" (non- alcoholic) and "short sleeper" (alcoholic) for determination alcohol preference in the rats **(see** Буров, Ведерникова, 1985).

Analysis of SWS in the rats

Different stages of sleep-wakefulness cycle of the rats were determined by EEG alteration and visual observations. Wakefulness, together with behavioral parameters – motor activity, grooming, feeding, was defined by the presence of low-amplitude and high-frequency EEG activity with higher neck muscle tone. A high-amplitude slow-wave EEG and decreasing EMG tone relative to wakefulness allowed defining SWS. The PS was identified by the presence of slow amplitude of waves in EEG and high theta activity from the hippocampal projection of the cortex, with decreasing neck EMG tonus, arising of REM in the oculogramm and slight twitching of the limbs and whiskers.

Investigation of learning and memory processing:

4.1. Active avoidance test used for study possibility of learning and reproduction (acquisition) of the skill in different experimental paradigms including ET administration.

The special arrangement - the chamber with front transparent wall for watching the animals (50X20X30sm) was used for studying possibility of learning and acquisition of active avoidance skills. The grill floor of the chamber was electrified and the animal for avoid of the electrical stroke had to jump of the shelf mounted on the left wall of the chamber. The light stimulus (10 sec) preceded the electrical stroke (20 MA, duration 20 sec).The learning sessions passed during 20 days daily 20 trials until achievement the learning criterion – 9 (from 10 signals) consequence correct answers (jumping on the shelf to avoid painful stimulus) on the light.

In the first series of the experiments (n=12) the effects of low dose (1 g.kg) of ethanol was studied. In the second series of the experiments (n=10) the effects of middle dose (2 g.kg) of ethanol was studied. Injections of ethanol in these experiments were made pre-session. In the third series (n=8) effects of high post-session dozes (3.4 and 4.25 g/kg) of ethanol were studied on the acquisition of the avoidance task on the following day.

4.2. Passive avoidance test used for study of possibility of memory consolidation in different experimental paradigms including ET administration. Testing conducted in two chamber cage (Buresh et al., 1991). At the beginning of the test the animals were placed in the well lighted (4 incandescent lamps – 60Vt). Plexiglas transparent cube (20x20x20 Sm).On the one wall was small hole and the animal could enter the dark compartment to avoid the light environment according to natural fear of light. The grill floor of the dark compartment was electrified. After entering the roof of the compartment was closed and the animal received electrical stroke (20 MA) during 20 sec. Retention of the passive avoidance reaction was considered as fulfilled, if the animal, after 24h after stroke did not enter the dark compartment during 10 min. Duration of latency of entering the dark compartment also counted up **(**Oniani, Nemsadze, 1985**).**

5. Statistical analysis. The obtained date treated statistically and significance of the observed changes evaluated according to the Student's *t*-criterion.

At all times, animals will be treated in accordance with guidelines for animal care established by the National Institutes of Health (Institute of Laboratory Animal Resources, Commission on Life Sciences, National Research Council, 1996), using protocols approved by Binghamton University Institutional Animal Care and Use Committee.

Results:

1. ***Influence of different doses of Ethanol on the learning and memory processing***

According of the date in which influence of different doses of ET on the memory was discussed, the effects of this substance associated to disturbances in the brain structures, even injures, at using of low doses of alcohol. In the following part of the paper the effects of different doses of ET on the possibility of learning and memory trace consolidation are shown.

1.1. Influence of different doses of ET on the elaboration and acquisition of the active avoidance skills

The animals in two groups were alcoholized by intraperitoneal injections of ET during 20 days while active avoidance testing was performed.

The first experimental group received ET injection 10 min before learning session in dose 1g/kg.

After first injection (the first day of testing) the animals were characterized by facilitate of motor activity what was expressed in spontaneous jumping on the shelf of the experimental chamber and exploration of the experimental environment (intersignal activity). During following testing days inter signal activity in all group fluctuated.

As concerns of second experimental group where the animals were injected by ET in the dose of 2g/kg amount of spontaneous jumping on the shelf was less and exploration activity was low – they did not characterized by high motor activity and inter signal activity expressed in the decline of that parameters (Fig. 1).

Fig 1. Dynamics of spontaneous intersignal activity of rats in the active avoidance test
On the abscise – the experimental days
On the ordinates – frequency of jumping on the shelf

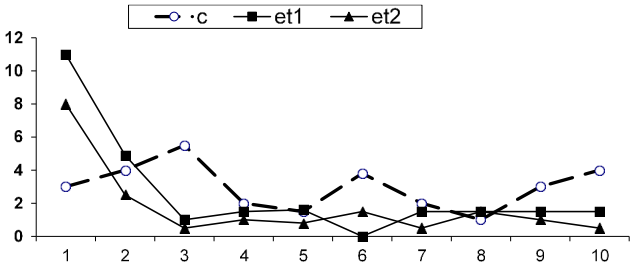
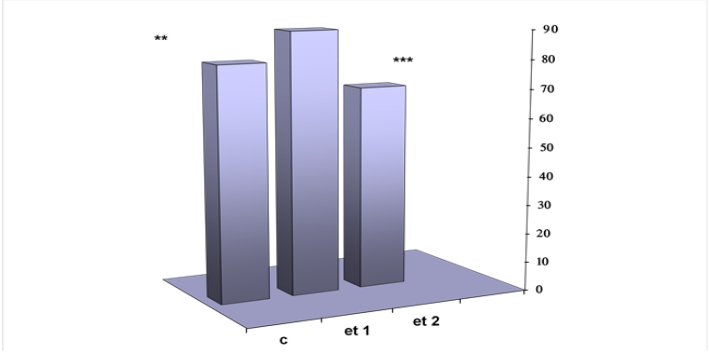


Fig.2 Influence of different doses of ethanol 25% solution on the criterion of learning in the active avoidance test

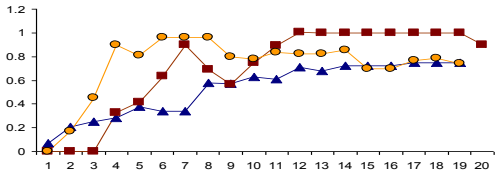
c – control group, **et1**- the first experimental group at pre- session injection by 1g/kg of ET (injected 10 min. before the learning session); **et2** – the second experimental group at pre- session injection by 2g/kg of ET (injected 10 min. before the learning session) ($p<0.03$).



Elaboration and acquisition of the active avoidance reaction at alcoholization of rats by different doses of 25% solution of ET alleviated at low dose. The rats of the first experimental group (et.1) easily got trained in the active avoidance test (Fig.2).

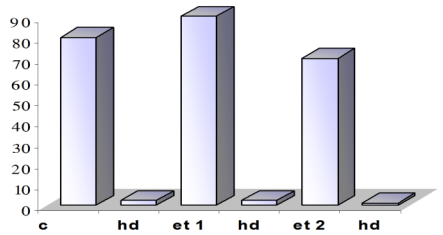
On the Fig.3 the dynamics of elaboration of the active avoidance in the three groups of the animals – control, exposure by low and middle doses of ET is shown. Low dose of ET facilitated the process of learning and consolidation of memory in the active avoidance test.

Fig.3.The dynamics of acquisition of active avoidance reaction at 20 consequence days in 20 trials session. ▲ – Control group; ■ - at injection of ET in doses 1g/kg; ● - at injection of ET in doses 2g/kg. The correct answers on the light is showing on the ordinate, on the abscise – the days of elaboration



In the special experiment influence of high (4.25 g/kg of 25% solution, evoking "anesthetic" sleep, and see below in next division) on the elaborated skill of active avoidance was studied. This dose of ET was administrated after learning session were rats demonstrated high level of the response. The high dose of ET that strongly disturbed the structure of SWC (see Fig.) elicited blackout and the animals in the all three groups (Fig.4).

Fig. 4. *Influence of high doses (hd) of ET 3.4-4.25 g/kg at post-session injection on the performance of active avoidance reaction after 24 h after injection*
c –control group, hd'–after post-session injection; et1 – the first experimental group, hd'' – after post-session injection; et2 – the second experimental group, hd''' – after post-session injection. ($p<0.03$ for all groups).



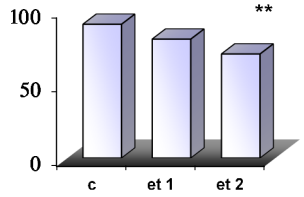
1.2. Influence of different doses of ET on the reaction of passive avoidance

For studying influence of different doses of ET on possibility of consolidation of memory trace the passive avoidance test was used. At pre-session administration of ET low dose possibility of memory trace was not prevented and animals did not enter the dark compartment of the experimental device after 24h of electroshock. Slight impairment of memory was observed in the second experimental group, which administrated by 2 g/kg of ET (Fig.5).

Fig. 5 The possibility of consolidation of memory traces at ethanol pre – session administration in a passive avoidance test

On the ordinate the percentage of the criterion of passive avoidance reaction is shown

***c** – The control group; **et1** – the first experimental group with low dose (1g/kg) of ET injection; **et2** – the second experimental group with middle dose (2g/kg) of ET injection; p<0,01*



is possible to conclude that low dose of ET improved memory processing, middle dose elicited slight impairment of this process, and administration of high dose provoked blackout, and animals of the all groups are not able to implement a previously trained skill.

2. Changes in electrical activity of the cortical areas during administration of high doses of Ethanol

Administration of low and middle doses of ETG did not elicit significant alteration on the duration, architecture and the ratio of SWC in the rats (Fig.6).

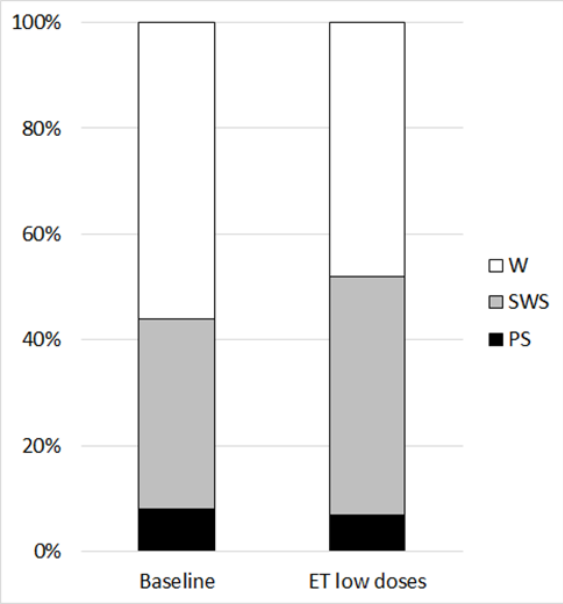


Fig.6. Influence of low doses of ET on the volume ratio of the SWC

2.1 Influence of ET high (anesthetic) dose on the EEG and SWC structure in the rats

Selection of the inbreed rats according to predisposition for alcohol consumption, beside of free choose method (McBrideae et.al., 2014) performed by injection of ET in high narcotic dose – 4,25 g/kg of 25 % solution (Буров и др., 1983).

Duration of "sleep" testified that "short sleepers" (20-80 min) as these animals do prefer alcohol in the freely choosing paradigm. The "long sleepers" (duration of narcotic sleep – more than 120 min) considered as "non- alcoholics"– they do not prefer alcohol. On the base of comparison of different experimental data in our experiments we have given preference to the injection method for selection of animals. More over data considered to the characters of the narcotic sleep evoked by ET narcotic dose are negligibly little.

On the fig.7 influence of high doses of ET on rats' EEG is illustrated. Sharp alteration of the electrical activity of the sensor motor area and hippocampal projection of the cortex was observed after 15 min from injection. Depression of the electrical activity accompanied by complete immobilization of the animals and corresponded with cataplexy. After 2h after injection specific EEG activity - low amplitude synchronous activity generated. It is distinguished that hippocamal activity is more is sensitive to high dose of ET.

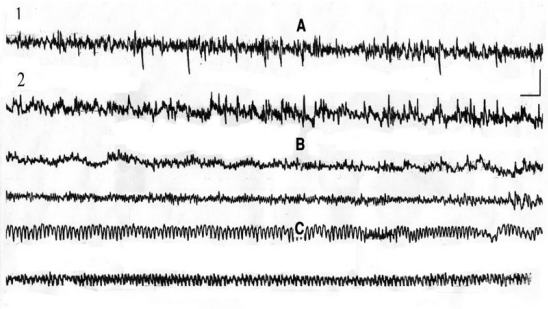


Fig.7. Influence of high doses of ET on rats' EEG.

*A – baseline, B – after 15 min from injection, C - after 2 h. **1-** sensor motor area, 2 – hippocampal projection of the cortex*

High doses (3-4.5 ml/kg) of ET blocked normal course of the phases and stages of SWC. During depression of EEG parameters the phases of SWC were not generated. The disturbances of the structure of SWC in the whole continuum were approximately 35-40 %. After completion of EEG depression amount of W was greater than the baseline and respectively duration of SWS and PS – decreased (Fig8). Recovery of the SWC structure observed after several days.

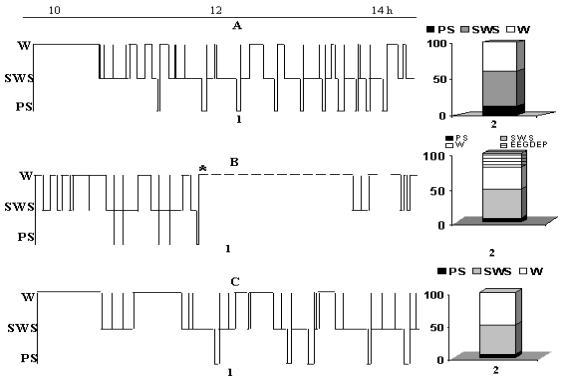


*Fig.8 .Influence of high doses of Ethanol on the SWC structure in the rats. A-baseline B- during ET administration, C- recovery day. **1** – cyclogram of SWC during 4h of registration, **2-** percentage of the amount the phases of the SWC in the same period.*

Discussion:

Obtained results are discussed in the following view points:

1. Low doses of ET (1-1.5 mg/kg) in all probability activate arousal system of MRF, posterior hypothalamus, according of elevate eiphoria, that is common during consumption of these doses of alcohol, stimulate awarding system in the mesolimbic and limbic as well opioid systems, contribute EEG desinchronisation, facilitate motor activity and promote learning and memory processing (Ониани, 1980; Kitamura, et al., 2017).
2. Middle doses of ET (2-2.5 mg/kg) induce partial inactivation of arousal system of MRF, posterior hypothalamus, induce slow down of motor activity does not contribute learning and memory processing.
3. Acute administration of high doses of ET (3-4.5 mg/kg) via blocking of MRF, inactivates of arousal system, inhibits spinal reflexes, and induces EEG depression, complete instability SWC and total disruption of memory processing.

Animal models, including genetic models of alcoholism that may be relevant to some forms of alcoholism, and sophisticated genetic research strategies have been directed at this specific question. Moreover, in contrast to most other drugs of abuse, the actions of which are confined to a more limited number of neurochemical or receptor systems, the pharmacological effects of ethanol that support alcohol reward and alcohol seeking behavior involve actions at multiple receptors and neurochemical systems occurring at widespread neuroanatomical sites throughout the brain (Weiss, Porrino 2002; Spanagel et. al., 2005).

Alcohol has many effects on brain functions and hence on human behavior (as well on animal behavior), ranging from anxiolytic and mild disinhibitory effects, sedation and motor incoordination, amnesia, emesis, hypnosis and eventually unconsciousness (Harrison et al., 2017).

It has dose dependent effect and probably impact on neurotransmission in the mostly all of the brain structures and may modify as modification of CNS inhibitory and excitatory synaptic transmission occurs in response to acute and chronic alcohol (reviewed by Roberto and Varodayan, 2017).

Impact of alcohol involving limbic domains, such as the nucleus accumbence (NAc) and the dorsal striatum, which mediate motivational and emotional alterations (Graybiel, 2008).

It was demonstrated that both dopamine neurotransmission and κ –opioid receptors sensitivity are dysregulated in the NAc core and precommisural dorsolateral caudate of male cynomolgus macaques following 6 months of voluntary ethanol self-administration (Siciliano et.al., 2015).

Under alcohol, decreased brain responses in right frontotemporal areas might slow down the attentional capture of infrequent stop-signals and subsequent updating of action plans which leads to impaired inhibitory control. In turn, pronounced alcohol-induced impairment of inhibitory control may enhance alcohol consumption in young adults which might promote future alcohol problems including cognitive impairment (Angarita et. al., 2016).

Sleep problems, including insomnia observed and well documented among adults with alcohol dependence (Stein and Friedmann, 2006; Brower, 2009; Brower and Perron, 2010; Angarita, et. al., 2016).

The relationship between sleep and memory is widely discussed in the current neuroscientic researches (see Rasch and Born, review 2013), despite significant contradictions which were discussed and refuted in Oniani's earlier works (see Oniani, 1970, 1977, 1980, 1984).

In the present article destruction, even completely blocking of previously elaborated avoidance reaction and sleep phases elimination after application of the narcotic dose of ET is established. It is estimated that SWC disturbances correlate with memory trace recall. Although it is possible the main reason is severe intoxication produced by applied high dose of ET that with its own line disables the influence of activating reticular (arousal) system.

Conclusion:

Obtained results allow suggesting that the main reason of the deficit learning and memory during alcoholization with middle and high doses of ethanol solution depends on disruption of SWC structure and mainly on deactivation of the brain arousal system.

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Impact of Fluoride Deficit on Dental Health in High Mountainous Regions of Georgia

Nutsa Zurabiani[1], Mariam Margvelashvili[2], Vasil Tkeshelashvili[3]

The University of Georgia, School of Health Sciences and Public Health
[1]PhD student, Public Health; [2]Supervisor, MD, Associated Professor; [3]Supervisor, MD, JD, PhD, ScD, Professor

Summary
Oral Diseases have a significant role in global morbidity. Dental health is affected by both endogenous and exogenous factors. One of the most important factors in caries development is the fluoride deficit. The aim of the research was to study the rate intensity and prevalence of dental caries among the adult population of high mountainous regions of Georgia and their correlation with fluoride deficit in drinking water. The investigation was performed in high mountainous villages of Georgian regions (Svaneti, Racha, Samegrelo). During the study, risk-factors of the caries development were assessed, such as the hygiene of oral cavity, existence of general diseases, socioeconomic status, availability of dental assistance, diet content, smoking and etc. In addition, the fluoride content in drinking water was assessed. According to our investigation, it was detected, that together with such risk factors as oral hygiene, general health condition, socioeconomic status and etc., the fluoride deficit in drinking water, plays an important role in dental caries development.

Key words: *high mountainous region, dental caries, Fluoride.*

Problems Statement:

Dental caries continues to pose an important public health problem across the world. The World Health Organization (WHO) emphasizes that the disease affects about 60–90% of schoolchildren, the vast majority of adults and that dental caries contributes to an extensive loss of natural teeth in older people globally. Meanwhile, in most westernized high income countries, an improvement in dental health has taken place over the past three decades in parallel with the introduction of prevention-oriented oral health systems. A decline in the prevalence and the severity of dental caries is particularly observed in countries having established public health programmes using fluoride for dental caries prevention, coupled with changing living conditions, healthier lifestyles, and improved self-care practices [1, 2, 3].

Dental caries affects quality of life and has a negative impact on daily performance. The compartmentalization involved in viewing the mouth separately from the rest of the body must cease because oral health affects general health by causing considerable pain and suffering and by changing what people eat, their speech and their quality of life and well-being. Oral health also has an effect on other chronic diseases. Because of the failure to tackle social and material determinants and incorporate oral health into general health promotion, millions suffer intractable toothache and poor quality of life and end up with few teeth [4].

Oral health affects people physically and psychologically and influences how they grow, enjoy life, look, speak, chew, taste food and socialize, as well as their feelings of social well-being. Severe caries detracts from children's quality of life: they experience pain, discomfort, disfigurement, acute and chronic infections, and eating and sleep disruption as well as higher risk of hospitalization, high treatment costs and loss of school days with the consequently diminished ability to learn. Caries affects nutrition, growth and weight gain [5].

Fluoride is widely recognized for reducing the prevalence of dental caries. Although dental caries is multifactorial and complex, it is preventable. Results of numerous studies have shown that fluoride decreases the incidence of dental caries and slows or reverses the progression of existing lesions by decreasing the rate of dental enamel demineralization and enhancing the rate of enamel remineralization [6].

The "Fluoride" has very important role in the development of tooth in general and in the development of enamel in particular.It is incorporated in the enamel at molecular level during developmental stage and form Fluoapatite after binding with the hydroxyapatite crystals of the enamel.Fluoride mostly enters the body via the gastrointestinal tract and is absorbed quickly in the stomach without the need of specialized enzymatic systems [4].

It is worth to point out that Fluorine is not the panacea for caries, but it is just the meanse of its prevention. In order to avoid caries, the right way nutrition and regular visits to the dentist are also critically important.

The aim of the research:

The aim of the research was to study the intensity ant prevalence of dental caries among adult population of high mountainous regions of Georgia and their relationship with the Fluorine deficit in drinking water.

Materials and Methods:

The research was held in high mountainous villages of Georgian regions (Svaneti, Racha, Samegrelo). In total, 614 people were investigated (Svaneti-208, Racha-202, Samegrelo-204 people). We used 5 age groups according

to the International Healthcare Organization: (35-44)-221 people; (45-54)-152 people; (55-64)-124 people; (65-74)-66 people; (74-85) – 51 people. According to the gender, 269 males and 345 females were investigated by an experienced practicing dentist in attendance of 4 assistants, on the basis of prior informed consent. The quantitative as well as qualitative investigations were held.

During the research, risk factors of caries development were assessed, such as oral hygiene, existence of general diseases, socioeconomic status, availability of dental assistance, diet content, smoking and etc. Besides, the Fluorine content in drinking water was assessed.

The hygiene of oral cavity was assessed, using OHI_S (Oral Hygiene Indices – Simplified). Dental caries intensity was studied using DMF-index (decayed teeth, missing teeth, fillings) [7]. Obtained results were statistically processed in SPSS.21.

Results:

According to our investigation, among the adult population of high mountainous regions, the caries prevalence is high (Table 1).

Table 1. Prevalence of dental caries according to regions

Region	Rate (%)
Svaneti	94.7
Racha	98.0
Samegrelo	100.0

Caries intesity was also found very high according to DMF index in all three regions (Table 2).

Table 2. Dental caries intensity according to regions

Region	DMF index	P
Svaneti	12.56 ± 9.541	<0.05
Racha	9.67 ± 9.153	<0.05
Samegrelo	10.36 ± 8.262	<0.05

Obtained results of oral hygiene assessment are given in table 3.

Table 3. Oral cavity hygiene index value among investigated contingent

OHI_S- index	Rate (%)
0.5 (good)	7
1.2 (satisfactory)	11
1.9 (unsatisfactory)	57
2.8 (bad (poor))	25

Attention must be paid to the employment issue of the population of high mountainous regions, which is then reflected in socioeconomic status. 64% of the investigated individuals have a profession. 39% are employed and the remaining 61% are unemployed. Out of the latter, 13% are busy in agriculture.

During the investigation, we separated X group. In it we included the contingent that was employed, practically healthy and had good or satisfactory index of hygiene.
It must be pointed out that in X group too, caries prevalence and intensity was high (Table 4).

Table 4. Caries rate and intensity in X group

Caries rate	100%	P < 0.05
Caries intensity	10.12 ± 7.29	P < 0.05

In spite of the fact, that in X group, we excluded the impact of such risk factors as socioeconomic status, general health condition and the index of the oral cavity hygiene, the caries rate and intensity still proved to be high. That is why we started studying of such risk factor as the impact of Fluoride deficit on dental health.

During the investigation of Fluoride consistency in drinking water, we found a very low consistency in all three regions (Table 5).

Table 5. Fluoride content in drinking water in Svaneti, Racha and Samegrelo.

Regions	Norm no more than mg/l	Result Fluoride F mg/l 2015-2017 years
Svaneti	0.7-1.5	0.05
Racha	0.7-1.5	0.05
Samegrelo	0.7-1.5	0.03

According to our investigation, the Fluoride deficit in drinking water has significant impact on dental health of high mountainous population.

Conclusion:

According to our investigation, we found that together with risk factors, such as oral hygiene, general health condition, socioeconomic status and etc., the Fluoride deficit plays an essential role in caries development.

Hence from the very high prevalence and intensity of Caries in Georgian population, including high mountainous regions, it is inevitable to develop and implement the preventive measures, which will be aimed to improve the dental health. In addition, it is crucial to plan these arrangements at state as well as individual levels.

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Occupational features of pharmaceutical workers, viewed by the chief pharmacists

Nodar Sulashvili[1], Margarita Beglaryan[2], Maia Matoshvili[3]

[1]Yerevan State Medical University, Pharmacy Faculty;
[2]Tbilisi State Medical University
[1]PhD Student[1]; [2]Supervisor, PharmD, PhD, ScD, Professor[1]; [3]MD, PhD, Assistant Professor[2]

Summary

Aim and objects was to study occupational features of pharmaceutical workers in Georgia, viewed by the chief pharmacists. The study was quantitative investigation by using survey (Questionnaire). Surveys was for chief pharmacists, 410 chief pharmacists were interviewed in Georgia. Questions and answers are given in the tables. On each question are attached diagram or table. Questionnaire and diagrams are numbered. On the question what methods have you applied in the search for specialists? (You can indicate several answers) chief pharmacists' 32.2% answer recommendation of colleagues, chiefs' 21.5% answer search in higher educational institutions, chief pharmacists' 30.7% answer search in own organization, chief pharmacists' 55.6% answer internet, chief pharmacists' 38.3% answer recruitment agencies, chiefs pharmacists' 67.8% answer advertisements in mass media or in printed and electronic media. On the question -How much time do you need for searching of specialists on vacant position? Chief pharmacists' 0.5 % answers 1 up to 1 week, chief pharmacists' 20.7% answer up to 1 month, chiefs' 57.6% answer up to 3 months, chief pharmacists' 19% answer up to 6 months, chief pharmacists' 2% answer up to 9 months, and chief pharmacists' 0.2% answer up to 1 year.

Keywords: *Pharmacy, student, employed, pharmacist, faculty, work, study.*

Background

Pharmacists possess the potential to improvement the therapeutic outcomes and patients' quality of life within existing resources, and should position themselves appropriately within the health care system. Pharmaceutical education has a corresponding liability to produce graduates who are competent to deliver pharmaceutical care. Outcome competencies aid to quality guarantee by providing readily accessible standards against which practice may be measured [1,2,3]. The role of the pharmacist specialist takes different forms in various parts of the world. The pharmacist's participation with pharmaceuticals can be in research and development, formulation, manufacturing, quality guarantee, licensing, marketing, distribution, storage, supply, information management, dispensing, monitoring or education. Supply chain management and information management activities have been termed "pharmaceutical services" and continue to form the basis of pharmacy practice [4,5,6]. Community pharmacists work at the forefront of medical care. They work at their own pharmacies or in private pharmacies. Pharmacist job is all about helping the public, assessing their conditions and make decisions about medicines. Pharmacists participate in the distribution of medicines and patients offering advice and practical help to maintain healthy. This is a very demanding job and pharmacists usually highly respected members of their communities [7,8,9.10]. Changes in the role of the pharmacist and pharmacy community are medical supplies, and these trends will continue to accelerate in this fast-moving environment. Today in drugstores offer advanced medical services in retail and also ideal for raising awareness of the disease and deliver educational information at multiple points of contact. These include over the counter (OTC) and the personal care aisle, a pharmacy counter, in specialty publications and pickup areas prescription. Not only useful for customers' pharmacies these innovations, but they also create opportunities for pharmaceutical marketers, measurable return on investment [11,12,13,14,15,].

The goal of the research:

Aim and objects was to study occupational features of pharmaceutical workers in Georgia, viewed by the chief pharmacists. The study was quantitative investigation by using survey (Questionnaire). Surveys was for chief pharmacists, 410 chief pharmacists were interviewed in Georgia. Questions and answers are given in the tables. On each question are attached diagram or table. Questionnaire and diagrams are numbered.

Material and methods:

Research objects are materials of sociological research: the study was quantitative investigation by using survey (Questionnaire). Surveys was for chief pharmacists, 410 chief pharmacists were interviewed in Georgia. We used methods of systematic, sociological (surveying, questioning), comparative, segmentation, mathematical-statistical, graphical analysis. The data was processed and analyzed with the SPSS program.

Results:

The survey was conducted through the questionnaires. 410 chief pharmacists were interviewed in Georgia. Questions and answers are given in the tables. On each question are attached diagram or table. Questionnaire and diagrams are numbered.

On the question what methods have you applied in the search for specialists? (You can indicate several answers) chief pharmacists' 32.2% answer recommendation of colleagues, chiefs' 21.5% answer search in higher educational institutions, chief pharmacists' 30.7% answer search in own organization, chief pharmacists' 55.6% answer internet, chief pharmacists' 38.3% answer recruitment agencies ,chiefs pharmacists' 67.8% answer advertisements in mass media or in printed and electronic media.

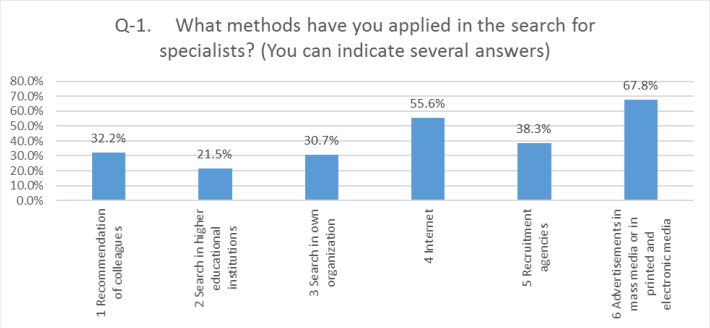

Illustration 1. Methods have respondents applied in the search for specialists.
Source – study results.

On the question -How much time do you need for searching of specialists on vacant position? Chief pharmacists' 0.5 % answers 1 up to 1 week, chief pharmacists' 20.7% answer up to 1 month, chiefs' 57.6% answer up to 3 months, chief pharmacists' 19% answer up to 6 months, chief pharmacists' 2% answer up to 9 months, and chief pharmacists' 0.2% answer up to 1 year.

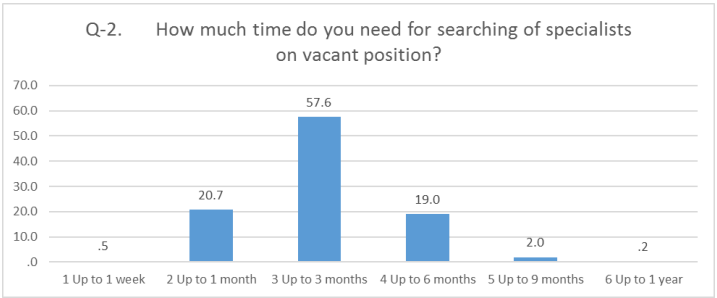

Illustration 2. Time required for searching of specialists on vacant position for respondents'.
Source – study results.

On the question-What qualities, capabilities and skills are required for specialist to have? (Indicate several answers)-chiefs' 11.2% answer high intelligence level, chief pharmacists' 29.3% answer professional competency, chief pharmacists' 40.5% answer flexibility while change of labor functions , chief pharmacists' 62% answer ability to make decision fast , chief pharmacists' 51.2% answer love towards (their) profession, chief pharmacists' 21.7% answer sense to get innovation , chief pharmacists' 43.7% answer ability to build up relations with people, chief pharmacists' 45.4% answer high level of culture , chiefs' 21.7% answer culture of speech, chief pharmacists' 26.3% answer orientation towards on creative work (focus on creativity), chief pharmacists' 16.3% answer high motivation to work.

Table 1 . Respondents" opinion about qualities, capabilities and skills are required for specialist to have

Q-3. What qualities, capabilities and skills are required for specialist to have? (Indicate several answers)	Abs. Number	%
1 High intelligence level	46	11.2
2 Professional Competency	120	29.3
3 Flexibility while change of labor functions	166	40.5
4 Ability to make decision fast	254	62.0
5 Love towards (their) profession	210	51.2
6 Sense to get innovation	89	21.7
7 Ability to build up relations with people	179	43.7
8 High level of culture	186	45.4
9 Culture of speech	89	21.7
10 Orientation towards on creative work (focus on creativity)	108	26.3
11 High motivation to work	67	16.3

Source – study results

On the question - Which personal features are required for a young specialist to have? (Indicate several answers) - Chief pharmacists' 20.2% answer goodwill or (amiability), chief pharmacists' 37.3% answer initiative ability, chiefs' 47.6% answer ability to work in a team , chief pharmacists' 42.9% answer purposefulness (Sense of purpose), chief pharmacists' 49.5% answer ability to learn, chief pharmacists' 42.7% answer kindness and politeness , chief pharmacists' 52.4% answer attentiveness, chiefs' 39.5% answer high motivation to work.

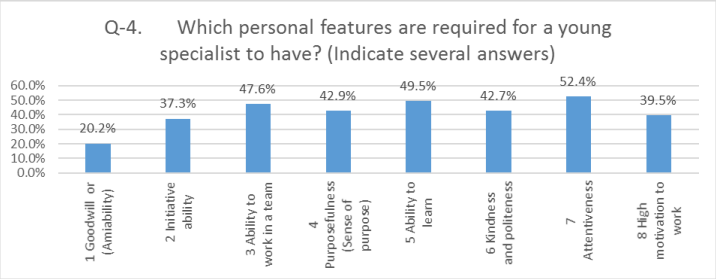

Illustration 3. Respondent's' opinion about personal features are required for a young specialist to have.
Source – study results.

On the question- Which requirements do you demand from a young specialist? (Indicate several answers)? Chief pharmacists' 53.2% answer working experience, chief pharmacists' 32% answer proximity of place of residence to working place, chief pharmacists' 32% answer marital status , chief pharmacists' 18.5% answer children, chiefs, 58.5% answer higher education , chief pharmacists' 51% answer recommendation, chief pharmacists' 34.4% answer plan for career development ,chiefs' 32% answer high motivation to work.

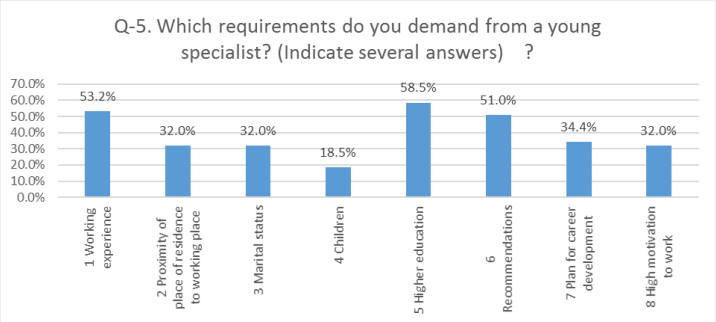

Illustration 4. Respondents' requirements and demand from a young specialist.
Source – study results.

On the question-In your opinion, what time period is necessary for adaptation of a young specialist? Chief pharmacists' 2% answer up to 1 month, chiefs' 2.4% answer up to 3 months ,chiefs' 16.8% answer up to 6 months , chief pharmacists' 30.5% answer up to 9 months , chief pharmacists' 40.5% answer up to 1 year , chief pharmacists' 7.8% answer more than 1 year.

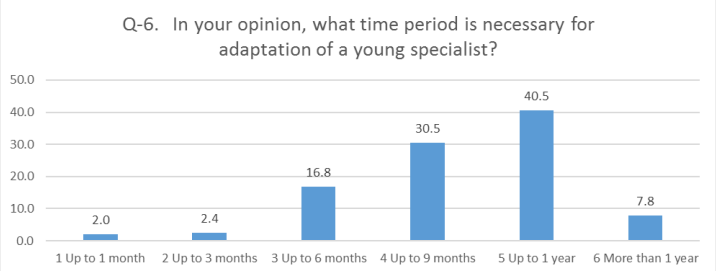

Illustration 5. Respondents' opinion, about time period is necessary for adaptation of a young specialist.
Source – study results.

On the question choose the most essential difficulties in professional adaptation of young employees? (You can indicate several answers) ? Chief pharmacists' 61% answer lack (shortage) of professional knowledge , chief pharmacists' 66.1% answer lack (shortage) of special skills (computer knowledge and etc.), chief pharmacists' 33.9% answer difficulty with adaptation in to collective (within the colleagues team) , chief pharmacists' 47.8% answer difficulties in relationship with a chief management (leadership) ,chief pharmacists' 40% answer non-compliance of a job with own ideas , chief pharmacists' 22% answer having excessive ambitions.

Table 2. Respondents' opinion about the mostly essential difficulties in professional adaptation of young employees.

Q-7. Choose the most essential difficulties in professional adaptation of young employees? (You can indicate several answers)	Abs. Number	%
1 Lack (shortage) of professional knowledge	250	61.0
2 Lack (shortage) of special skills (computer knowledge and etc.)	271	66.1
3 Difficulty with adaptation in to collective (within the colleagues team)	139	33.9
4 Difficulties in relationship with a chief management (leadership)	196	47.8
5 Non-compliance of a job with own ideas	164	40.0
6 Having excessive ambitions	90	22.0

Source – study results

On the question - Which forms of professional assistance is the most effective while adaptation of the specialist? (Indicate several answers). Chief pharmacists' 63.9% answer independent practical activity, chief pharmacists' 34.6% answer working with a mentor (instructor), chief pharmacists' 33.4% answer internship , chief pharmacists' 47.8% answer discussion of work of young employees within the colleagues team in the collective, chief pharmacists' 71.5% answer personal conversation, chief pharmacists' 29.3% answer qualification improvement (Upgrading) courses, chief pharmacists' 41.2% answer special programs (trainings).

Q-8. Which forms of professional assistance is the most effective while adaptation of the specialist? (Indicate several answers)	Abs. Number	%
1 Independent practical activity	262	63.9
2 Working with a mentor (instructor)	142	34.6
3 Internship	137	33.4
4 Discussion of work of young employees within the colleagues team in the collective	196	47.8
5 Personal conversation	293	71.5
6 Qualification improvement (Upgrading) courses	120	29.3
7 Special programs (Trainings)	169	41.2

Source – study results

In which directions are you acting in terms of professional development of young specialists? (Evaluate each factor under 5-point system).

On the question - In which directions are you acting in terms of professional development of young specialists? - Interesting and valuable work-chief pharmacists' 1 % evaluate by 1 point, chief pharmacists' 3.7% evaluate by 2 point, chief pharmacists' 4.6% evaluate by 3 point, chief pharmacists' 12% evaluate by 4 point, chief pharmacists' 78.8% evaluate by 5 point.

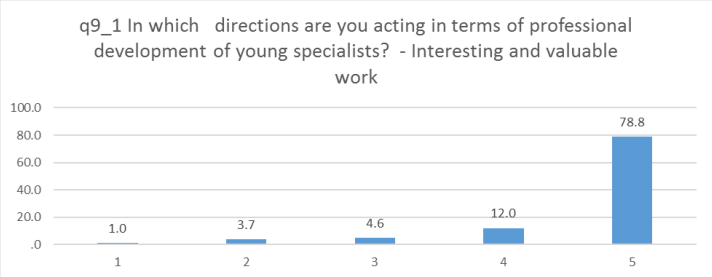

Illustration 6. Respondents' opinion about interesting and valuable work in terms of professional development of young specialists, evaluated under 5-point system.
Source – study results.

On the question-In which directions are you acting in terms of professional development of young specialists? - The favorable (prosperous) psychological climate within the team of colleagues (in collective)- chief pharmacists' 0.5% evaluate by 1 point, chief pharmacists' 1.7% evaluate by 2 point, chief pharmacists' 6.8% evaluate by 3 point, chief pharmacists' 41% evaluate by 4 point, chief pharmacists' 50 % evaluate by 5 point.

Table 4. Respondents' opinion about the favorable (prosperous) psychological climate within the team of colleagues (in collective) in terms of professional development of young specialists, evaluated under 5-point system.

Q9_2 In which directions are you acting in terms of professional development of young specialists? - The favorable (prosperous) psychological climate within the team of colleagues (in collective)					
Valid		Frequency	Percent	Valid Percent	Cumulative Percent
	1	2	.5	.5	.5
	2	7	1.7	1.7	2.2
	3	28	6.8	6.8	9.0
	4	168	41.0	41.0	50.0
	5	205	50.0	50.0	100.0
	Total	410	100.0	100.0	

Source – study results

On the question-In which directions are you acting in terms of professional development of young specialists? - Possibility of career development-Chief pharmacists' 3.2% evaluate by 1 point, chief pharmacists' 5.9% evaluate by 2 point, chief pharmacists' 10% evaluate by 3 point, chief pharmacists' 36.6% evaluate by 4 point , chief pharmacists' 44.4% evaluate by 5 point.

Table 5. Respondents' opinion about the possibility of career development in terms of professional development of young specialists, evaluated under 5-point system.

Q9_3 In which directions are you acting in terms of professional development of young specialists? - Possibility of career development					
Valid		Frequency	Percent	Valid Percent	Cumulative Percent
	1	13	3.2	3.2	3.2
	2	24	5.9	5.9	9.0
	3	41	10.0	10.0	19.0
	4	150	36.6	36.6	55.6
	5	182	44.4	44.4	100.0
	Total	410	100.0	100.0	

Source – study results

On the question-In which directions are you acting in terms of professional development of young specialists? - Social importance of profession-Chief pharmacists' 2% evaluate by 1 point, chief pharmacists' 7.3% evaluate by 2 point, chief pharmacists' 14.6% evaluate by 3 point, chief pharmacists' 31.2% evaluate by 4 point, chief pharmacists' 44.9 % evaluate by 5 point.

Table 6. Respondents' opinion about the social importance of profession in terms of professional development of young specialists, evaluated under 5-point system.

Q9_4 In which directions are you acting in terms of professional development of young specialists? - Social importance of profession					
Valid		Frequency	Percent	Valid Percent	Cumulative Percent
	1	8	2.0	2.0	2.0
	2	30	7.3	7.3	9.3
	3	60	14.6	14.6	23.9
	4	128	31.2	31.2	55.1
	5	184	44.9	44.9	100.0
	Total	410	100.0	100.0	

Source – study results

On the question-In which directions are you acting in terms of professional development of young specialists? - Independence in work-Chief pharmacists' 6.3% evaluate by 1 point, chief pharmacists' 9.3% evaluate by 2 point, chief pharmacists' 19.3% evaluate by 3 point, chief pharmacists' 32.4% evaluate by 4 point, chief pharmacists' 32.7% evaluate by 5 point.

Table 7. Respondents' opinion about the independence in work in terms of professional development of young specialists, evaluated under 5-point system.

Q9_5 In which directions are you acting in terms of professional development of young specialists? - Independence in work					
Valid		Frequency	Percent	Valid Percent	Cumulative Percent
	1	26	6.3	6.3	6.3
	2	38	9.3	9.3	15.6
	3	79	19.3	19.3	34.9
	4	133	32.4	32.4	67.3
	5	134	32.7	32.7	100.0
	Total	410	100.0	100.0	

Source – study results

On the question-In which directions are you acting in terms of professional development of young specialists? - Professional education or professional training-Chief pharmacists' 1.7% evaluate by 1 point, chief pharmacists' 4.6% evaluate by 2 point, chief pharmacists' 12% evaluate by 3 point, chief pharmacists' 30% evaluate by 4 point, chief pharmacists' 51.7% evaluate by 5 point.

Illustration 7. Respondents' opinion about the professional education or professional training in terms of professional development of young specialists, evaluated under 5-point system.
Source – study results.

Report on the question -in which directions are you acting in terms of professional development of young specialists? (Evaluate each factor under 5-point system).

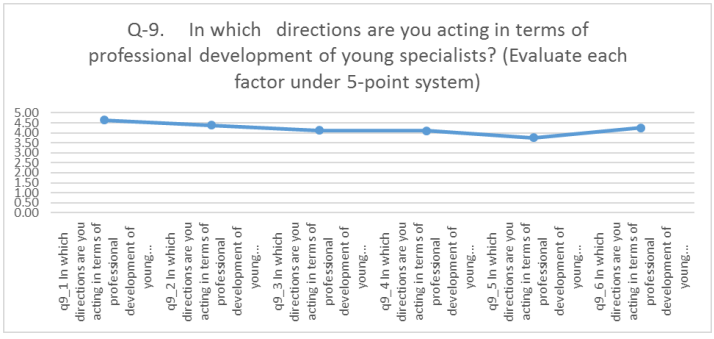

Illustration 8. Respondents' opinion in terms of professional development of young specialists, evaluated under 5-point system.
Source – study results.

On the question-Do you think that the government should make the certification of pharmacists? Chief pharmacists' 76.6% answer –I agree, Chief pharmacists' 16.3% answer I partly agree, Chief pharmacists' 7.1% answer I do not agree.

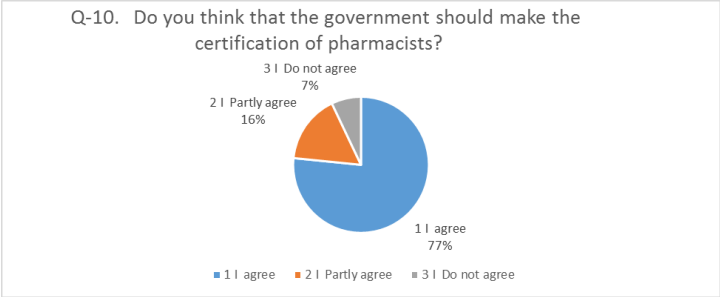

Illustration 9. Respondents' opinion about certification of pharmacists by the government.
Source – study results.

Resume:

The goal of the research was to study the occupational features of pharmaceutical workers in Georgia, viewed by the chief pharmacists. 410 chief pharmacists were interviewed by the questionnaire in Georgia. On the question what methods have you applied in the search for specialists? (You can indicate several answers) chief pharmacists' 32.2% answer recommendation of colleagues, chiefs' 21.5% answer search in higher educational institutions, chief pharmacists' 30.7% answer search in own organization, chief pharmacists' 55.6% answer internet, chief pharmacists' 38.3% answer recruitment agencies ,chiefs pharmacists' 67.8% answer advertisements in mass media or in printed and electronic media. On the question -How much time do you need for searching of specialists on vacant position? Chief pharmacists' 0.5 % answers 1 up to 1 week, chief pharmacists' 20.7% answer up to 1 month, chiefs' 57.6% answer up to 3 months, chief pharmacists' 19% answer up to 6 months, chief pharmacists' 2% answer up to 9 months, and chief pharmacists' 0.2% answer up to 1 year. On the question-What qualities, capabilities and skills are required for specialist to have? (Indicate several answers)- chiefs' 11.2% answer high intelligence level, chief pharmacists' 29.3% answer professional competency, chief pharmacists' 40.5% answer flexibility while change of labor functions , chief pharmacists' 62% answer ability to make decision fast , chief pharmacists' 51.2% answer love towards (their) profession, chief pharmacists' 21.7% answer sense to get innovation, chief pharmacists' 43.7% answer ability to build up relations with people, chief pharmacists' 45.4% answer high level of culture, chiefs' 21.7% answer culture of speech, chief pharmacists' 26.3% answer orientation towards on creative work (focus on creativity), chief pharmacists' 16.3% answer high motivation to work. On the question choose the most essential difficulties in professional adaptation of young employees? (You can indicate several answers)? Chief pharmacists' 61% answer lack (shortage) of professional knowledge , chief pharmacists' 66.1% answer lack (shortage) of special skills (computer knowledge and etc.), chief pharmacists' 33.9% answer difficulty with adaptation in to collective (within the col-

leagues team), chief pharmacists' 47.8% answer difficulties in relationship with a chief management (leadership), chief pharmacists' 40% answer non-compliance of a job with own ideas, chief pharmacists' 22% answer having excessive ambitions. On the question - Which forms of professional assistance is the most effective while adaptation of the specialist? (Indicate several answers) Chief pharmacists' 63.9% answer independent practical activity, chief pharmacists' 34.6% answer working with a mentor (instructor), chief pharmacists' 33.4% answer internship , chief pharmacists' 47.8% answer discussion of work of young employees within the colleagues team in the collective, chief pharmacists' 71.5% answer personal conversation, chief pharmacists' 29.3% answer qualification improvement (Upgrading) courses , chief pharmacists' 41.2% answer special programs (trainings). On the question-Do you think that the government should make the certification of pharmacists? Chief pharmacists' 76.6% answer –I agree, Chief pharmacists' 16.3% answer I partly agree, Chief pharmacists' 7.1% answer I do not agree.

Discussion:

The majority of respondent chief pharmacists in the search for specialists applied internet and advertisements in mass media or in printed and electronic media. The main time required for searching of pharmacist specialists on vacant position for respondent chief pharmacists is up to 2-3 months. The majority of respondent chief pharmacists consider that main qualities, capabilities and skills are required for pharmacist specialists to have are: Ability to make decision fast, love towards (their) profession. The less than half of respondent chief pharmacists consider that main qualities, capabilities and skills are required for pharmacist specialists to have are: Flexibility while change of labor functions , ability to build up relations with people , high level of culture. The majority of respondent chief pharmacists consider that personal features required for a young specialist to have are: Attentiveness; the less than half of respondent chief pharmacists consider that personal features required for a young specialist to have are: Ability to work in a team, purposefulness (Sense of purpose), Ability to learn, kindness and politeness, high motivation to work. The majority of respondent chief pharmacists' requirements and demand from a young specialist are: Working experience, higher education and recommendations. About one third of respondent chief pharmacists' requirements and demand from a young specialist are: Proximity of place of residence to working place, marital status, plan for career development, high motivation to work. The majority of respondent chief pharmacists consider, that necessary time period for adaptation of a young specialist varies from 9 months till up to 1 year. The majority of respondent chief pharmacists consider, that the mostly essential difficulties in professional adaptation of young employees are: lack (shortage) of professional knowledge, lack (shortage) of special skills (computer knowledge and etc.). Less than half of respondent chief pharmacists consider, that the mostly essential difficulties in professional adaptation of young employees are: Difficulty with adaptation in to collective (within the colleagues' team), difficulties in relationship with a chief management (leadership), Non-compliance of a job with own ideas. The majority of respondent chief pharmacists consider, that most effective forms of professional assistance, while adaptation of the specialist are: Independent practical activity, personal conversation. Less than half of respondent chief pharmacists consider, that most effective forms of professional assistance, while adaptation of the specialist are: Discussion of work of young employees within the colleagues' team in the collective, special programs (Trainings). About one third of respondent chief pharmacists consider, that most effective forms of professional assistance, while adaptation of the specialist are: Working with a mentor (instructor), internship, qualification improvement (Upgrading) courses.

Conclusion:

The large majority of respondent chief pharmacists consider the government should make the certification of pharmacists. Pharmaceutical education programs should be more orientated on practical skills.

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Vocational specifications for junior pharmacists

Nodar Sulashvili[1], Margarita Beglaryan[2], Maia Matoshvili[3]

[1]Yerevan State Medical University, Pharmacy Faculty;
[2]Tbilisi State Medical University
[1]PhD Student[1]; [2]Supervisor, PharmD, PhD, ScD, Professor[1]; [3]MD, PhD, Assistant Professor[2]

Summary

Aim and objects was to study peculiarities of junior pharmacists in Georgia. The study was quantitative investigation by using survey (Questionnaire). Surveys was for junior pharmacists, 314 junior pharmacist specialists were interviewed in Georgia. Questions and answers are given in the tables. On each question are attached diagram or table. Questionnaire and diagrams are numbered. On the question are you satisfied with your professional (occupational) choice? junior pharmacist specialist' 82.2% were satisfied with professional choice, junior pharmacist specialist' 9.6% were partly satisfied with professional choice , junior pharmacist specialist' 3.5% have doubts with professional choice, junior pharmacist specialist' 2.2% were disappointed with professional choice and junior pharmacist specialist' 2.5% were not satisfied with professional choice. On the question are you satisfied with your job (work)? junior pharmacist specialist' 34.4% answer yes, junior pharmacist specialist' 34.1% answer partially, junior pharmacist specialist' 30.9% answer no. And junior pharmacist specialist' 0.6% answer cannot say. On the question how long do you need for mastering (assimilation) under the conditions of a new job position? Junior pharmacist specialists' 3.5% answer up to 1 month, junior pharmacist specialists' 33.1% answer up to 3 months, junior pharmacist specialists' 44.9% answer up to 6 months, junior pharmacist specialists' 14% answer up to 9 months, junior pharmacist specialists' 4.1% answer up to 1 year, and junior pharmacist specialists' 0.3% answer more than 1 year. On the question would you like to leave your profession? Junior pharmacist specialists' 2.9% answer yes, junior pharmacist specialists' 92% answer no, junior pharmacist specialists' 5.1% answer I have thoughts. On the question would you like to leave your profession? Junior pharmacist specialists' 2.9% answer yes, junior pharmacist specialists' 92% answer no, junior pharmacist specialists' 5.1% answer I have thoughts.

Keywords: *Drug-store, junior, pharmacy, junior, employed, pharmacist, work, study, professional and specialist.*

Background

Pharmacists have a deep knowledge of the chemistry and Pharmacotherapy of different drugs and how they react to people, as well as how drugs interact with each other. Pharmacists must accurately measure and a package of medicine, providing its dosage and security due to the patient. While the pharmacist typically does not choose or prescribe medication, the pharmacist educates patients on how to take the medication and what reactions or problems should be avoided [1,2,3,4]. Pharmacists also known as chemists (druggists) or they are health care professional specialists who working in pharmacy, medical sciences, health care, focused on the safe and effective use of drugs. A pharmacist is a part of the health care brigade straight engaged in patient care. Pharmacists are trained at the university grade degree level, to understand the biochemical and pharmacological mechanisms of effect of drugs, the use of drugs and therapeutic roles, side effects, possibility drug interactions, and inspection parameters. Pharmacists interpret and transmit this experience for patients, physicians and other medical professionals. Among other requirements for licensing in different countries require pharmacists to hold either a Bachelor degree of Pharmacy or Doctor of Pharmacy degree [5,6,7,8,9]. The most general pharmacist positions that of the general pharmacist (also referred to as first-line retail pharmacist or pharmacist) or a hospital/clinic pharmacist, where they instruct, teach, advice and counsel on the correct use and side effects of drugs and medicines. In most countries, the profession of pharmacist is subject to professional regulation. Depending on the legal framework of practice, pharmacists may promote to the destination (also known as pharmacist legislator) and the introduction of certain medications (eg, immunization) in some jurisdictions. Pharmacists can also practice in a diversity of other directions, including industry, studying, factories, wholesale trade, academia, research, universities, insurance, the military and government [10,11,12,13,14]. Pharmacy graduates who serve in the health services of Georgia, as these pharmacists to develop innovative practice settings, they should be drivers for expansion within the pharmacy practice in community, state and national levels. Pharmacy educators must ensure that graduates have the necessary knowledge, skills, attitudes / values, and practice experience, as well as confidence, drive, and entrepreneur spirit to be a driving force for change in order to facilitate these and other advances in the scope and type of community pharmacy practice [15,16,17]. Hospitals and other institutions and facilities, such as outpatient clinics, drug-dependency treatment facilities, poison control centers, drug information centers, and long-term care facilities, may be operated by the government or privately. While many of the pharmacist's activities in such facilities may be similar to those performed by community pharmacists, they differ in a number of ways [18,19,20].

Additionally, the hospital, clinic or institutional pharmacist has more possibility to interact closely with the prescriber and, therefore, to promote the rational prescribing and use of drugs in larger hospital and institutional pharmacies, is usually one of several pharmacists, and thus has a greater opportunity to interact with others, to specialize and to gain greater expertise, having access to medical records, is in a position to effect the option of drugs and dosage regimens, to monitor patient compliance and therapeutic response to drugs, and to recognize and report adverse drug reactions; can more easily than the community pharmacist assess and monitor patterns of drug usage and thus recommend changes where necessary serves as a member of policy-making committees, including those concerned with medicine choice, the use of antibiotics, and hospital infections and thereby actions of the preparation and composition of an essential-drug list or formulary is in a better position to educate other health professionals about the rational use of drugs, more easily participates in studies to determine the beneficial or adverse effects of drugs, and is involved in the analysis of drugs in body fluids ,can control clinical manufacture and acquisition of drugs to ensure the supply of high-quality products, takes part in the planning and implementation of clinical trials [21,22,23,24,25,26,27].

Material and methods

Research objects are materials of sociological research: the study was quantitative investigation by using survey (Questionnaire) .Surveys was for junior pharmacist specialists, 314 junior pharmacist specialists were interviewed in Georgia. We used methods of systematic, sociological (surveying, questioning), comparative, segmentation, mathematical-statistical, graphical analysis. The data was processed and analyzed with the SPSS program.

Results and discussion:

The survey was conducted through the questionnaires. 314 junior pharmacist specialists were interviewed in Georgia. Questions and answers are given in the tables. On each question are attached diagram or table. Questionnaire and diagrams are numbered.

On the question are you satisfied with your professional (occupational) choice? junior pharmacist specialist' 82.2% answer yes I am satisfied with my professional choice, junior pharmacist specialist' 9.6% answer I am partly satisfied with my professional choice, junior pharmacist specialist' 3.5% answer I have doubts with my professional choice, junior pharmacist specialist' 2.2% answer I am disappointed with my professional choice, junior pharmacist specialist' 2.5% answer I am not satisfied with my professional choice.

Illustration 1. Satisfaction of respondent's' with professional (occupational) choice.
Source – study results.

On the question are you satisfied with your job (work)? Junior pharmacist specialist' 34.4% answer yes, junior pharmacist specialist' 34.1% answer partially , junior pharmacist specialist' 30.9% answer no. junior pharmacist specialist' 0.6% answer cannot say.

Table 1 . Satisfaction of respondent's with job (work).

Are you satisfied with your job (work)?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	108	34.4	34.4	34.4
	2 Partially	107	34.1	34.1	68.5
	3 No	97	30.9	30.9	99.4
	4 Cannot say	2	.6	.6	100.0
	Total	314	100.0	100.0	

Source – study results

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor).

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Correspondence of your qualification to work. On the question estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Correspondence of your qualification to work- Junior pharmacist specialist' 1% estimate by 2 point, junior pharmacist specialist' 3.8% estimate by 3 point, junior pharmacist specialist' 24.8% estimate by 4 point , junior pharmacist specialist' 70.4% estimate by 5 point.

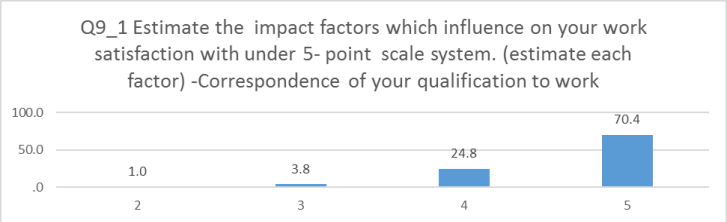


Illustration 2. The impact factor "Correspondence of qualification to work" - influenced on respondents'' work satisfaction, were estimated with under 5- point scale system.
Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Correspondence of nature of work to capabilities of personality. On the question estimate the impact factors which influence on your work satisfaction with under 5 - point scale system (Estimate each factor) - Correspondence of nature of work to capabilities of personality- junior pharmacist specialist' 0.3% estimate by 1 point, junior pharmacist specialist' 1.3% estimate by 2 point, junior pharmacist specialist' 8% estimate by 3 point, junior pharmacist specialist' 36.6% estimate by 4 point, junior pharmacist specialist' 53.8% estimate by 5 point.

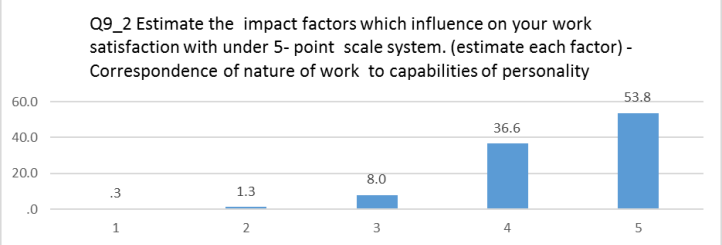


Illustration 3. The impact factor "Correspondence of nature of work to capabilities of personality" - influenced on respondents' work satisfaction, were estimated with under 5- point scale system.
Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Existence of perspective for professional promotion. On the question Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Existence of perspective for professional promotion- junior pharmacist specialist' 1.3% estimate by 1 point, junior pharmacist specialist' 4.8% estimate by 2 point, junior pharmacist specialist' 10.8% estimate by 3 point, junior pharmacist specialist' 38.2% estimate by 4 point, junior pharmacist specialist' 44.9% estimate by 5 point.

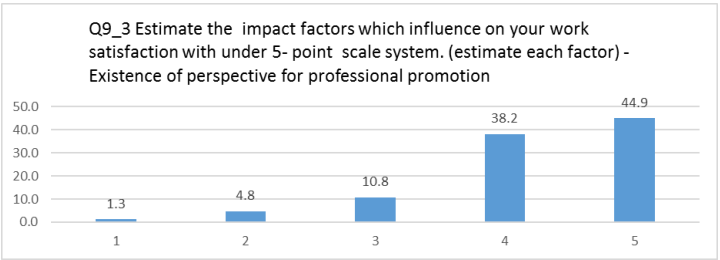


Illustration 4. The impact factor "Existence of perspective for professional promotion" - influenced on respondents' work satisfaction, were estimated with under 5- point scale system. Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Possibility to qualifications enhancement. On the question-Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Possibility to qualifications enhancement- junior pharmacist specialist' 0.3% estimate by 1 point, junior pharmacist specialist' 5.7% estimate by 2 point, junior pharmacist specialist' 15.3% estimate by 3 point, junior pharmacist specialist' 38.2% estimate by 4 point, junior pharmacist specialist' 40.4% estimate by 5 point.

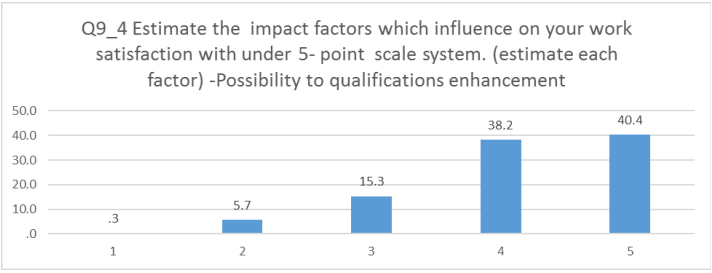


Illustration 5. The impact factor "Possibility to qualifications enhancement"- influenced on respondent's' work satisfaction, were estimated with under 5- point scale system.
Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Existence of high degree of responsibility for the result of work. On the question Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Existence of high degree of responsibility for the result of work- junior pharmacist specialist' 6.1% estimate by 1 point, junior pharmacist specialist' 7% estimate by 2 point, junior pharmacist specialist' 15% estimate by 3 point, junior pharmacist specialist' 37.9% estimate by 4 point, junior pharmacist specialist' 34.1% estimate by 5 point.

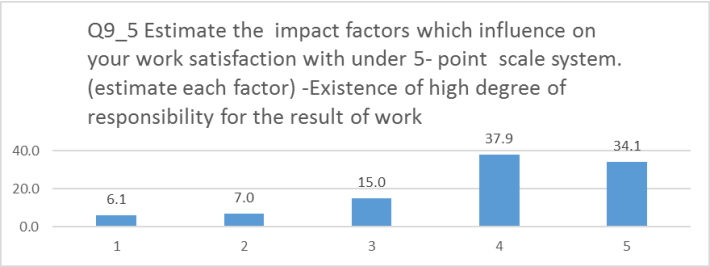


Illustration 6. The impact factor "Existence of high degree of responsibility for the result of work" - influenced on respondents'' work satisfaction, were estimated with under 5- point scale system.
Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Information awareness about affairs of the company and affairs of the activity of staff, collective (colleague's team) on the question Estimate the impact factors which influence on your work satisfaction with under 5 - point scale system. (Estimate each factor) -Information awareness about affairs of the company and affairs of the activity of staff, collective (colleagues team)- junior pharmacist specialist' 1.3% estimate by 1 point, junior pharmacist specialist' 6.4% estimate by 2 point, junior pharmacist specialist' 13.7% estimate by 3 point , junior pharmacist specialist' 39.2% estimate by 4 point, junior pharmacist specialist' 39.5% estimate by 5 point.

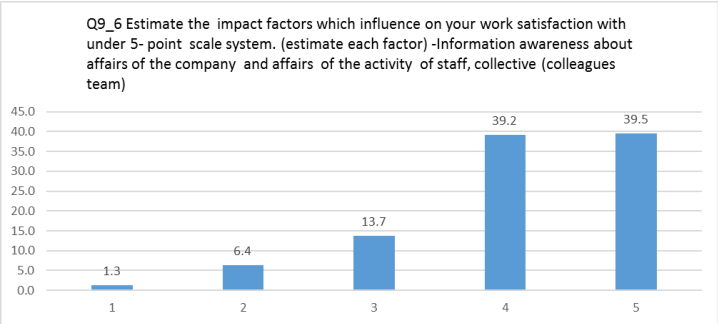


Illustration 7. The impact factor "Information awareness about affairs of the company and affairs of the activity of staff, collective (colleagues team)" - influenced on respondents' work satisfaction, were estimated with under 5- point scale system.
Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Working conditions. On the question Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Working conditions- junior pharmacist specialist' 6.1% estimate by 1 point, junior pharmacist specialist' 9.9% estimate by 2 point, junior pharmacist specialist' 19.4% estimate by 3 point, junior pharmacist specialist' 40.4% estimate by 4 point, junior pharmacist specialist' 24.2% estimate by 5 point.

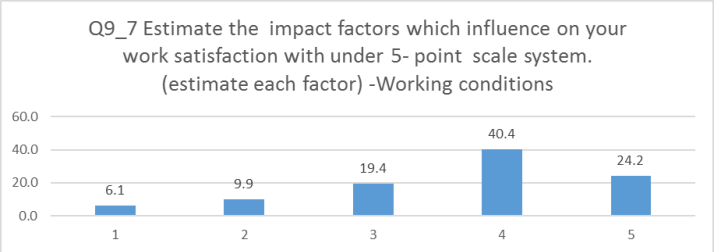


Illustration 8. The impact factor "Working conditions" - influenced on respondents' work satisfaction, were estimated with under 5- point scale system.
Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -The existence of a labor contract. On the question Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -The existence of a labor contract- junior pharmacist specialist' 5.7% estimate by 1 point, junior pharmacist specialist' 8.9% estimate by 2 point, junior pharmacist specialist' 22% estimate by 3 point, junior pharmacist specialist' 40.1% estimate by 4 point, junior pharmacist specialist' 23.2% estimate by 5 point.

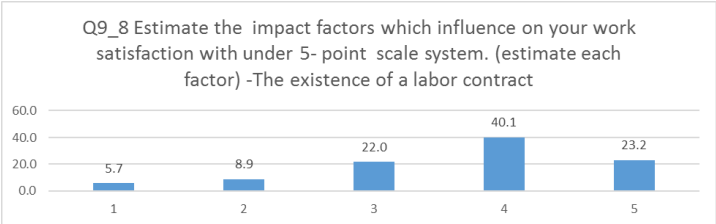


Illustration 9. The impact factor "The existence of a labor contract" - influenced on respondents' work satisfaction, were estimated with under 5- point scale system.
Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Working regime (schedule).On the question Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Working regime (schedule)- junior pharmacist specialist' 9.2% estimate by 1 point, junior pharmacist specialist' 14.6% estimate by 2 point, junior pharmacist specialist' 30.9% estimate by 3 point, junior pharmacist specialist' 32.2% estimate by 4 point, junior pharmacist specialist' 13.1% estimate by 5 point.

Table 2. The impact factor "Working regime (schedule)" - influenced on respondents'' work satisfaction, were estimated with under 5- point scale system.

Q9_9 Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (estimate each factor) - Working regime (schedule)		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	29	9.2	9.2	9.2
	2	46	14.6	14.6	23.9
	3	97	30.9	30.9	54.8
	4	101	32.2	32.2	86.9
	5	41	13.1	13.1	100.0
	Total	314	100.0	100.0	

Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) –Salary. On the question-Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) –Salary- junior pharmacist specialist' 16.2% estimate by 1 point, junior pharmacist specialist' 26.8% estimate by 2 point, junior pharmacist specialist' 35.7% estimate by 3 point, junior pharmacist specialist' 18.2% estimate by 4 point, junior pharmacist specialist' 3.2% estimate by 5 point.

Table 3. The impact factor "Salary" - influenced on respondents' work satisfaction, were estimated with under 5- point scale system.

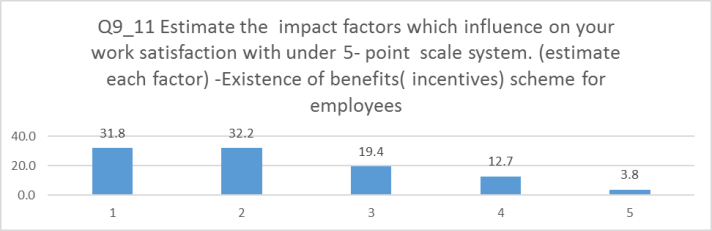
Q9_10 Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (estimate each factor) - Salary		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	51	16.2	16.2	16.2
	2	84	26.8	26.8	43.0
	3	112	35.7	35.7	78.7
	4	57	18.2	18.2	96.8
	5	10	3.2	3.2	100.0
	Total	314	100.0	100.0	

Source – study results

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Existence of benefits (incentives) scheme for employees. On the question-Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Existence of benefits (incentives) scheme for employees- junior pharmacist specialist' 31.8% estimate by 1 point, junior pharmacist specialist' 32.2% estimate by 2 point, junior pharmacist specialist' 19.4% estimate by 3 point, junior pharmacist specialist' 12.7% estimate by 4 point, junior pharmacist specialist' 3.8% estimate by 5 point.

Illustration 10. The impact factor "Existence of benefits (incentives) scheme for employees" - influenced on respondents'' work satisfaction, were estimated with under 5- point scale system.

Source – study results.



Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Support and assistance of a chief (manager).On the question Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Support and assistance of a chief (manager)- junior pharmacist specialist' 10.8% estimate by 1 point, junior pharmacist specialist' 11.5% estimate by 2 point , junior pharmacist specialist' 21.7% estimate by 3 point, junior pharmacist specialist' 37.6% estimate by 4 point, junior pharmacist specialist' 18.5% estimate by 5 point.

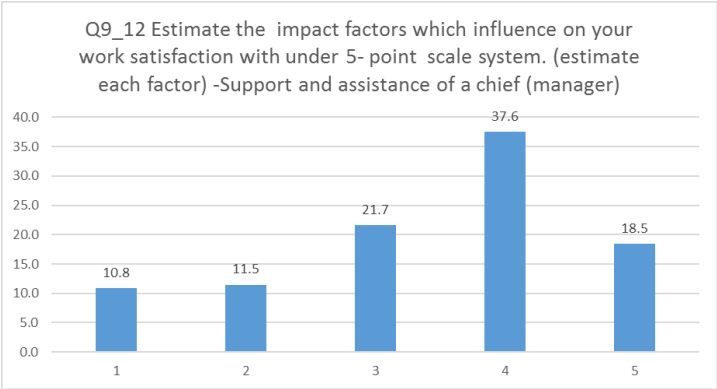


Illustration 11. The impact factor "Support and assistance of a chief (manager)" - influenced on respondents' work satisfaction, were estimated with under 5- point scale system.

Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Direct relations with chief (manager) (s).On the question estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Direct relations with chief (manager)(s)junior pharmacist specialists' 8.6% estimate by 1 point, junior pharmacist specialists' 12.4% estimate by 2 point, junior pharmacist specialists' 25.2% estimate by 3 point, junior pharmacist specialists' 34.4% estimate by 4 point, junior pharmacist specialists' 19.4% estimate by 5 point.

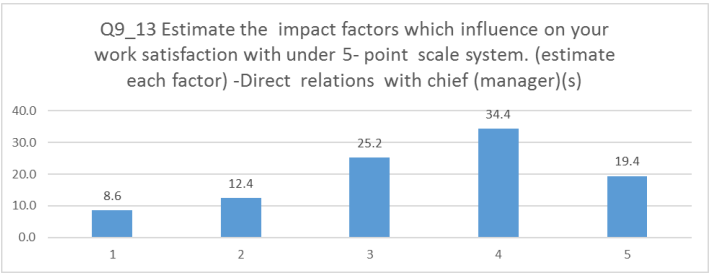


Illustration 12. The impact factor "Direct relations with chief (manager) (s)" - influenced on respondents'' work satisfaction, were estimated with under 5- point scale system.

Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Relations with colleagues. On the question- Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Relations with colleagues-junior pharmacist specialists' 1 % estimate by 1 point, junior pharmacist specialists' 6.1% estimate by 2 point, and junior pharmacist specialists' 18.2% estimate by 3 point, junior pharmacist specialists' 38.2% estimate by 4 point, junior pharmacist specialists' 36.6% estimate by 5 point.

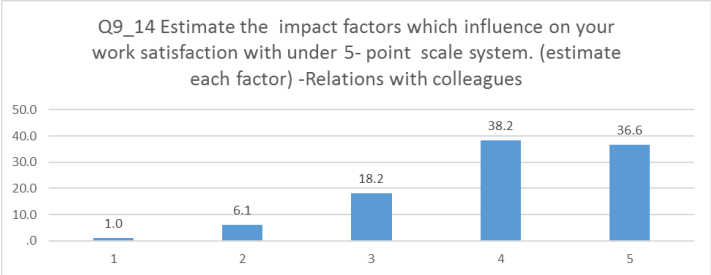


Illustration 13. The impact factor "Relations with colleagues" - influenced on respondent's' work satisfaction, were estimated with under 5- point scale system.
Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Possibility to career enhancement. On the question- Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor) -Possibility to career enhancement-junior pharmacist specialists' 1.9% estimate by 1 point, junior pharmacist specialists'-6.4% estimate by 2 point, junior pharmacist specialists' 22% estimate by 3 point, junior pharmacist specialists' 40.8% estimate by 4 point, junior pharmacist specialists' 29% estimate by 5 point.

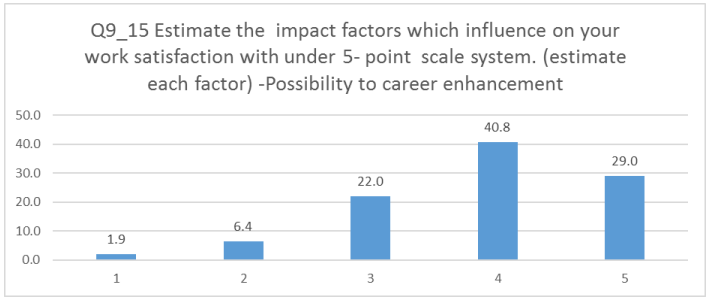


Illustration 14. The impact factor "Possibility to career enhancement" - influenced on respondent's' work satisfaction, were estimated with under 5- point scale system.
Source – study results.

Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor). Report on the question -Estimate the impact factors which influence on your work satisfaction with under 5- point scale system. (Estimate each factor).

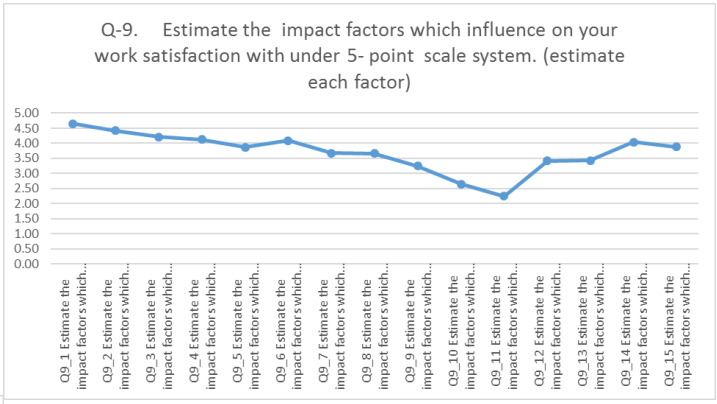


Illustration 15. The Report of impact factors- influenced on respondents'' work satisfaction, were estimated with under 5- point scale system.
Source – study results.

On the question what methods you have applied in the search for job? (You can indicate several answers)?Junior pharmacist specialists' 49.7% answer recommendations of friends, acquaintances and someone I know, junior pharmacist specialists' 59.9% answer offer from an employer, junior pharmacist specialists' 33.8% answer advertisements in mass media, junior pharmacist specialists' 36.3% answer recruitment agencies , junior pharmacist specialists' 24.5% answer private pharmaceutical activity , junior pharmacist specialists' 49% answer using the internet.

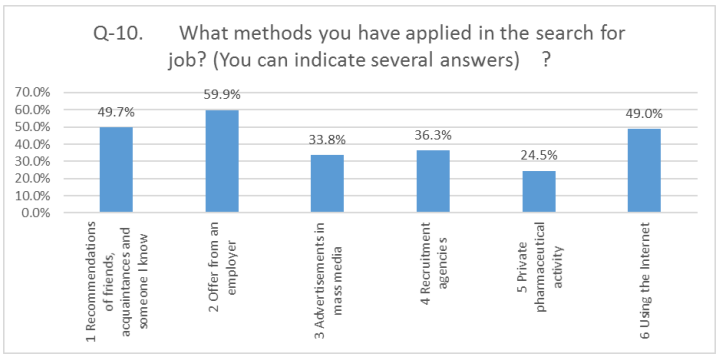


Illustration 16. Methods, that respondents' have applied in the search for job. Source – study results.

On the question how much time did you need to find a job? Junior pharmacist specialists' 5.1% answer up to 1 week, junior pharmacist specialists' 36% answer up to 1 month, junior pharmacist specialists' 33.8% answer up to 3 months, junior pharmacist specialists' 16.2% answer up to 6 months, junior pharmacist specialists' 7 % answer up to 9 months, junior pharmacist specialists' 1.9% answer up to 1 year.

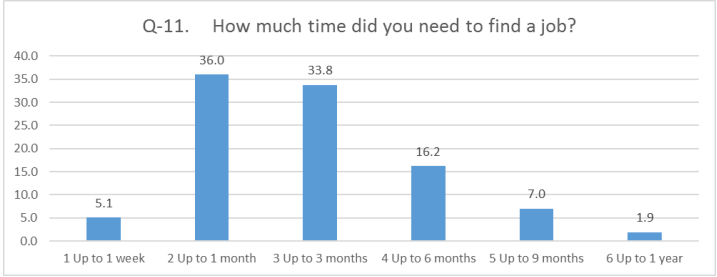


Illustration 17. Required time for respondents' for to find a job.
Source – study results.

On the question how long do you need for mastering (assimilation) under the conditions of a new job position? Junior pharmacist specialists' 3.5% answer up to 1 month, junior pharmacist specialists' 33.1% answer up to 3 months, junior pharmacist specialists' 44.9% answer up to 6 months, junior pharmacist specialists' 14% answer up to 9 months, junior pharmacist specialists' 4.1% answer up to 1 year, and junior pharmacist specialists' 0.3% answer more than 1 year.

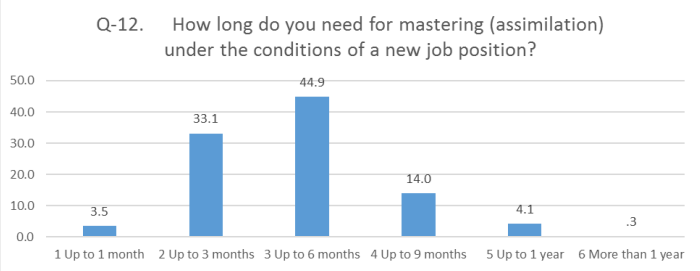


Illustration 18. Required time for respondents' to mastering (assimilation) under the conditions of a new job position.
Source – study results.

On the question choose major important difficulties which met during your professional adaptation? (Indicate several alternatives)junior pharmacist specialists' 42.7% answer the lack (Shortage) of the professional knowledge, junior pharmacist specialists' 68.8% answer the lack (shortage) of special skills (basis of marketing, computer knowledge and etc.) ,junior pharmacist specialists' 55.1% answer difficulty acclimatization within the collective (colleagues team), junior pharmacist specialists' 39.5% answer difficulties in relationship with a chief management (leadership), junior pharmacist specialists' 20.4% answer non-compliance(Non-conformity) of a job with own ideas (views).

Table 4. The major important difficulties, which met to respondents' during professional adaptation.

Q-13. Choose major important difficulties which met during your professional adaptation? (Indicate several alternatives)	Abs. Number	%
1 The lack (Shortage) of the professional knowledge	134	42.7
2 The lack (Shortage) of special skills (basis of marketing, computer knowledge and etc.)	216	68.8
3 Difficulty acclimatization within the collective (colleagues team)	173	55.1
4 Difficulties in relationship with a chief management(leadership)	124	39.5
5 Non-compliance(Non-conformity) of a job with own ideas (views)	64	20.4

Source – study results

On the question in your opinion, which forms of professional assistance are the most effective while adaptation of a junior specialist? (You can indicate several alternatives)- junior pharmacist specialists' 58.3% answer work with a mentor (instructor), junior pharmacist specialists' 44.9% answer discussion of work of junior employees within the collective in colleagues team , junior pharmacist specialists' 56.4% answer individual (personal) conversation , junior pharmacist specialists' 45.5% answer existence of special programs ,trainings on professional orienteering (guidance).

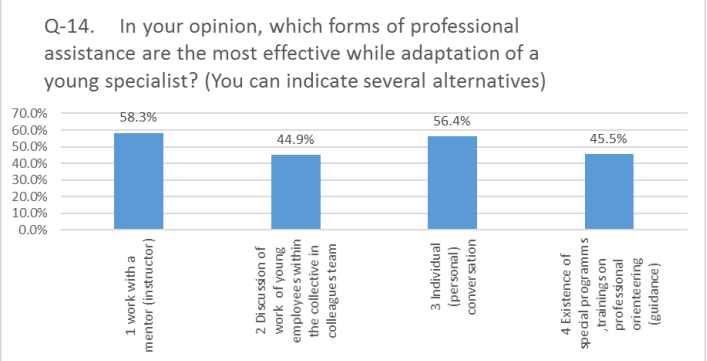


Illustration 19. Respondents' opinion, about the mostly effective forms of professional assistance, while adaptation of a junior specialist.
Source – study results.

On the question what time did you need to master (acquire) professional skills? junior pharmacist specialists' 2.5% answer during 1 month , junior pharmacist specialists' 0.6% answer during 2 months , junior pharmacist specialists' 35.7% answer during 3 months ,junior pharmacist specialists' 46.5% answer during 6 months , junior pharmacist specialists' 11.1% answer during 9 months , junior pharmacist specialists' 2.9% answer during a year , junior pharmacist specialists' 0.6% answer I have not acquired yet.

Table 5. The needful time for to mastering (acquire) professional skills for respondents'.

Q-15. What time did you need to master (acquire) professional skills?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 During 1 month	8	2.5	2.5	2.5
	2 During 2 months	2	.6	.6	3.2
	3 During 3 months	112	35.7	35.7	38.9
	4 During 6 months	146	46.5	46.5	85.4
	5 During 9 mon.	35	11.1	11.1	96.5
	6 During a year	9	2.9	2.9	99.4
	7 I have not acquired yet	2	.6	.6	100.0
	Total	314	100.0	100.0	

Source – study results

On the question how long did you need assistance of colleagues in your work? junior pharmacist specialists' 1 % answer up to 1 month, junior pharmacist specialists' 24.8% answer up to 3 months, junior pharmacist specialists' 36.3% answer up to 6 months , junior pharmacist specialists' 22.9% answer up to 9 months , junior pharmacist specialists' 10.2% answer up to 1 year , junior pharmacist specialists' 4.8% answer it will be needed after adaptation.

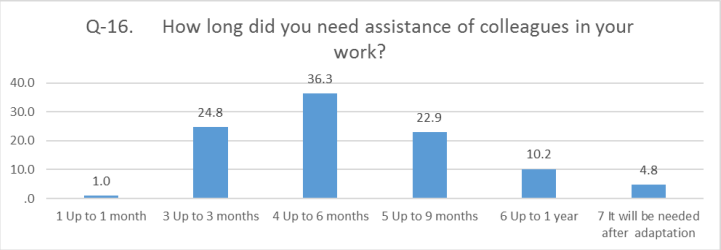


Illustration 20. The needful length of time of colleague's assistance for respondents' in work.
Source – study results.

On the question to what extent you have realized your professional capabilities, skills and habits? Junior pharmacist specialists' 8.3% answer to the full extent, junior pharmacist specialists' 39.8% answer partly, more than 50% of own potential, junior pharmacist specialists' 51.3% answer partly, less than 50% of own potential, junior pharmacist specialists' 0.6% cannot answer.

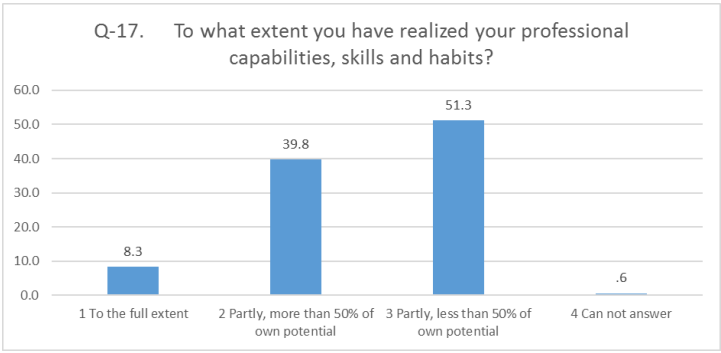


Illustration 21. To what extent respondents' have realized professional capabilities, skills and habits.
Source – study results.

Evaluate factors having influence on your professional development under 5-point system (evaluate each factor).

Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - Interesting and valuable work. On the question -Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - Interesting and valuable work, junior pharmacist specialists' 0.3% evaluate by 1 point, junior pharmacist specialists' 2.9% evaluate by 2 point, junior pharmacist specialists' 15.3% evaluate by 3 point, junior pharmacist specialists' 39.5% evaluate by 4 point, junior pharmacist specialists' 42% evaluate by 5 point.

Table 6. The factor- "Interesting and valuable work", having influenced on respondents' professional development, had been evaluated under 5-point system.

Q-18_1 Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - Interesting and valuable work		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	.3	.3	.3
	2	9	2.9	2.9	3.2
	3	48	15.3	15.3	18.5
	4	124	39.5	39.5	58.0
	5	132	42.0	42.0	100.0
	Total	314	100.0	100.0	

Source – study results

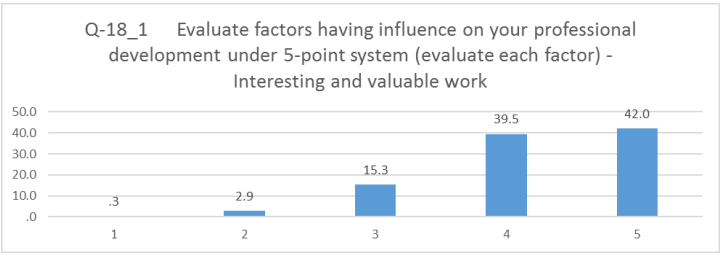


Illustration 22. Factor- "Interesting and valuable work", having influenced on respondents' professional development, had been evaluated under 5-point system.
Source – study results.

Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - The favorable (prosperous) psychological climate within the collective in colleagues team. On the question - Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - The favorable (prosperous) psychological climate within the collective in colleagues team, junior pharmacist specialists' 0.3% evaluate by 1 point, junior pharmacist specialists' 3.2% evaluate by 2 point, junior pharmacist specialists' 13.1% evaluate by 3 point, junior pharmacist specialists' 45.5% evaluate by 4 point, junior pharmacist specialists' 37.9% evaluate by 5 point.

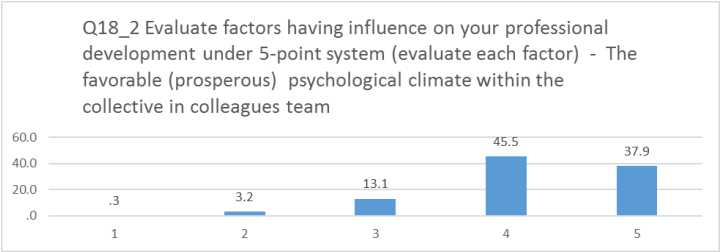


Illustration 23. The factor- "favorable (prosperous) psychological climate within the collective in colleagues team ", having influenced on respondents' professional development, had been evaluated under 5-point system.
Source – study results.

Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - The possibility of career (growth) development. On the question Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - The possibility of career (growth) development, junior pharmacist specialists' 0.6% evaluate by 1 point, junior pharmacist specialists' 4.5% evaluate by 2 point, junior pharmacist specialists' 22.3% evaluate by 3 point, junior pharmacist specialists' 43.9% evaluate by 4 point, junior pharmacist specialists' 28.7% evaluate by 5 point.

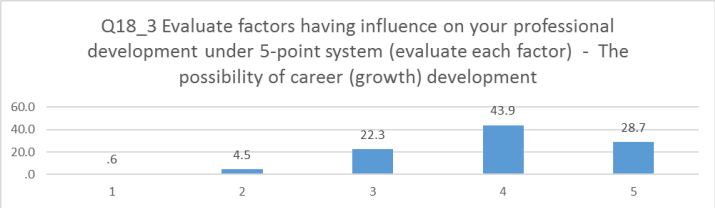


Illustration 24. The factor- "possibility of career (growth) development ", having influenced on respondents professional development, had been evaluated under 5-point system.
Source – study results.

Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - Professional education (training).On the question Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - Professional education (training), junior pharmacist specialists' 1% evaluate by 1 point, junior pharmacist specialists' 5.1% evaluate by 2 point, junior pharmacist specialists' 17.8% evaluate by 3 point, junior pharmacist specialists'41.4% evaluate by 4 point, junior pharmacist specialists' 34.7% evaluate by 5 point.

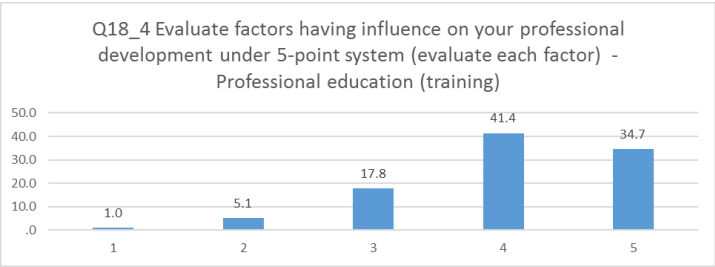


Illustration 25. The factor- "Professional education (training) ", having influenced on respodents professional development, had been evaluated under 5-point system.
Source – study results.

Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - The social importance of profession. On the question Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - The social importance of profession, junior pharmacist specialists' 2.2% evaluate by 1 point, junior pharmacist specialists' 4.5% evaluate by 2 point, junior pharmacist specialists' 15.9% evaluate by 3 point, junior pharmacist specialists' 38.9% evaluate by 4 point, junior pharmacist specialists' 38.5% evaluate by 5 point.

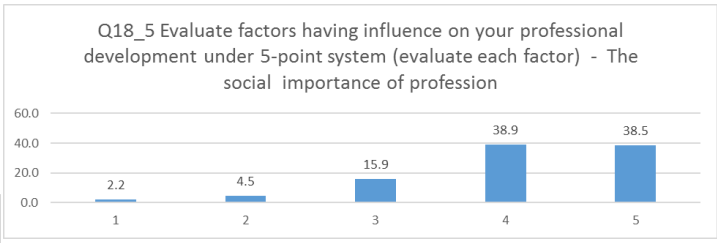


Illustration 26. The factor- "social importance of profession ", having influenced on respodents professional development, had been evaluated under 5-point system.
Source – study results.

Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - Independence in work. On the question Evaluate factors having influence on your professional development under 5-point system (evaluate each factor) - Independence in work, junior pharmacist specialists' 2.9% evaluate by 1 point, junior pharmacist specialists' 4.8% evaluate by 2 point, junior pharmacist specialists' 8.9% evaluate by 3 point, junior pharmacist specialists' 43.9% evaluate by 4 point, junior pharmacist specialists' 39.5% evaluate by 5 point.

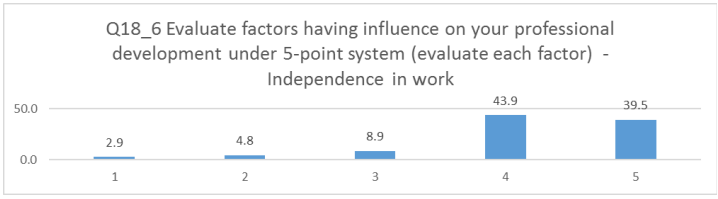


Illustration 27. The factor- "Independence in work ", having influenced on respondents' professional development, had been evaluated under 5-point system.
Source – study results.

Evaluate factors having influence on your professional development under 5-point system (evaluate each factor). Report on the question Evaluate factors having influence on your professional development under 5-point system (evaluate each factor).

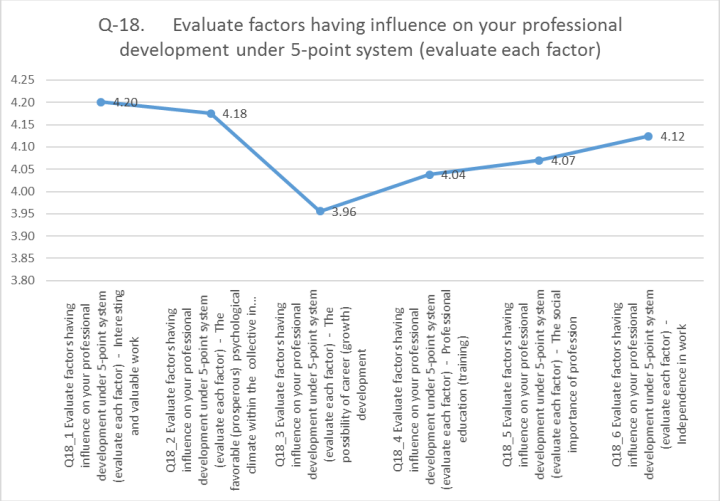


Illustration 28. Report on the factors, having influenced on respondents' professional development, had been evaluated under 5-point system.
Source – study results.

On the question how often have you changed work place? Junior pharmacist specialists' 29.3% answer never, junior pharmacist specialists' 51.3% answer 1 -2 times, junior pharmacist specialists' 13.4% answer 3-4 times, junior pharmacist specialists' 4.1% answer 5-6 times, junior pharmacist specialists' 1.9% answer more than 6 times.

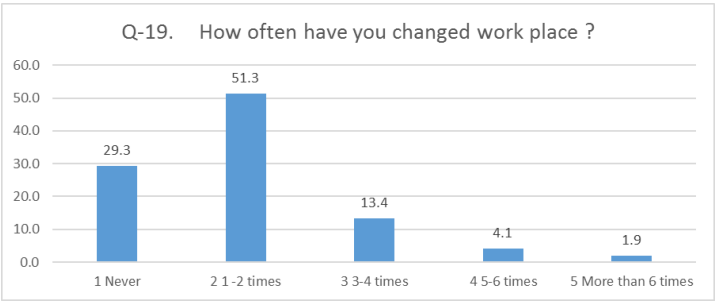


Illustration 29. Opinion of respondent's, about how often they have changed their work place.
Source – study results.

On the question would you like to leave your profession? Junior pharmacist specialists' 2.9% answer yes, junior pharmacist specialists' 92% answer no, junior pharmacist specialists' 5.1% answer I have thoughts.

Table 7. Opinion of respondents' if they would like to leave their profession.

Q-20. Would you like to leave your profession?		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Yes	9	2.9	2.9	2.9
	2 No	289	92.0	92.0	94.9
	3 I have thoughts	16	5.1	5.1	100.0
	Total	314	100.0	100.0	

Source – study results.

On the question what do you think what knowledge you lack or is not enough for successful work? (You can indicate several answers). junior pharmacist specialists' 17.8% answer pharmacognosy, junior pharmacist specialists' 24.2% answer pharmaceutical organization and economics and pharmaceutical business, junior pharmacist specialists' 28.7% answer pharmacy management and pharmaceutical marketing, junior pharmacist specialists' 80.6% answer pharmacology, junior pharmacist specialists' 13.7% answer pharm chemistry, junior pharmacist specialists' 75.8% answer pharmacotherapy , junior pharmacist specialists' 28.3% answer drug technology (technology of medicines) , junior pharmacist specialists' 24.5% answer toxicology, junior pharmacist specialists' 58% answer clinical pharmacy, junior pharmacist specialists' 67.2% answer pharmaceutical care, junior pharmacist specialists' 13.7% answer pharmaceutical analysis, junior pharmacist specialists' 18.2% answer toxicological chemistry, junior pharmacist specialists' 35.7% answer pharmacokinetics, junior pharmacist specialists' 34.7% answer pharmaceutical technologies , junior pharmacist specialists' 34.7% answer nutrition, junior pharmacist specialists' 35.7% answer pharmaceutical cosmetics and perfume, junior pharmacist specialists' 38.2% answer social pharmacy and public health, junior pharmacist specialists' 50.6% answer computer technology, junior pharmacist specialists' 29% answer pharmaceutical information.

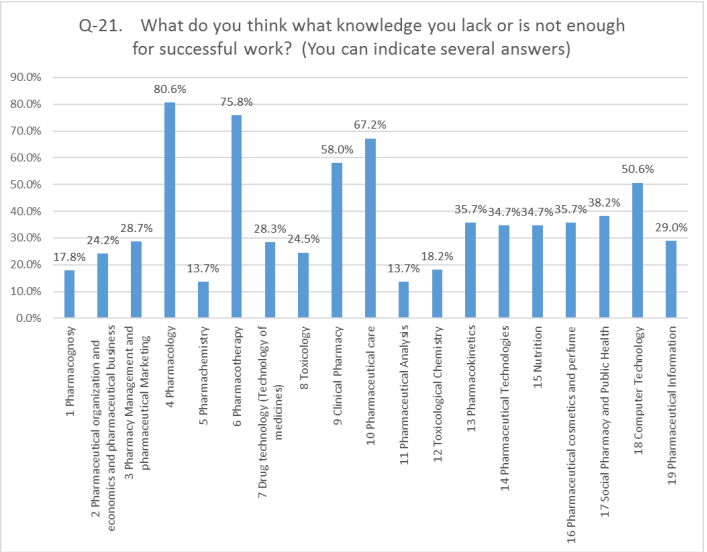


Illustration 30. Respondents' opinion about the knowledge, which is not enough, for their successful work.
Source – study results.

Resume:

The goal of the research was to study the peculiarities of junior pharmacists in Georgia. 314 junior pharmacist specialists were interviewed by using the questionnaire in Georgia. On the question what do you think what knowledge you lack or is not enough for successful work? (You can indicate several answers) junior pharmacist specialists' 17.8% answer pharmacognosy, junior pharmacist specialists' 24.2% answer pharmaceutical organization and economics and pharmaceutical business, junior pharmacist specialists' 28.7% answer pharmacy management and pharmaceutical marketing, junior pharmacist specialists' 80.6% answer pharmacology, junior pharmacist specialists' 13.7% answer pharm chemistry, junior pharmacist specialists' 75.8% answer pharmacotherapy , junior pharmacist specialists' 28.3% answer drug technology (technology of medicines) , junior pharmacist specialists' 24.5% answer toxicology, junior pharmacist specialists' 58% answer clinical pharmacy, junior pharmacist specialists' 67.2% answer pharmaceutical care, junior pharmacist specialists' 13.7% answer pharmaceutical analysis, junior pharmacist specialists' 18.2% answer toxicological chemistry, junior pharmacist specialists' 35.7% answer pharmacokinetics, junior pharmacist specialists' 34.7% answer pharmaceutical technologies , junior pharmacist specialists' 34.7% answer nutrition, junior pharmacist specialists' 35.7% answer pharmaceutical cosmetics and perfume, junior pharmacist specialists' 38.2% answer social pharmacy and public health, junior pharmacist specialists' 50.6% answer computer technology, junior pharmacist specialists' 29% answer pharmaceutical information. On the question are you satisfied with your job (work)? Junior pharmacist specialist' 34.4% answer yes, junior pharmacist specialist' 34.1% answer partially , junior pharmacist specialist' 30.9% answer no. junior pharmacist specialist' 0.6% answer can not say. On the question would you like to leave your profession? Junior pharmacist specialists' 2.9% answer yes, junior pharmacist specialists' 92% answer no, junior pharmacist specialists' 5.1% answer I have thoughts.

Discussion:

The vast majority of respondent junior pharmacist specialists worked in drugstore (pharmacy). The majority respondent junior pharmacist specialists' make professional (occupational) choice at the age of 15-18. About one fifth respondent junior pharmacist specialists' defined following mostly influenced factors on profession (occupational) choice: Parents' advices (or will); the ability (ambition) to obtain a profession in compliance of own aspirations and inclinations (affections); Personal desire; Interest in profession. About half of respondent junior pharmacist specialists underlying following motives, while making professional (occupational) choice: The desire to expand the horizons (desire to extend sense of vision); Desire to extend (lengthen) carefree period of life; Desire to get a certain level of economic (material) well-being (security); the possibility to further (future) social advancement (promotion). About one third of respondent junior pharmacist specialists underlying following motives, while making professional (occupational) choice: Desire to obtain high-quality professional training; Desire to be useful (in service) of people; Guarantee to be busy. The vast majority of respondent junior pharmacist specialists satisfied with professional choice. The majority of respondent junior pharmacist specialists in the search for job have applied following methods: Offer from an employer. About half of respondent junior pharmacist specialists in the search for job have applied following methods: Recommendations of friends, acquaintances; Using the Internet. About one third of respondent junior pharmacist specialists in the search for job have applied following methods: Advertisements in mass media, Recruitment agencies. For the majority of respondent junior pharmacist specialists needful time limit, to mastering under the conditions of a new job position, varies from 3 months up to 9 months. For the majority of respondent junior pharmacist specialists major important difficulties which met during professional adaptation are: The lack (Shortage) of special skills (basis of marketing, computer knowledge and etc.); Difficulty acclimatization within the collective (colleagues' team). For less than half of respondent junior pharmacist specialists major important difficulties which met during professional adaptation are: The lack (Shortage) of the professional knowledge; Difficulties in relationship with a chief management (leadership). The majority of respondent junior pharmacist specialists consider, that the mostly effective forms of professional assistance, while adaptation of a junior specialist are: work with a mentor (instructor); Individual (personal) conversation. Less than half of respondent junior pharmacist specialists consider, that the mostly effective forms of professional assistance, while adaptation of a junior specialist are: Discussion of work of junior employees within the collective in colleagues' team; Existence of special programs, trainings on professional orienteering (guidance).

Conclusion:

It is necessary to develop a scheme to improve pharmacist work satisfaction in order to make the pharmacist's position more attractive and promising. In higher institutions at pharmacy educational programs credits should be increased in the following subjects: Pharmacology, pharmacotherapy, clinical Pharmacy and pharmaceutical care. In that subjects pharmacists need deep and systemic knowledge for the success and for professional enhancement in pharmaceutical profession.

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Medical Gerontology, Review

Sophio Skliarenko[1], Vasil Tkeshelashvili[2]

The University of Georgia, School of Health Sciences and Public Health
[1]MD, PhD; [2]MD, JD, PhD, ScD, Professor

Summary

Gerontology is the study of the aging processes and individuals as they grow from middle age through later life. This is the study of older persons. Populations are aging worldwide. This means that people are living longer, and the number of older persons is increasing. These trends are evident in American society, as well as in many countries around the world. In the U.S. the growth of the elderly population will continue into the future. By the middle of the 21st century, one in five Americans will be over 65, and there will be 15 to 18 million persons over the age of 85. These growth trends will result in a demand for professionals with knowledge and expertise in aging. Healthy ageing is the process of slowing down physically and cognitively while resiliently adapting and compensating in order to optimally function and participate in all areas of life. Gerontology studies physical and pathological changes in the ageing population. During ageing process the changes occur in all organs and systems. The main milestone is to gradually adapt to the body changes and maintain healthy ageing.

Key words: *Gerontology, aging, healthy, baby boomers, organs, systems, osteoporosis, pharmacologic care, public health policy.*

Overview

Gerontology is the study of the aging processes and individuals as they grow from middle age through later life. This is the study of older persons. Geriatric physician is a physician who specializes in the care of elderly. Geriatrics is the study of health and disease in later life (Gilleard, 2007) .

Populations are aging worldwide. This means that people are living longer, and the number of older persons is increasing. These trends are evident in American society, as well as in many countries around the world. In the U.S., of those born in 1900 nearly half died before they were 50 years old. People born today can expect to live beyond their 75th year. In 1900 about one in 25 Americans was over 65; today one in eight is over 65. The age group growing fastest in our society and in many other countries is the "very old," people aged 85 and over (Bannister, 2010.).

The growth of the elderly population will continue into the future. By the middle of the 21st century, one in five Americans will be over 65, and there will be 15 to 18 million persons over the age of 85. These growth trends will result in a demand for professionals with knowledge and expertise in aging. Expanded career opportunities in gerontology and geriatrics are forecast in many disciplines and professions (Knickman JR, 2002).

This demographic shift is already creating a wave of new fields and opportunities for workers of all ages. Professional certifications, however, are becoming increasingly accepted by employers and clients in many areas, which is great for 50+ workers–faster and cheaper (Hurd M, 2011).

The term Baby boomers indicate the future olds, they are well educated, are prepared for good old life. They expect much higher quality of life as they age than did their ancestors. Large-scale demographic and social shifts mean that life for those aged over 65 is subject to increasing change and flux. These have affected older people's lifestyles, living arrangements, work patterns, social lives and economic situations. At the same time, those aged over 65 increasingly complain of feeling lonely and unhappy, of experiencing fear of crime or alienation from mainstream society (Knickman JR, 2002).

A centenarian is a person who lives to or beyond the age of 100 years. Because current average global life expectancies are less than 100, the term is associated with longevity. A supercentenarian is a person who has lived to the age of 110 or more, something only achieved by about one in 1,000 centenarians. Even rarer is a person who has lived to age 115 – as of July 2013, there were only 30 people in recorded history who have reached this age (Haber, 2004).

Healthy ageing is the process of slowing down physically and cognitively while resiliently adapting and compensating in order to optimally function and participate in all areas of life. Healthy ageing is about 'optimizing opportunities for good health, so that older people can take an active part in society and enjoy an independent and high quality of life' (Udo, 2016).

Life expectancy is the expected (in the statistical sense) number of years of life remaining at a given age. Because life expectancy is an average, a particular person may well die many years before or many years after their "expected" survival (Vaupel, 2010).

Gerontology include the following:

- ◊ the study of physical, mental, and social changes in older people as they age
- ◊ the investigation of the changes in society resulting from our aging population
- ◊ the application of this knowledge to policies and programs. (Reichstadt, 2010).

Physical changes that occur while aging are not always diseases. In whole slight and step-by-step changes are common and person can adapt to those changes with time. With aging two types of changes appear physiological and pathological changes. Among physiological changes, the most common are the following:

- ◊ a gradual reduction in height and weight loss due to loss of muscle and bone mass,
- ◊ a lower metabolic rate,
- ◊ longer reaction times,
- ◊ declines in certain memory functions,
- ◊ declines in sexual activity and menopause in women,
- ◊ a functional decline in audition, olfaction, and vision,
- ◊ declines in kidney, pulmonary, and immune functions,
- ◊ declines in exercise performance, and multiple endocrine changes (Craik, 1992)

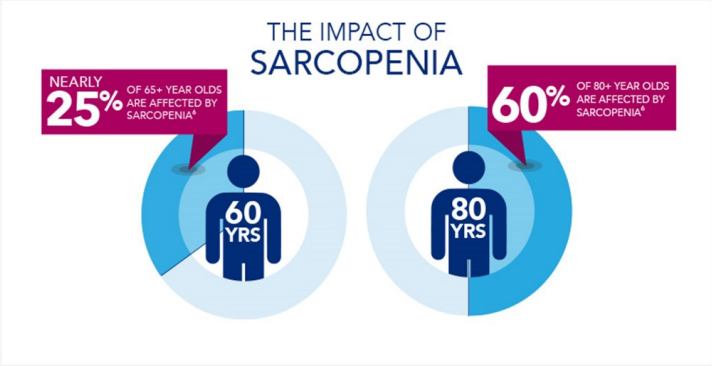
Some age-related changes are common with age such as presbyopia, also called farsightedness, which is caused by the continuous growth of the eyes' lenses and appears to be universal of human aging (Finch, 1990).

The changes occur in all organs and systems. The older person's skin is wrinkled. The skin becomes thinner, drier, less elastic, and more fragile as subcutaneous fat diminishes. The elastin fibers are replaced with collagen fibers and sebaceous and sweat gland activity decreases. Capillary blood flow also decreases which slows wound healing. Fingernails usually thicken, become ridged and brittle, and grow more slowly. Occur lentignes – that are age spots, also anychogryphosis that is the thickening and distortion of nail plate or onychorhexis - Vertical ridges on the nail plate. (Nursing link, 2015).

Changes in the muscles, joints, and bones affect the posture and gait and lead to weakness and slowed movement. Will occur the age related changes in skeletal muscles – sarcopenia. In addition, vertebrae lose some of their mineral content, making each bone thinner. The spinal column becomes curved and compressed. Osteoporosis is a common problem, especially for older women. Bones break more easily, and compression fractures of the vertebrae can cause pain and reduce mobility. Occurs osteoarthritis – the reason of which is loss of cartilage in joints. (Russ, 2012). Muscle weakness contributes to fatigue, weakness, and reduced activity tolerance. Joint problems are extremely common. This may be anything from mild stiffness to debilitating arthritis. Loss of balance may lead to falls.

Some elderly people have reduced reflexes. This is most often caused by changes in the muscles and tendons, rather than changes in the nerves. Decreased knee jerk or ankle jerk can occur. Involuntary movements (muscle tremors and fine movements called fasciculation are more common in the elderly. Inactive or immobile elderly people may experience weakness or abnormal sensations paresthesia (Russ, 2012).

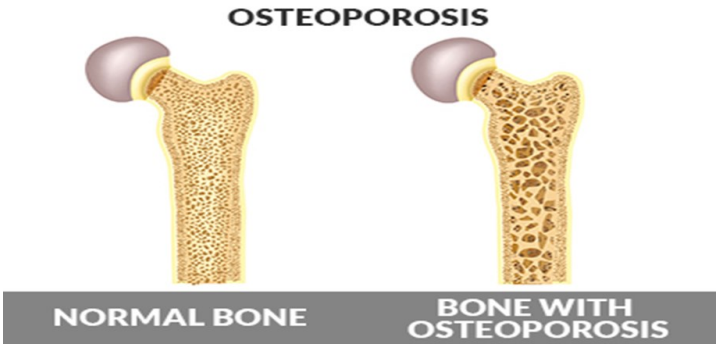
Illustration 1- The impact of sarcopenia



Source - (Fight Sarcopenia, 2012)

Bone mass or density is lost as people age, especially in women after menopause. The bones lose calcium and other minerals.

Illustration 2- Osteoporosis



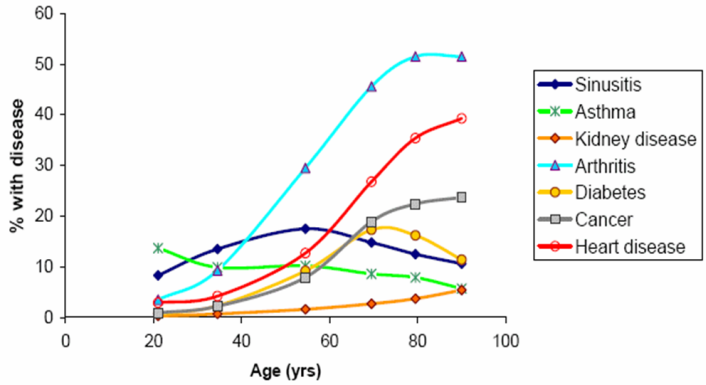
Source - (Smart nutrition, 2015)

A slight increase in the size of the heart, especially the left ventricle, is common. Normal changes in the heart include deposits of the "aging pigment," lipofuscin. The heart muscle cells degenerate slightly. The valves inside the heart, which control the direction of blood flow, thicken and become stiffer. A heart murmur caused by valve stiffness is common in the elderly. The baroreceptors become less sensitive with aging. Due to this fact, many older people have orthostatic hypotension. The capillary walls thicken slightly. This may cause a slightly slower rate of exchange of nutrients and wastes.

Blood vessels become thicker, stiffer, and less flexible. This is probably related to changes in the connective tissue of the blood vessel wall. This makes the blood pressure higher and makes the heart work harder, which may lead to thickening of the heart muscle (hypertrophy). The other arteries also thicken and stiffen. In general, most elderly people have a moderate increase in blood pressure. (Health medicine network, 2012).

The incidence of pathological changes increases with age. Among most prevalent diseases are the following: Type 2 diabetes, heart disease, cancer, arthritis, and kidney disease. With age, the human body becomes more susceptible to certain diseases. The average fasting glucose level rises from 6 to 14 mg/dL for each 10 years after age 50. This is because the cells become less sensitive to the effects of insulin (Booth, 2012).

Illustration 3- Prevalence of selected chronic conditions, expressed in percentages, as a function of age for the US population (2002-2003 dataset)



Source: National center of health statistics 2003

Because of age related changes, older persons are at increased risk of:

- ◊ Lung infections, such as pneumonia and bronchitis
- ◊ Shortness of breath
- ◊ Low oxygen level, which reduces the body's ability to fight diseases
- ◊ Abnormal breathing patterns, resulting in problems such as sleep apnea (episodes of stopped breathing during sleep) (Booth, 2012).

Aging also increases the risk of kidney and bladder problems such as bladder control issues - Urinary incontinence is a common and often embarrassing problem. The severity ranges from occasionally leaking urine during coughing or sneezing to having an urge to urinate.
Though it occurs more often as people get older, urinary incontinence is not an inevitable consequence of aging. For most people, simple lifestyle changes or medical treatment can ease discomfort or stop urinary incontinence. Bladder and other urinary tract infections (UTIs), Chronic kidney disease also are common in aging population (DY., 2011).

With aging brain and nervous system, go through natural changes. Brain and spinal cord lose nerve cells and atrophy. Nerve cells may begin to pass messages more slowly than in the past. Waste products can collect in the brain tissue as nerve cells break down. This can cause abnormal changes in the brain called plaques. A fatty brown pigment lipofuscin can also build up in nerve tissue. Breakdown of nerves can affect senses. This leads to problems with movement and safety (Haber, 2004).

Immune system becomes slower to respond. This increases risk of getting sick. Autoimmune disorders may develop. Healing is also slowed in older persons. The immune system's ability to detect and correct cell defects also declines. This can result in an increase in the risk of cancer (Nicholson, 2016).

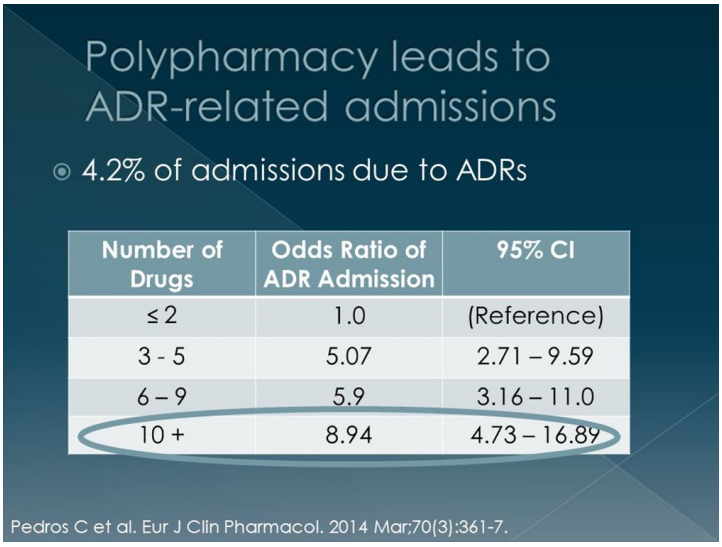
Slowing of thought, memory, and thinking is a normal part of aging. These changes are not the same in everyone. Some people have many changes in their nerves and brain tissue. Others have few changes. These changes are not always related to the effects on the ability to think. Dementia and severe memory loss are not a normal part of aging. They can be caused by brain diseases such as Alzheimer's disease (Peters, 2006).

Age-related hearing loss is called presbycusis. It affects both ears. Hearing may decline, especially of high-frequency sounds. The sharpness of the near vision- visual acuity gradually declines. The most common problem is difficulty focusing the eyes on something close. This condition is called presbyopia. Common eye disorders in the elderly include cataracts, glaucoma, macular degeneration and diabetic and hypertensive retinopathy (Craik 1992).

Pharmacologic care of the elderly is a multifaceted problem. The practitioner should plan and prescribe health care for the aged, with a knowledge of physiologic changes in the elderly, an understanding of the pharmacokinetic and pharmacodynamic mechanisms of iatrogenic drug reactions, and an awareness of the social and ethical issues related to geropharmacology. Polypharmacy is an important issue in elderly patients. It may be defined as the use of multiple medications together. Sometimes this issue cannot be helped, but many times polypharmacy occurs simply because healthcare providers fail to communicate proper patient recommendations to the patient's primary care provider. Effective communication between all of a patient's healthcare providers is key to eliminating this problem. One simple recommendation is to ask every patient to bring all of his or her current medications to each doctor's visit so that the physician can thoroughly review the medications being taken. A common cause of adverse drug reactions in elderly patients is drug interactions. This is not surprising considering that the number of medications taken by many

elderly patients is high. Various studies have documented a direct correlation between number of medications and the risk of an adverse drug reaction. A study from Brazil reported that the potential drug interaction risk when patients are taking 2 to 3, 4 to 5, and 6 to 7 medications are 39%, 88.8%, and 100%, respectively (Permpongkosol, 2011).

Illustration 4- Polypharmacy



Source – Clinical pharmacology, 2014

Patient empowerment is one way to give the geriatric patients necessary information and the opportunity to exercise the degree of control they choose over health care decisions that affect them. If patients are involved in decision-making, they are less likely to make decisions that may lead to ADRs, such as abruptly discontinuing a medication that should be taken for a long period without interruption. It's very important to keep correct Prescribing principles: Monitoring for appropriate prescribing and alerting the prescriber to potential problem areas, deciding that a drug is truly indicated, choosing the best drug, determining appropriate dose for the individual, monitoring for toxicity and effectiveness, and seeking consultation when necessary (Vahdat, 2014).

Nowadays the main concern of Healthcare professionals is how to promote healthy lifestyles for older adults to achieve healthy aging. Because lifestyle is so critical to health, it has been recommended that more visit time be devoted to lifestyle discussions, and that physicians be advised on how to make their counseling more effective. (Physical activity and older Americans: benefits and strategies., 2004).

The recommendation for older adults for healthy lifestyle and physical activity is very similar to that for adults, though it's taken into consideration the age related characteristics. Accordingly, activities that increase the flexibility are recommended, also balance exercises for those who are at risk of falls. The main point in recommendations for geriatric population is to integrate preventive and therapeutic recommendations.

Promoting physical activity in older mean moderate intensity activity, muscle-strengthening activity, preventing risky behavior and reducing sedentary behavior. (Rose, 2000) (Gardner MM, 2000).

Healthy aging means to adapt smoothly to all changes that occur while going through 60, 70, 80 and beyond. For many people, aging brings anxiety and fear while it means finding new things a person enjoys, learning to adapt to change, staying physically and socially active, and feeling connected to the community. It's very important to cope with the changes and there are several ways to do this: 1. Gratefulness for everything you have, achieved and learned, 2. Expression of feelings, especially to family members and loved ones, 3. Accepting the things that are not under the control. In fact, aging involves physical changes, but it does not mean discomfort and disability. List of physical challenges associated with aging can be overcome by exercising, eating right, and staying active (Reichstadt, 2010).

Everyone has different ways of experiencing meaning and joy, and the activities one may enjoy will change during ageing process. The useful tips for healthy aging are the following:

◊ Pick up a long-neglected hobby or try a new hobby

◊ Playing grandkids, nieces, nephews, or a favorite pet

◊ Learning something new (an instrument, a foreign language, a new game, a new sport)

◊ Getting involved in your community, staying socialized (volunteer or attend a local event)

◊ Traveling or having weekend trips to new places

◊ Spending time in nature (hiking, fishing, camping,)

◊ Enjoying the arts (visit a museum, go to a concert or a play)

◊ Writing the memoirs

The possibilities are endless. The important thing is to find activities that are both meaningful and enjoyable for elder population (Haber, 2004).

There is need to develop social definitions and public policies that are future focused—that offer meaningful futures to older citizens and that use their capacities to help shape a better future world for everyone. There is need to re-envision the aging policies based on the following premises: The productive potential of the older population constitutes an important social and economic resource (forum, 2009).

Conclusion

In a whole gerontology is the interdisciplinary field that unites Physiology, pathophysiology, therapy, pharmacology and variety of disciplines in medical field. This all-inclusive approach is welcoming, inviting, and comforting. Gerontology is an important part of our studies of society. The growing senior population in this country has a huge effect on our lives today. Due to the fact the population is aging worldwide, there may exist increasing numbers of political, financial, and social issues that needs to be resolved. Accordingly, it is very important to understand this important stage of adulthood and the increasing influence of this group over our society.

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Key issues of research with human participation

Gabunia Luiza[1], Khetsuriani Shorena[2], Gamkrelidze Natia[3], Kurashviili Maka[4]

Tbilisi State Medical University[1], Scientific Research-Skill Center[2],
The University of Georgia, School of Health Sciences and Public Health[3]
[1]MD, PhD, Associate Professor[1], Director[2]; [2]MD, PhD, Associate Professor[1], Senior Specialist[2]; [3]MD, PhD, invited teacher[1], Senior Specialist[2]; [4]PHD (c)[3]

Summary

Research seeks to contribute to generalizable knowledge about the human condition; Research has certain risks - physical, social, psychological, financial, juridical. Protection of safety, rights and welfare of human participants is paramount. Protection of human participants and data quality are main standards of Good Clinical Practices.Some aspects covered in this standard are not applicable to all types of research. The basic ethical principles in research are autonomy, justice, and beneficence/non maleficence. Core elements of informed consent are: disclosure, comprehension, decision making, voluntariness, free from coercion, provision of information. It should be in a language understandable by the participant, clear, unambiguous and non-technical, delivered in the most effective mannerbyinvestigators/designees.
Quality system is a formal system to strengthen organization by raising standards of work and ensuring all activities are done consistently in order to ensure that processes are reliable; data generated is credible, repeatable/reproducible, auditable, and transferable across international boundaries.
Abbreviation: *GCP-Good Clinical Practices*
Key words: *research ethics, Good Clinical Practices, project quality assessment, informed consent form, quality system.*

Introduction

Advancement of medical knowledge requires research expanded on human beings. Generally, scientific investigation has extended and enhanced the quality of life; for many citizens, scientific discoveries have improved conditions caused by disease or disability. The prospect of gaining such valuable scientific knowledge should not be pursued at the expense of human rights or human dignity [4,11].
It is important to realize different aspects in any research proposal related to human participants:

- ◊ Physical or psychological intervention or observation or other interactions;
- ◊ Collection, storage and dissemination of information or biological materials from individuals;
- ◊ Observing participants personal psychological state individually as well as within groups;
- ◊ Research, management of environmental factors that could incidentally expose individuals involved in study [9,10].

Good Clinical Practices (GCP) is an international ethical and scientific quality standard that ensures human participant protection and data credibility; rigid and onerous bureaucracy discourages use of GCP by researchers, when it is not legally required. It is to be particularly highlighted that GCP is currently required by regulation in the conduct of clinical trials[13].

However, it is to be emphasized that the underlying principles of ethics and quality are applicable in any type of research involving human participants. Good Health Research Practices (GHRP) has been developed to adapt the principles of GCP to the context of research involving human participants beyond clinical trials[13].

Research ethics ensures the protection of rights, safety and well being of research participants and quality to ensure generation of credible research data[8].

Definition

Declaration of Helsinki is the leading international ethical standard for all research involving humans, their data or their tissue, was first adopted version in 1964 and since undergone several revisions[11].

CIOMS (Council for International Organizations of Medical Sciences) facilitates and promotes international activities in the field of biomedical sciences[12].

Ethics is moral principles that govern a person's behaviour or the conducting of an activity. It covers our rights and responsibilities and includes our behaviour in relationship with others.

Research basic ethical principles arejustice, beneficence/ non-maleficence, autonomy. Autonomy covers respect for persons, the right for an individual to make his or her own choice, protection of persons with impaired or diminished autonomy, i.e. vulnerable groups, informed consent, and privacy and confidentiality[3,4,5]. Autonomy indicates respect for persons' choice to decide for themselves whether participate in the research or not.

Justice includes some important aspects, such are: to treat each person according to what is morally right and proper, equal distribution of both burdens and benefits of the

research, research is responsive to the health needs of study population and has to ensure reasonable availability of research product /service development [3,5].

Beneficence/non-maleficence covers the ethical obligation to maximise benefits and minimise harms. The term *risk* refers both to the probability of a harm resulting from an activity and to its magnitude. Risk often stands for the combined probabilities and magnitude of several potential harms. *Benefit* refers to any favorable outcome of the research to the individual or to society. Benefit often stands for the combined probabilities and magnitudes of several possible favorable outcomes.

Types of risks are: physical (bodily harm, simple inconvenience), psychological (emotional suffering, breach of confidentiality), social/cultural (social discrimination, stigmatization), economic risks (financial costs related to participation), legal (abuse/violence/criminal prosecution).

Types of benefits are: physical (improvement of physical condition), psychological (feeling of well being; relief from suffering, willingness of supporting others in the future), economic (earning honorarium).

Informed consent is decision to participate in research made by acompetent individual who has received thenecessary information; has adequately understoodthe information; and after considering theinformation, has made decision withouthaving been subjected to coercion, undue influence, inducement or intimidation.

Informed consent form involves statement about purpose of research, description of procedures including all invasive procedures; randomization if any considered, foreseeable risk (pain, discomfort), expected benefits (if any), payment (amount, frequency and time). Also it covers information for participant in case of adverse events or injuries related to research (compensation, if available), volunteering, right to refusal/withdrawal from the research, confidentiality and its limits (who will have access to their data), expected duration of participation, foreseeable circumstances in which participation may be terminated, contact details for obtaining further information on research. In case of child's participation in research, parent/guardian signature is sufficient according to the law. Assent is not legally binding, however, is favoured by many Ethical Committees. There may beused age-appropriate information sheets for children (e.g.<5yrs, 6-12yrs, 13-15yrs and >16yrs)[3,6].
Open-ended questions**:** "describe in your own words the purpose of the study; "what more would you like to know?", "what is the possible benefit of participating in this study? “could you explain the possible risks?"

Closed-ended questions should not be asked: "do you understand?" "do you have any questions?"
"do you see that there are some risks to taking this drug?"
Participants should be allowed to decide:
do not coerce, convince or use undue influence to participate.

If a person is incompetent/incapable**,** consent must be obtained from the parent, legal guardian or legal representative in accordance with the law of the country. Research on vulnerable populations (Children, Institutionalized individuals - mentally challenged, old, prisoners, subordi- student/employee, military, tribal, uneducated ethnic minorities/refugees) not include unless study demands/ benefits special groups; consent are given from the individuals wherever possible[3,6]. For incapacitated participants, informed consent is signed by the legally authorised representative (LAR). Law defines who is qualified to be a LAR. Impartial witness required when the participant or the participant’s LAR is illiterate. A literate adult, independent of the research, cannot be unfairly influenced by people involved in the research. This person attends the informed consent process, attesting that consent is voluntary, freely given, and without any force or undue influence.

Agreement of local community leadership is good research practice/mandatory in some communities. There are obtained through a process of dialogue and often does not require written agreement. Agreement from the community leadership does not necessarily replace the consent and/or assent of individual participants. If no individual-level data are collected, in this case not require individual consent.

Informed consent is a process, not a onetime event of obtaining a signature. Information exchange between researcher and the potential participant starts before recruitment, continues throughout research project[6].

For ongoing discussion/interaction during study visits there should be understood some aspects: how is it documented, clear identification of the person who performed/ administered the informed consent, signed and dated by the participant and by the person who conducted the process in 2 forms and offer one copy to the participant and file the other. The role of the person taking consent are: communicate all information to prospective participant and answer queries; maintain confidentiality; avoid unjustified deception, undue influence, intimidation, false assurances, obtain written informed consent; witnessed/legal authorized representative as appropriate, assure that saying ‘no’ will not affect relationship/due benefits. There are some factors of informed consent insufficiency - participant factors (poor literacy rates, intimidation/stress, confusion about the consent process – doctors are ‘God’ and can make the decision); researcher factors (complex and lengthy forms, some notions are not easy to explain, like randomization, blinding, time limitations, wrong assumptions about participant understanding) [3,11].

Reasons of common discrepancies are: latest version of the informed consent form not used; several versions in use at a point in time; signatures not put at the appropriate place, copy not offered to the participant. Consent form dated later than the recruitment. They are not dated by investigator/ participants/ LAR/witness.

Regarding disclosure of information media also play role for better understanding of main aspects of informed consent. These media for disclosure of information are: audio-visual (video and audio material, photographs, pamphlets, advertisements, information on internet).

Questionnaires are frequently used survey instrument in research and comprises of a series of questions, designed to measure a given item or set of items. It may be self administered/by study site interviewers (face to face, telephone, mail, web-based).

Questions /study items and numbers must be kept as short as possible. The questions are simple, clear and unambiguous (without technical jargon); avoiding negative questions, hypothetical questions. Ordering and flow of questions should be logical, usually begin with socio-demographic questions.

Research proposals are subject to review by scientific committee prior to IRB/IEC submission: research question, study design and method, data analysis.

Ethics Committee most members have qualifications, expertise and experience to evaluate science, medical aspects etc. They are composed of at least 5 members –at least 1 member having no interest in scientific area, at least 1 member independent of institution/ study site.

Characteristics of a good ethics committee are multidisciplinary (scientific, medical, non-medical), multi sectorial (subject experts, biostatistician, legal experts, and religious head/theologian), community representatives (lay person, social scientist, and voluntary agencies) and are balanced distribution (age, gender, cultural background).

Review process implies reviewing the following documents: protocol/protocol amendments, participant information sheets, consent forms/updates, participant recruitment procedures (advertisements), investigator's CV, compensation for participants.

Review and approval is conducted before the initiation of the research. During the research any changes of the protocol and consent form could impact the risk benefit analysis andis subject to continuing review [7].

Ethical review is a holistic process; there are checked scientific design and conduct of the research, appropriate research design, valid methods, and recruitment of research participants, appropriate recruitment methods, care and protection of research participants.

Informed consent sample should provide complete information, should be understandable. It should be reviewing ethical concerns that safeguards vulnerable populations.
Physicians should consider the ethical, legal and regulatory norms and standards for involving human subjects in research in their own countries as well as applicable international norms and standards.

No national or international ethical, legal or regulatory requirement should reduce or eliminate any of the protections for research subjects set forth in Helsinki Declaration [11].

Investigator with regard to the research oversight committees should be aware of the requirements in the country and region, communication should have been - before, during and after the study safety and well being of research participants is paramount; review by competent and independent ethical committees is imperative, investigator is responsible to communicate with the applicable oversight committees. Research oversight is a quality check and provides public assurance of the ethics and quality of the study[1,6,7].

Privacy isa right of person to be protected. Confidentiality is about identifiable data. It is an agreement about maintenance access to identifiable data. It is important how to ensureprivacy and confidentialité (ddiscuss study in private area, if possible, use of codes and numbers as identifiers -no names; protection of records that could identify participant).

Personal information must be fairly and lawfully processed. It also must be processed in line with participant's rights and only for approved purpose and kept secure with access limited only to authorized study personnel, not kept for longer than is necessary and not transferred transferred to other countries without adequate protection[11].

For anonymizing data removing direct identifiers (name or address) are very useful; aggregating or reducing the precision of information or a variable, e.g. replacing date of birth by age groups, reducing precision of GPS coordinate; generalizing the meaning of detailed text, e.g. replacing a doctor's detailed area of medical expertise with an area of medical specialty; using pseudonyms; restricting the upper or lower ranges of a variable to hide outliers, e.g. top-coding salaries.

Quality in the context of clinical research includes several important aspects: conformance to standards, ensuring that the processes are reliable, procedures are complied, data generated are reliable, repeatable and auditable (traceable) [2].

Management of research projects include several aims:

- ◊ To ensure a common goal and clear definition of the project process. This process develops some questions, such are: what needs to be done? Whom? When?
- ◊ To enhance efficiency and timeliness;
- ◊ To promote teamwork;
- ◊ To allow systematic monitoring of study progress;
- ◊ To anticipate and address potential issues;
- ◊ To facilitate evaluation and development of reports.

Conclusion:

Components of a quality system include definition of roles and responsibilities, job descriptions and CVs, standard operating procedures/data collection guidelines. There are used different forms of quality system - document and version control, training records, field notes/lab notebook, facilities and equipment[2].

Quality assurance is planned and systematic actions that are established to ensure that the study is performed and the data are generated, recorded and reported in compliance with standards. Quality control act of overseeing ensures research is conducted, recorded and reported in accordance with protocol, SOP. There are reviewed: study documents, protocol, consents, data collection guidelines, processes and systems, personnel, SOPs/study guidelines, methods, data collection forms, database. Also there are measured study progressionon communication with team, milestones and activity timelines, work plan, used resources, cost and performance standards are reviewed.

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Management of oral cavity disorders during chemotherapy in oncologic patients

Ketevan Nanobashvili

The University of Georgia, School of Health Sciences and Public Health
MD, PhD, Associate Professor

Summary

Chemotherapy is an important part of modern methods for treatment of oncologic diseases. As any medication or method, the chemotherapeutical agents also have complications and side effects, from which our interest is the changes in oral cavity during and after of cancer treatment. By using of chemotherapeutic agents, the majority of patients may develop the complications of the oral health. The literature describes mucosits, oral pain, infection, hemorrhages, xerotomy, neurological and nutritional problems. Each of them is a potential threat to the patient's general condition, according to chronological or dental age - for oral hard or soft tissues. These factors will cause significant violations in future permanent dentition, also problems – such dysphagia, dysphonia, development of oral organs and face. Unfortunately, in literature there is less information about the condition of pediatric patients, which are subject of chemotherapy for oncologic diagnosis. Accordingly, there is less information about maintaining the conditions for facilitating prevention of dangerous changes and for the development of future permanent dentition. The goal of the research is to find information about frequency and quality of the damage in oral cavity caused by chemotherapy in oncologic pediatric patients. Also, to develop the special methodology regarding to avoid and prevent vulnerability of the child's health condition because of pathological changes in oral cavity.

Key words: *cancer, oral cavity, chemotherapy, disorders*

Introduction

The chemotherapy takes important place among the modern treatment methods of oncologic diseases. The meaningful results are also achieved with combination of chemo- and radiotherapy (f.e. cancer of facial and neck region) [1]. Unfortunately, as any method or medicament, chemotherapy also has its complications and side effects, from which particularly complications in oral cavity are the space of our interest. These complications mainly reducing quality of painless life potential, which by itself reduces the quality of living and increases potential of death [2].

During the chemotherapy there is risk to get the oral cavity health complications. In literature is described mucositis, pain, infection, haemorrhagie, xerostomy, problems of neurological characteristic and complications with feeding [3].

Chemotherapy Agents and Their Side Effects

Some chemotherapy agents are characterized by complications in oral cavity. Among of them mainly aggressive are:

Metotrexate

Metotrexate is used for treatment of some kind of cancers, also for controlling of severe psoriasis and rheumatoid arthritis, which are not treatable with other medicaments. Metatroxate is antimetabolic drug, may be used for controlling juvenile rheumatism, it is influencing on process of cell growing and depressing of immune system.

Complications: drowsiness and dizziness, temporary hair loss may occur, infection risk (sometimes fatal). Rarely, but still may occur allergic reactions on mentioned medicament (rush, itching, swelling – face, tongue, throat, sever dizziness, complicated breathing), also – vomiting, nausea, xerostomia, stomach pain [4].

Cytarabine

Cytarabine for injection (trade name: Cytosar-U, Tarabine PFS) is the chemothich may have fatal be the reason of fatal ve specialy d ia, y of lifeing with oid arthritiserapy agent, used for treatment of special type tumors – acute lymphoblastic leukemia (ALL). Main side effects of Cytarabine are classified as vomiting and nausea, loose of appetite, diarrhea, meteorism, headache, dizziness, drowsiness, ataxia, Memory worsening, pain; on the place of injection – pain, swelling, rediness [5].

Fluorouracil

Fluorouracil (trade names: Adrucil ®, 5-Fluorouracil, 5-FU) is anticancer ("antineoplasmatic" or "cytotoxic") chemotherapeutic agent, it is classified as an antimetabolic drug. Indications for use: Large intestine and rectal cancer, breast cancer, gastrointestinal cancer: rectum, esophagus, pancreas and stomach cancers, head and neck region cancer, unknown primary (Square Cell) cancer, neuroendocrine tumors, thymus cancer, uterine cervix cancer, bladder tumor, hepatoid cancer. Used for topical appling (cream or solution) in the case of skin tumors and active keratosis, basal cellular cancer.

Side effects: diarrhea, nausea, stomatitis, decrease appetite, eyes tears, photophobia, taste change, metal taste during infusion, it can cause increased risk of infection, anemia, and / or bleeding. Skin reactions: dryness, xerodermia, hyperpigmentation, hair thinning, nail changes - bleaching, loss of nails (rarely). Palmar-plantar erythrodesia or PPE - skin rash, swelling, redness, pain. Serious adverse reactions on Fluorouracil: chest pain, ECG changes and increased heart enzymes [6].

Thioguanine
Trade names: Tabloid®, other names: 6-TG, 6-Thioguanine, 2-Amino-6-Mercaptopurine.
Tiaguanin is a chemotherapy agent ("antineoplastic" or "cytotoxic"). Tioginin is classified as antimetabolic drug. It is used for treatment of acute myelogenic leukemia (AML), acute lymphoblastic leukemia (ALL).

Side effects: ɔnemia, which can cause increased risk of infection and bleeding. Edema of the extremities, nausea (usually small), bad appetite. Violation of liver functions, tumor lysis syndrome is available – it is permitted as a result of leukemia treatment which can cause renal insufficiency. Tumor lysis syndrome usually occurs within 24-48 hours. Treatment - hydration, medication Alopurinol, which blocks the urea in blood.

Tioguanin itself is potentially carcinogenic medication, which can increase the risk for secondary cancer development. Long-term use of this drug is associated with the risk of secondary cancer. Pain during swallowing, mucous ulcers may be manifested [7].

Actinomycetin-D (Dactinomycetin)
Actinomycin D (Dactinomycin) is a chemotherapeutic agent that is used to treat certain types of cancer. Actinomycin D (Dactinomycin) prevents the growth of cancer cells, which eventually are destroyed.
The most common side effects include nausea and vomiting. Decrease of bone marrow function: anemia, bruises or bleeding, high risk of infections, hair loss; Loss of appetite, difficulties for mealing, weight loss. Fever. Diarrhea or stomach pain; Changes in the liver functions. Acute allergic reaction: redness, dizziness, headaches, and breathing difficulties. Oral side complications: mucositis [8].

Amsacrine
Amsidine® is a chemotherapeutic agent that is used in the treatment of acute myeloid leukemia (AML) and acute lymphoblastic leukemia (ALL). It also can be used for other cancer treatment. Serious and life-threatening side effects: the risk of infection, neutropenia. Bleeding and hemorrhagies - due to variance of vascular velocity and thrombocytopenia. The urea in the blood. Anemia, fatigue, respiratory failure [11].

Bleomycin
Trade name: Blenoxane ® Bleomemycin is a chemotherapeutic agent that is used for treatment of oncologic diseases. In particular, it belongs to class of antitumor antibiotics. This medication is produced on base of Streptomycetes fungies.
Bleomycin stops or slows down the growth and development of cancer cells and the reproductive process of mentioned cells in different phases. exact dose and schedule of treatment depends on the type of cancer, the cancer response to the medication, the patient's height, weight, general health condition and other factors. Side effects: allergy, redness, inflammation, dermatitis, rash, hair loss; Vomiting, loss of appetite, weight loss; Suddenly weakness of limbs on one side, confusion, difficulty of speech, sudden dizziness, loss of coordination, severe headache, chest pain, decreased urination. Changes in the oral cavity during treatment: the ulcers on oral mucosa and tongue [9].

Doxorubicin
Doxorubicin is a cytotoxic, anthracycline, topoizomerase II inhibitor, which is indicated as a component of a multicomponent chemotherapy course.
Indication for administration is the breast cancer related to the primary recreational lymph node. Doxorubicin is also shown as agent to treat ovarian, prostate, stomach, thyroid cancer; Lung tumors, small hepatic cancer, gastrointestinal cancer, head and neck region cancers; hodgkin's disease, lymphomas, acute lymphocytic leukemia (ALL) and acute myeloid leukemia (AML). Side effects: neutropenia, leukopenia, thrombocytopenia, anemia; itching, nausea, edema and fatigue, heart failure (CHF), cardiomyopathy, heart Dysarrhythmia; Hair loss, loss of appetite, constipation, diarrhea, skin and nail bleaching; Dehydration, acute allergic reaction (anaphylaxis), convulsions, coma, conjunctivitis, general weakness, fever, weight gain. Photophobia, necrotic colitis, myelosuppression, hyperurameemia [10]. In case of radiation therapy, hyperpigmentation of Irradiated areas; Oro-pharyngeal ulcers, which makes difficulties in nutrition; Lips and tongue swelling [11, 12].

Etoposide
Etoposide is an anti-cancer agent that prevents the growth and spread of cancer cells in the body. Etoposide is used against lung cancer during the combined chemotherapy with other tumor medications.
Side effects: fever, flu symptoms, unusual bleeding (nose, mouth, vagina or rectum), petechiae on the skin; itching, dark urine, light stools, jaundice, convulsions; unexpected breast pain or discomfort, wheezing, dry cough; hair loss.
Loss of appetite, mouth and throat pain; nausea, vomiting, stomach pain; diarrhea, constipation; unusual or unpleasant taste in the mouth [13].

Mitoxantrone
Mitoxantrone is an anti-cancer agent that prevents cancer cells production and reduces their growth and metabolism Mitoxantrone also affects the immune system. It is used to treat certain types of prostate cancer and leukemia.

Side effects: Symptoms of infection such as fever, sore throat, flu symptoms, inadequately easily bleeding (nose, gums), or spontaneous bleedings, black, bloody stools; bloody stool or bloody vomiting; loss of appetite, unusual weakness; pain or feeling of burning, uneven heartbeat; swelling, rapid weight loss; difficult breathing. hair loss, menstrual bleeding; missed menstrual periods; rhinitis; feeling fatigue; depressive mood; diarrhea, constipation; pyrosis, stomach pains; nausea; oral ulcers [14, 15].

Doctetaxel

Doctetaxel is an anti-cancer agent that prevents the growth and metabolism of cancer cells in the body. It is used to treat breast cancer, lung, prostate, stomach cancers, and cancers of head-neck area.

Acceptance of the drug is contraindicated during pregnancy, liver diseases, and in case of presence previous chemotherapy in medical history; kidney disease; history of liver disease or alcoholism; heart disease, heart failure; fluid retention or swelling; allergy to any medication; The use of Doctetaxel may increase the development of other tumors, such as leukemia.

Side effects: Allergic reactions, neutropenia, edema, rapid weight loss, edema and redness on the extremities. weakness, sensation of burning, pain or tingling; confusion, drowsiness; signs of infection - fever, hepatomegaly, anemia, thrombocytopenia; spontaneous bleedings, petechiae; dark urine, light colored stools, jaundice; hair loss, muscle pain, stomach pain, loss of appetite, vomiting or diarrhea, pain in the mouth. Side effects in elderly and adolescents may have more sever manifestations [16].

Vinblastine

Vinblastine is a chemotherapeutic agent that is used for treatment of different types of cancer.

Common side effects (indicated in 10% of patients): infection risk, deterioration of vision; petechiae and bleeding; fatigue and weakness; loss of appetite, depression, headache, jaw pain, skin rash, heart dizziness, dizziness, high blood pressure [17].

Vendezin

Vendezine is a chemotherapeutic agent that is used for treatment of various types of cancer.

Common side effects: infection risk, deterioration of vision, spontaneous bleeding, fatigue and weakness, hair loss, deterioration of hearing, constipation, muscle weakness, rash, headache, dizziness, unpleasant taste in mouth, loss of appetite, jaw pain [18].

The main changes in the mouth cavity during chemotherapy

Patients with chronic dental problems and oral hygiene are an important risk group that may develop acute odontogenic infections on the background of immunosuppressive medications used in chemotherapy [23]. However, such complications are significantly lower than the mucous membrane reaction [24, 25].

Oncology centers provided the protocols, which can be used to manage odontogenic infections in oncologic patients. The protocols are outlined in tables (see Table 1; Table 2).

Table 1.
The empirical protocol of endodontic treatment in patients with myelosuppressive chemotherapy

Diagnosis	Management
Reversible pulpitis	Caries-control
Irreversible pulpitis	Initial biomechanical preparation of canal(s); temporary double closure
Necrotic pulp with chronic periapical pathosis	No endodontic treatment unless patient has 7 days from completion of endodontic therapy to onset of myelosuppression (<1,000 granulocytes/mm3)
Necrotic pulp with acute periapical pathosis	Endodontic therapy or extraction depending on systemic status of patient and scheduling of chemotherapy

Table 2.
Protocol for tooth extraction

1	Primary wound closure with multiple interrupted sutures
2	Ten days between extraction date and granulocyte count <500/mm3
3	Avoidance of intra-alveolar hemostatic packing agents
4	Platelet transfusion if platelet count <40,000/mm3
5	Prophylactic antibiotics if granulocyte count <2,000/mm3

It should be noted that since 1990, for more than 20 years, surveys and observations are on oncologic patients who have oral complications because of chemotherapy [26]. The literature contains caries, odontogenic infections, mucositis, oral mucous membrane problems.

The protocols that are provided by the institutions are mainly used for managing of adult patients. However, it is not accurate, preventive guidelines for managing oral cavity complications of pediatric patients. Also, there is no data about the dynamics of permanent dentition changes caused by chemotherapy in different age groups.

During the chemotherapy in pediatric patients the incidence of occlusion disorders is indicated in 55.6%. The agenesia - the qualitative damage to the teeth is mentioned in 20,4% according of the period of cancer diagnosis, the intensity of the chemotherapy and the age of the patient; microdontia – in 30,6%. These pathologies are related to the matches of teeth calcification period and the chemotherapy course [20].

Enamel hypoplasia and discoloration of permanent teeth are the most common defects among the results of chemotherapy conducted in early age [28]. Hypoplasia is the result of damage of ameloblasts function, because of chemotherapy their reproductive and sectarian functions are violated, also – calcium intake via their membrane. During the tooth calcification, the transfer of the Hertwig's area causes the dislocation of the pulpal cavity to the bifurcation. As a result of cytotoxic medications, it is also possible to develop roots agenesis, hipodontia [31].

Chemotherapy usually violates the function of the salivary gland. This violation is temporary and reversible. However, it causes discomfort, It affects speech and chewing function. The number and quality of saliva in patients is changed. Amylase and peroxidase increases, simultaneously are reduced IgA, and IgG. Because of these changes even mild trauma of oral mucous membrane can contribute the development of mucositis. The functions of saliva are reduced, such as lubrication, humidity, and antimicrobial activity [31].

It is also noticeable, that the saliva acidity changes are observed, especially – in the stimulated saliva. There are also changes in electrolytic substance (N + and K +), which is likely to be reduced the saliva flow from salivary glands. The amount of urea increases. All of the mentioned factors are supporting the growth of oral pathogenic microflora [31].

In the literature it is indicated, that after the completion of chemotherapy the salivary function will be restored in about 12 months [32].

The use of large amount of water, the use of sugar free chewing gums and candies can provide serious assistance to the patient to avoid hyposalivation and the effect of xerostomy during chemotherapy.

The damages according to chemotherapy in patients under the age of 5 years, include not only the present organs of the oral cavity, but also they are dangerous for the future occlusion. It is possible to develop pathologies such as pulp cavity expansion (based on delay in dentinogenesis process); tooth development interruption; chemotherapy leads to qualitative defects of teeth; the volume of defects depends on the type of medication and the management of oral cavity disorders [19].

Conclusion:

It is logical, to take in considering that with changes of the hard tissues of the tooth, pathogenic changes in bone tissue are also possible. From a single case it is possible to conclude that during the chemotherapy in pediatric patients, the resorption of the alveolar bone, osteoporosis, permanent teeth mineralization processes violation will be occurred.

Unfortunately, in the literature there is no accurate statistical data about these changes And it would be desirable to conduct surveys in this direction.შესაბამისად,

Due to the work of the pediatric dentists, the following issues remain on the agenda:

1. What is the frequency of the alveolar bone early onset during chemotherapy intervention?
2. Specifically, which chemotherapeutic medication is provoking alveolar bone early onse;
3. How to manage the premature bone set during chemotherapy;
4. How to protect the future permanent teeth from abnormal changes.

So, in our opinion, still under question remain very interesting and practical aspects, which require further research.

Recommendations of oral cavity caring in the process course of chemotherapy

From the above discussed information it can be concluded that almost all chemotherapeutic agents are characterized by oral cavity complications that can be avoided by the following preventive activities:

1. According to consensus of the National Institute of Health [19], dental examination and accompanying appointments to chemotherapy are essential for maintaining healthy oral cavity. So, for this purpose, 2-3 weeks before the start of the course of chemotherapy is necessary to book appointment with a dentist;
2. To control the dental plaque accumulation the patient is taken into the individual recommendations of the caring oral cavity. However, the care of the mouth is a very difficult process, taking into account the physiological-emotional status of the oncologic patient. Therefore, only dentist-patient communication is not enough. It is also necessary the involvement of clinicians, oncologists, dentists and patient's family members [20].
3. Regarding to avoid oral cavity complications caused by chemotherapy, it is recommended to reduce the epithelial velocity by using cryotherapy. For this aim it is recommended to use ice bricks for 30 minutes (sucking of the ice). This method reduces the formation of mucosits by about 50% in Fluorouracil chemotherapy [21].
4. To reduce stomatotoxicity it is also permissible to use Alopurinol mouthwashes. Antibacterial irrigations are also effective in patients with high risk of infection whose immune system is inhibited in chemotherapy [3].
5. To reduce the risk of mucosits development, the mouthwash with backer Soda solutions is provided. Or cleansing of oral cavity mucosa, with salt [22]. It should be noted, that sodium hypochlorite solution significantly reduces acidity of oral cavity. This factor promotes safety not only soft tissues of the oral cavity but also the protection of hard tissues.

6. In the literature also is included information about "Magic solution", effectiveness of this solution is quite high. It contains the following components: Diphenhydramine, viscous Lidokain, Bisimut subalicycilitis and corticosteroids, also Magnesium aluminum hydroxides, and Nistatin, syrup of sugar substitutes [3, 17].
7. While taking care of chemotherapy in children, it is also necessary to visit a dentist prior to treatment. Planning frequent visits during the course of chemotherapy for the management of xerostomy and its related problems (once in a 6 months or more) [22].

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History of cancer registration in Georgia

Nino Abesadze

The University of Georgia, School of Health Sciences and Public Health
MD, PhD student, Public Health

Summary

The importance of cancer registries lies in the fact that they collect accurate and complete cancer data that can be used for cancer control and epidemiological research, public health program planning, and patient care improvement. Cancer registration is the basic method by which information about the incidence, type, extent of disease at time of diagnosis, treatment methods used and survival of patients with cancer is systematically collected (Wagner, 1991). Cancer registries play an important role in the fight against cancer. Local, state and national cancer agencies use registry data in defined areas to make important public health decisions that maximize the effectiveness of limited public health funds, such as the placement of screening programs (Yasui et al., 2017). Cancer registries are valuable research tools for those interested in the aetiology, diagnosis and treatment of cancer. Fundamental research on the epidemiology of cancer is initiated using the accumulated data. Lifetime follow-up is an important aspect of the cancer registry (Stiller, 1993). Current patient follow-up serves as a reminder to physicians and patients to schedule regular clinical examinations and provides accurate survival information. The roles of hospital-based, pathology-based, and population-based cancer registries are different and complementary. The first two types of registry serve important administrative and clinical functions, but only PBCRs provide an unbiased profile of the present cancer burden and how it changes over time. PBCRs have a unique role in planning and evaluating population-based cancer control actions aimed at reducing the cancer burden in the community (Parkin, 2006). In 2015, Population-based Cancer Registry, which is an organized system for collecting, storing, analyzing, interpreting and presenting the cancer data, was implemented in Georgia. The Registry plays a significant role in terms of gathering qualitative data of cancer incidence and prevalence. Using this type of registry is important for cancer control programs' assessment, for the defining and planning priority interventions, for cancer screening and for proper implementation other preventive measures, as well as for evaluation of the service effectiveness to determine the oncological patients' medical care dynamic observation. After the introduction of cancer registry in Georgia, the registered incidence of malignant neoplasms almost doubled (NCDC Annual Report 2016, 2015). A review of the latest data obtained from the registry indicates that it records more cancer cases than were known of before it was introduced. The cancer incidence rate derived from this registry is close to the average rates for both the European Region and the CIS (Medical Statistics, 2016).

Keywords: *cancer registries, cancer prevention, cancer control, cancer screening program, cancer surveillance, cancer history, cancer incidence rate, population-based survival public health planning, SEER.*

Introduction:

Cancer is a leading cause of death worldwide, accounting for 8.8 million deaths in 2015. More than 20 million new cases of cancer are predicted worldwide in 2025, with four fifths of the burden falling on low- and middle-income countries (LMICs) (World Health Organisation, 2017). To understand the local cancer situation and tackle the increasing incidence, there is a pressing need for planners to have relevant and unbiased data on the cancer burden in their communities. Physicians need cancer data to learn more about the causes of cancer and detect cancer earlier, thereby increasing the chance of finding a cure (Parkin, 2006). Cancer specialists make treatment choices based on accurate cancer data from such sources as reports from pathologists and cytologists. Even after treatment, cancer specialists still need cancer data to follow-up with the patient long enough to determine whether the treatment has worked and, if not, to determine why not. Cancer data may point to environmental risk factors or high risk behaviours, so preventive measures can be taken to reduce the number of cancer cases and resulting deaths (World Health Organisation, 2007).

A cancer registry is an information system designed for the collection, management, and analysis of data on persons with the diagnosis of a malignant or neoplastic disease (cancer) (IARC, n.d.). Cancer registries can be classified into three general types:

◊ Healthcare institution registries: maintain data on all patients diagnosed and/or treated for cancer at their facility. Healthcare facilities report cancer cases to the central or state cancer registry as required by law.

◊ Central registries: population-based registries that maintain data on all cancer patients within certain geographical areas.

◊ Special purpose registries: maintain data on a particular type of cancer, such as brain tumours (IARC, 2015).

The history of cancer registration:

The idea of using a written, catalogued registry of man's afflictions in order to understand them better dates to at least the late 16th century. Prompted by the seemingly random geographic ravages of the plague, the English Crown appointed elderly, epidemic-scarred women to prowl the countryside in search of the dead and dying. These 'Ancient Matrons' published weekly 'Bills of Mortality' for each parish, tabulating deaths by causes such as 'the purples' (probably leukemia), 'riting of the lights', 'consumption' (often an effect of cancer), and of course, the plague (Bellhouse, 1998). Just how this information was used is not recorded. Perhaps the royalty found it helpful to determine where the plague was active so they could be somewhere else.

Around 1665 a London businessman, John Graunt, created medical history by subjecting decades of mortality data to critical and mathematical analysis. He literally invented the science of medical epidemiology and statistics, publishing a pamphlet with 108 conclusions (Graunt, Mentioned, Upon, Society, & Warden, n.d.). The list included such revolutionary observations as the facts that women saw physicians twice as often as men yet lived longer, and plague epidemics moved outward from swampy areas. Graunt also was the first person to use mortality statistics to project population survival, probably by crudely fitting data samples to a logarithmic curve. For his efforts John Graunt became the first non-scientist appointed to the Royal Academy. A few years later Sir Edmund Halley, of comet fame, used Graunt's inspiration to create the first actuarial tables for an emerging French life insurance industry (Bacaër, 2011). The "life table" concept is now the backbone of the cancer outcomes analysis.

The first cancer registry began in London in 1728 (Wagner, 1991), and the first known hospital devoted to cancer patients opened in France in 1740 (Faguet, 2015). One of the first recorded uses of cancer patient data was the work of Sir Percival Potts in 1775, identifying the cause of scrotal cancer in chimney sweeps (Krush & Krush, 1982). An example of mandatory reporting of cases of specific diseases occurred with the Factory act in 1885 in England and Wales. It made epitheliomas, which were caused by tar and other petroleum products, reportable.

General cancer morbidity data was first collected in Germany, where all physicians and hospitals began to report cancer statistics in 1904. The first population-based cancer registry was set up in Hamburg (Germany) in 1926 (Tsoi, Chan, & Hirai, 2017). Three nurses visited hospitals and medical practitioners in the city at regular intervals. They recorded the names of new cancer patients and transferred data to a central index in the health department. This index was compared once a week with official death certificates (Becker-Hinrichs, 2012).

The first nationwide registrations were made in Norway and Denmark shortly after the war. Zaragosa, Spain, initiated a population based registry in 1960 (Navarro et al., 2010).

In the United States, cancer registration was first attempted in a limited way in 1921 in the bone sarcoma registry of Dr. Ernest Codman. A major problem Dr. Codman experienced were differences in nomenclature and classification of disease. This lead to a joint effort by the American Society of Clinical Pathologists and the American College of Surgeons to develop a standard classification and nomenclature to be used by all physicians for cancer cases.

The first hospital registry was established at Yale-New Haven Hospital in New Haven, CT, in 1926, and the first central or state registry was established in Connecticut in 1935 . In 1956, the Commission on Cancer of the American College of Surgeons supported the development of hospital -based registries by requiring a cancer registry for approved cancer programs.

In 1971, the National Cancer Act budgeted monies to the National Cancer Institute (NCI) for research, detection, and treatment of cancer and, in 1973, the Surveillance, Epidemiology and End Results (SEER) Program of NCI established the first national cancer registry (Role & Registrars, 2010). In October 1992, Congress established a National Program of Cancer Registries (Public Law 102-515, The Cancer Registries Amendment Act). The National Program of Cancer Registries Act was passed to help states without registries to develop a cancer data system and to assist those state registries already in existence (Galloway, Laimins, Division, & Hutchinson, 2016). In 1993 state laws emerged making cancer a reportable disease.

The International Association of Cancer Registries (IACR) was formed in 1966. The main objective of this association is to develop and standardize the collection methods across registries to make their data as comparable as possible (Whelan, Moore, & Park, 2010).

The legislation authorized the Centre for Disease Control and Prevention (CDC) to provide funds to states and territories to enhance existing cancer registries and to plan and implement registries where they do not exist. In 1995, 42 states and the District of Columbia received CDC support for cancer registries. Today, the CDC supports forty-five states, the District of Columbia, Puerto Rico, and the U.S. Pacific Island jurisdictions.

The advent of microcomputer registry systems in the 1980's created a new window of opportunity for making registry information work to the patient's benefit. Standardization of data collection has made it possible to pool data from multiple registries in such projects as the National Cancer Data Base (NCDB) of the Commission on Cancer (CoC - a division of ACoS).

At present, more than 200 population-based cancer registries exist in various parts of the world. They cover about 5% of the world's population, but the proportion is much greater in developed countries than in developing ones. Moreover, in developing countries, registries are more likely to cover urban areas, where access to diagnostic and treatment services is better. In most countries, however, population-based cancer registries cover only a proportion of the population (e.g., Colombia, India, Italy, United States). Some specialized registries that cover only the registration of specific age groups (e.g., childhood cancers in Oxford, UK) or particular cancer sites (e.g., gastrointestinal cancers in Dijon, France) have also been established. In addition, hospital-based cancer registries have been set up in a large number of hospitals worldwide.

Recorded information:

Information recorded in the Cancer Registry is divided into personal characteristics (at date of diagnosis) and tumor characteristics. The variables containing personal characteristics are the unique personal identification number, date of birth, sex, age at diagnosis, the municipality and county/ region, and the date of death (Chaudhry & Luthra, n.d.) The variables containing tumor characteristics are the diagnosis according to the 10th revision of the International Classification of Disease (ICD-10), modified diagnosis based on the 3th revision of the International Classification of Disease for Oncology (ICD-O-3) for topography, morphology and TNM classification for stage (where T denotes the size of the tumor, N denotes the presence of regional lymph nodes, and M denotes the presence of distant metastases)(Bray et al., 2014).

Information maintained in the cancer registry includes: demographic information, medical history, diagnostic findings, cancer therapy and follow up details. The data is used to evaluate patient outcome, quality of life, provide follow-up information, calculate survival rates, analyze referral pattern, allocate resources at regional or state level, report cancer incidence as required under state law, and evaluate efficacy of treatment modalities (Zachary et al., 2015).

Cancer registration data, however, provide more comprehensive, more valid and more detailed information on patient characteristics than can be obtained from death certificates(Teppo, Pukkala, & Lehtonen, 2009). Moreover, reliable cause-specific mortality data are available in most developed countries but in only a few developing countries. Thus, cancer registries may be the only way of obtaining information on the burden and patterns of cancer in developing countries, as well as providing a focus for research into etiology and prevention (Brawley, 2016).

Incidence rates:

A major activity of the cancer registries is the calculation of incidence rates. Incidence rate is defined as the number of new cases of disease, which occur in a defined population of disease free individuals, over a specified period of time (Coleman, Muir, & Menegoz, 1992). The incidence rate of cancer is generally expressed for 100,000 population over one year (or a block of few years)(Jensen & Storm, 1991). The International Agency for Research on Cancer, in its publication on The Cancer Incidence in Five Continents, provides such rates for a period of five years. The cancer registries calculate incidence rates for every 5year age category for each sex (age & sex specific incidence rates). The incidence rate when expressed for all ages is called crude incidence rate, and provides a direct estimate of the probability or risk of the illness for the concerned population. It is well known that cancer does not occur with uniform rate in different age groups. Thus, for comparison of incidence rate in different areas or for the same area over a long period, it is necessary to adjust the rates for variations in the proportion of population in different age groups (Silva, 1999). The generally adopted procedure is that of direct standardization, which applies the age & sex specific incidence rates of the area under consideration, to world standard population, to derive the number of cancer cases expected to occur in the standard population. Such age standardized (or adjusted) incidence rates are useful in international or secular comparisons (IARC, 2015).

Cancer control:

Cancer control planning without reliable data from cancer registries is prone to misplaced emphasis and wasted investment. This is exactly the position many countries still find themselves in at the beginning of the 21st century. Particularly in low- and middle-income countries, this situation reflects a lack of advocacy for the value of registries, a lack of trained staff and other resources, and a lack of prioritization for "counting cancers" in among the many demands on limited health care services.

Population-based cancer registries (PBCRs) provide such information and are a standard requirement for cancer control planning and evaluation in every country of the world. They are especially valuable in LMICs, where few other population-based data on cancer occurrence and outcome are available.

Hospital-based cancer registries are concerned with the recording of information on the cancer patients seen in a particular hospital. The main purpose of such registries is to contribute to patient care by providing readily accessible information on the subjects with cancer, the treatment they received and its result. The data are used mainly for administrative purposes and for reviewing clinical performance. Although these data may be used, to a certain extent, for epidemiological purposes, these registries cannot provide measures of the occurrence of cancer in a defined population because it is not possible to define their catchment populations, that is the populations from which all the cases arise.

The World Health Organization (WHO) notes that population-based cancer registries (PBCRs) are a core component of cancer control strategy (WHO, 2011). There are important roles for PBCRs in estimating the current cancer burden, examining recent trends, and predicting their probable future evolution. The scale and profile of cancer can be evaluated in terms of incidence and mortality, but other dimensions are often considered, including prevalence, person-years of life lost, and quality- or disability-adjusted life years. An appraisal of the current situation provides a framework for action, and cancer control planning should include the setting of explicit targets, which permits the success (or otherwise) of interventions to be monitored.

Cancer registry in Georgia:

The major causes of death in Georgia are related to no communicable diseases (NCDs) including circulatory diseases, cancer, diabetes and respiratory diseases. Due to the collapse of the registration system in the country, which interrupted surveillance of cases of some chronic diseases the availability of consistent data on malignant neoplasms and cancer morbidity in Georgia is limited. Reported cancer incidence and mortality rates from malignant neoplasms in Georgia are therefore significantly lower than the average rates for both the CIS and the European Region (2017 The Regional Office for Europe of the WHO, n.d.).

Cancer is becoming a global health problem and the number of cancer cases in Georgia is rising. Being an European country, Georgia has its share of cancer burden. However, population-based data in cancer incidence, prevalence, and mortality in Georgia were not available and most published cancer cases were based on estimates from hospital-based information sources. Most of these sources are maintained by individual health institutions and are mostly paper based.

On 1 January 2015, Georgia established a population-based cancer registry in order to improve the epidemiological surveillance of cancer.

Cancer registration in Georgia follows international standards and recommendations. The Georgian Cancer Registry covers the entire population of Georgia. Doctors in all health care facilities are required to send full details of every new cancer case to the central registry. In each oncologist is responsible for registering incidence, diagnosis, and treatment details. All health care providers in the state of Georgia are required to report specific information on cancer in their patient population to the Georgia Comprehensive Cancer Registry. This includes all facilities providing diagnostic evaluations and/or treatment for cancer patients, including but not limited to: Hospitals, Outpatient surgical facilities, Laboratories. Radiation therapy facilities, Medical oncology facilities, Physicians and Physician's Offices. 210 medical facilities, including 36 labs, were involved in reporting system, 19061 forms were recieved during one year reporting period. Consultations of the personnel, involved in the cancer registration, correction of the reporting forms, and software support was conducted permanently. Cancer Registry 2015 data analysis was prepared and published.

Data collected within this registry significantly changed perspective regarding cancer morbidity. In 2015, according to the CPR data, there were registered 10506 new cases of malignant neoplasms, including no melanoma skin cancers and cancers in situ. According to recomm endations of the International Agency for Research on Can cer (IARC), all cancer cases except no melanoma skin cancers and cancers in situ, must be used for statistical calculations. In 2015, this number constitutes 9598 cases. The incidence rate is 258.2 per 100000 populati on; this is close to the IARC estimates (NCDC, 2016 Health care). The following cancer stage distribution for all localization of cancers was found: the first stage – 20%, second – 20%, third - 23%, fourth - 28%, unknown - 9%.

Based on the data from population based cancer registries in Georgia the estimated number of new cancer cases for the year 2016 was 10097 The incidence rate for 100,000 population was 271.5, Among them, 44% were men and 46% were women.

Implications and future directions:

Cancer registries are recognized as being more or less indispensable components of national cancer-control programs, and are likely to be founded in countries that implement such programs if they do not already exist. There are several advantages to the ongoing registration of cancers, rather than one-off surveys, but the desirability of national coverage, rather than sample sites, is less obvious. A limited geographic coverage is adequate for many descriptive and surveillance activities, and although national data are clearly superior, especially if follow-up of specific cohorts is required (to avoid losing track of migrating subjects), the costs involved should be weighed against the benefits. The expanding roles of registries in monitoring factors that influence outcome (survival and quality of life), and the nature and quality of the care received by cancer patients, demands a dataset that includes many more variables than has traditionally been collected. Sometimes this can be achieved through linkage to other files; sometimes an in-depth study of sample cases will be the more reasonable approach. Cancer registration has come a long way in the last 60 years, and future expansion in geographic coverage and scope of work seem reasonable predictions, unless registries fall foul of the objections to their work by the informed-consent ethicists.

Conclusion:

The uses of population-based cancer registration data may be summarized as follows: (1) They describe the extent and nature of the cancer burden in the community and assist in the establishment of public health priorities. (2) They may be used as a source of material for etiological studies. (3) They help in monitoring and assessing the effectiveness of cancer control activities. Some of these functions can be fulfilled using mortality data derived from vital statistics systems.

Population-based cancer registries seek to collect data on all new cases of cancer occurring in a well defined population. Usually, the population is that which is resident in a particular geographical region. As a result, and in contrast to hospital-based registries, the main objective of this type of cancer registry is to produce statistics on the occurrence of cancer in a defined population and to provide a framework for assessing and controlling the impact of cancer in the community. Thus, the emphasis is on epidemiology and public health.

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Trends of obesity and overweight among foreign students in Tbilisi, Georgia

Bernardita Belén Ganga[1], Opeyemi Esther Olorunnisola[1], Emmanuella Eloho Onogbeye[1], Jenette Belole[1], Mariam Lobjanidze[2], Maia Gogashvili[3]

The University of Georgia, School of Health Sciences and Public Health
[1]Student, Nursing for International Students; [2] Supervisor, MPH; [3]Supervisor, MD, PhD

Summary

We determined body weight increase among international students in Tbilisi, Georgia. The objective was to assess the prevalence of overweight and obesity among the students and find factors associated with it. Methods: Height and weight were measured in all participants and body mass index (BMI) of each individual was calculated. All participants completed a voluntary and anonymous semi-structured questionnaire which included questions regarding personal data, lifestyle and eating behaviours. 107 students were males (52.7%) and 80 females (43.7%) in the age range of 18-40 years. Mean age = 21 years. Results: 86% of sample population did not live with their family which affected their eating habits. 42.3% were overweight/obese, 38% overweight (BMI 25-29.9) and 4.3% were obese (BMI >30). 49.2% had normal weight (BMI 18.5-24.9) while 8.5% were underweight (BMI <18.5). 77% of students did not smoke while 85% did not use alcohol. 41.2% of the students slept less than 6 hours a day. Stress level was 82.3%. Reporting eating habits, only 20% had breakfast every morning and 64.3% had two to one meal a day. Students had less serving of fruits and vegetables than required. 53.3% had less than 1 liter of water daily. 48% engaged in fast food daily, 46% were having more than two snacks a day and 34% had sodas either daily or 2-4 times a week. More than 50% of students were not engaging in the required amount of physical activity. Conclusion: The study found a high prevalence of overweight and obesity. Several health risk practices are identified including: physical inactivity, inadequate intake of fruit and vegetables, skipping meals, inadequate sleep, high stress levels and inadequate water intake. Interventions to prevent overweight and obesity and promote healthy lifestyle practices among students should be initiated.

***Key words**: overweight, obesity, BMI, lifestyle, eating habits.*

Introduction

Obesity and overweight have both been described as anomalous accumulation of excessive body fat which may be harmful to health. There is no single cause to explain all cases of obesity and overweight but most studies implicate imbalance in the amount of calories consumed and those expended. (WHO, 2017)[1] Furthermore, Obesity has reached the level of epidemic proportions according to the World Health Organization, with an approximate number of 1.4 billion worldwide overweight and 300 million persons clinically obese. World health Organization affirms that obesity and overweight are leading global health problems (Doak et al., 2012, Rolland-Cachera, 2011). Those facts called our attention and led us to review published data regarding overweight and obesity among university foreign students around the world. (We will not review obesity on the general population).

In the past decade, lifestyle changes and possible predictors of weight changes during the transition have been studied. The sources stipulate the following factors as being the main cause that is stress, alcohol drinking, unhealthy eating and physical inactivity are thought to play key roles, and exposure to obesogenic environment where students are frequently exposed to and consume savory foods with hidden fats and sugars that can impaire metabolism and lead to obesity [5].

Globally, there is rising prevalence of overweight and obesity in both developing and developed countries. The rate of obesity has tripled in developing countries over the past 20 years as they rapidly become more urbanized, with increased consumption of high calorie foods and adoption of a more sedentary lifestyle.

International students offer a unique opportunity to study the extent to which environment causes obesity. Because international are less aware of the social and cultural conditions in and around the university campus we argue that the prevalence of obesity in the surrounding area is plausibly exogenous to international students' choice of university. In this study, we survey international students studying at two universities in Tbilisi, Georgia.

Dietary habits usually depend on lecture schedules attended by students and availability of food inside or in the vicinity of the university campus. As a result of the expansion in the fast-food market and lack of appropriate food courts, students usually face meal skipping, inadequate variety of foods, and unhealthy snacking. University population is divided into those who continue to live with their parent and those that are living with friends or alone.

Foreign students either live alone, with friends or with family members. For all, the beginning of the university matches with more freedom and independence and is often the first time that young people assume the responsibility to choose and prepare foods. Therefore, the aim of the current work was to assess the prevalence of overweight and

obesity among foreign university students in Tbilisi, Georgia and it associated factors.

Study Design

Two universities were selected in Tbilisi, Georgia for this study; The University of Georgia, the biggest private university in the country and the Tbilisi State Medical University. These institutions were chosen respectively because they accommodate more international students.
In total 203 students who were chosen randomly to participate in the survey. 16 participants with missing information on nationality, age or gender, and those who didn't provide signature as a sign of consent were excluded, leaving 187 participants (107 males and 80 females) from 26 different countries.
A cross sectional survey using a semi structured questionnaire was given to participants to fill up. Data obtained through the questionnaire included: personal information, life style behaviors and eating behaviors.

Methods

Height and weight were measured in all participants and the body mass index (BMI) of each individual was calculated. Body mass index classes were calculated according to the International Obesity Task Force standards (underweight ≤ 18.5, normal weight [18.5-24.9], overweight [25-29.9] and obese ≥ 30).

Height and weight were measured using standardized protocols. Weight was measured without shoes to the nearest 0.1 kg using a single previously standardized portable weighing scale. Height was measured without shoes and recorded to the nearest 0.1 cm. The body mass index (BMI) of each individual was calculated as weight in kilograms divided by height in meters squared.

The students completed a voluntary and anonymous questionnaire. The questionnaire included 29 questions on their personal data, life style and eating behaviors.
The individual characteristics analyzed were: gender, age, nationality, major/bachelor, semester of studies, how long the student have been in Georgia, whom they live with, and weight before coming to Georgia.

The life style items analyzed were: smoking, alcohol drinking, physical activity, sleeping hours, working status, and stress levels.

The eating behaviors analyzed were: amount of fruits and vegetables intake, frequency of red meat, chicken, fish, sodas, fast food, snacks and of water intake.

The questionnaire was pre-tested by a pilot group of 13 students to assure its validity and reproducibility before the study was conducted.

Descriptive analysis of data; including the mean, frequencies, range and percentage was conducted using Microsoft Excel.

Ethical Consideration

This research was conducted with approval from the heads of the selected Georgian universities. Informed consent forms were signed by each student, in order to be able to work with the data provided by them. Students were informed that their participation was both voluntary and anonymous.

Results

Characteristic of participating students are presented in Table 1, 2 and 3. From 203 questionnaires received, only 187 were taken in consideration. Most of the participants included in the analysis were males (57.2%), while female participation was 42.8%. The mean age of participants was 21 years, and the age range was from 18 to 40 years. From the 187 participants, about 88% were freshmen, sophomores or junior students, 68.5%, 15.5% and 4.3%, respectively. 11.7% were senior students.

From the total sample more than 86% do not live with a family member. (26.7% stated to live alone, 55.6% live with friends and 13.4% stated to live with a family member.

Table 1. Presents distribution of participants by gender

Gender	Number of Students	%
Female	80	42.8
Male	107	57.2
Total	187	100

Table 2. Presents students' distribution by year of studies

Student Classification	Number of Students	%
Freshmen	128	68.5
Sophomores	29	15.5
Juniors	8	4.3
Seniors	22	11.7
Total	187	100

Table 3. Presents living arrangement of the students

Cohabit	Number of Students	%
Alone	50	26.7
Family	25	13.4
Friends	104	55.6
Other	8	4.3
Total	187	100

Among life style behavior; 77% of the students stated not to smoke, 85% stated not to drink any alcohol beverages. More than 67% of the participants stated to exercise. 50.2% declared to exercise less than two hours a week, 28.3% exercise between two and four hours a week, 15% exercise

between four and six hours a week and 6.5% exercise more than six hours a week. Detailed description of smoking, alcohol intake and physical activity is presented in Tables 4 and 5.

Table 4. Presents smoking, alcohol and physical activity tendency among students

	Smoke		Alcohol		Physical activity	
	Number of students	%	Number of students	%	Number of students	%
Yes	43	23	28	15	126	67.4
No	144	77	159	85	61	32.6
Total	187	100	187	100	187	100

Table 5. Presents number of hours per week each participant exercises

Exercise hours per week	Number of Students	%
Less than 2	94	50.2
2 to 4	53	28.3
4 to 6	28	15
6 to 8	4	2.2
More than 8	8	4.3
Total	187	100

Regarding sleeping behavior, 1.6% of the students stated to sleep an average of less than 3 hours per day, 39.6% sleep between three to six hours per day, 51.9% sleep between six to nine hours and 6.9% state to sleep more than 9 hours per day. Detailed description of sleeping behavior is shown in Table 6.

Table 6. Presents the hours of sleep that each student gets daily

Sleep hours per day	Number of Students	%
0-3	3	1.6
3-6	74	39.6
6-9	97	51.9
More than 9	13	6.9
Total	187	100

As shown on the table 7, we asked the students how stress they feel on a regular bases. 23.5% of the students said to feel stress most of the time, 58.8% sometimes, 11.3% rarely and 6.4% stated not to feel any type of stress.

Table 7. Presents self appraisal of stress levels by each student

Stress	Number	%
Most of the time	44	23.5
Sometimes	110	58.8
Rarely	21	11.3
Never	12	6.4
Total	187	100

Among eating behavior, the majority of the students (52%) reported eating just two meals per day, 12.3% eat one meal per day, 27.8% eat three meals per day, 5.8% eat four meals per day and just 2.1% eat five meals per day. The majority of the students, 40.1%, eat two snacks per day, 13.9% eat one snack per day, 25.1% eat three snacks per day, 4.3% eat four snacks per day and just 1.6% eat five snacks per day. 15.5% of the participants reported the intake of sodas daily, 18.2% drink sodas two to four times a week, 26.2% drink sodas once a week, 5.9% drink sodas less than once a week, 12.3% drink sodas once in a month and 21.9% states not to drink any type of sodas. 9.6% of the sample stated to eat fast food daily, 38% eat fast food two to four times a week, 30% eat fast food once a week, 5.9% eat fast food less than once a week, 11.7% eat fast food once in a month and just 4.8% states not to eat any type of fast food.

32.2% reported to eat one fruit per day, 28.3% eat two fruits per day, 7.5% eat three fruits per day, 4.8% eat four fruits per day, 1% states to eat five fruits per day, and 26.2% states not to eat any fruit during the day. 33.7% states to eat one vegetable per day, 29.4% eat two vegetables per day, 11.2% eat three vegetables per day, 8.6% eat four vegetables per day, 5.9% eat five vegetables per day and 11.2% states not to eat any vegetable during the day. 20.3% of the sample stated to have breakfast everyday, 51.9% have breakfast sometimes, 18.7% have breakfast rarely and 9.1% states to never have breakfast. From the population surveyed 17.1% reported to drink one to two glasses of water per day, 36.4% three to four glasses of water per day, 25.1% five to six glasses of water per day, 16.6% seven to 8 glasses of water per day and just 4.8% reported to drink more than 9 glasses of water per day.

Detailed description of eating behavior is presented in Tables 8, 9, 10, 11, 12.

Table 8. Presents frequency of meals and snacks eaten per day by each student.

Frequency Per day	Meals		Snacks	
	Number of students	%	Number of students	%
0	0	0	26	13.9
1	23	12.3	75	40.1
2	97	52	47	25.1
3	52	27.8	28	15
4	11	5.8	8	4.3
5	4	2.1	3	1.6
Total	187	100	187	100

Table 9. Presents frequency of sodas and fast food intake by each student

Frequency Per month	Sodas		Fast Food	
	Number of students	%	Number of students	%
Daily	29	15.5	18	9.6
2 to 4 times a week	34	18.2	71	38
Once a week	49	26.2	56	30
Less than once a week	11	5.9	11	5.9
Once in a month	23	12.3	22	11.7
Never	41	21.9	9	4.8
Total	187	100	187	100

Table 10. Presents servings of fruits and vegetables per day of each student

Servings Per day	Fruits		Vegetables	
	Number of students	%	Number of students	%
0	49	26.2	21	11.2
1	62	32.2	63	33.7
2	51	28.3	55	29.4
3	14	7.5	21	11.2
4	9	4.8	16	8.6
5	2	1	11	5.9
Total	187	100	187	100

Table 11. Presents how often students eat breakfast

Breakfast	Number of Students	%
Everyday	38	20.3
Sometimes	97	51.9
Rarely	35	18.7
Never	17	9.1
Total	187	100

Table 12. Presents amount of glasses of water intake per day by each student

Glass water/day	Number	%
1 to 2	32	17.1
3 to 4	68	36.4
5 to 6	47	25.1
7 to 8	31	16.6
More than 9	9	4.8
Total	187	100

As shown in the Table 13, among men the prevalence of underweight was 3.7%, normal weight 23.5%, overweight 27.7% and obesity 2.7%, while among women the prevalence of underweight was 4.8%, normal weight 25.7%, overweight 10.7% and obesity 1.6%. Overall, 42.3% were overweight or obese; men (30%) were significantly more overweight or obese than women (12.3%).

As part of our questionnaire we asked the students their weight before coming to Georgia and we compared it with their actual weight. This gave us the information that they either increased or decreased their weight during their stay in Georgia. As shown in the Table 14, 27.3% of the female students increased their weight while 13.4% lost weight. As for the males; 28.9% increased in weight and 24% decreased in weight.

Table 13. Presents the number of male and female university students by country and their BMI classified as underweight, normal weight, overweight and obese

Country	Underweight < 18.5		Normal [18.5-24.9]		Overweight [25-29,9]		Obese ≥30	
	F	M	F	M	F	M	F	M
Afghanistan						1		
Azerbaijan					1			
Cameroon					1			
Chile					1			
Egypt			2	2		3		
Fiji				1	1	1		
India	4	2	12	9	6	15	1	1
Iran	2	1	15	3	3	6		2
Iraq	2		4	9		11		
Israel			1	3		3		
Jordan			1	1	1	1		1
Lebanon				2		2		
Mauritania			1					
Myanmar		1						
Nigeria		1	7	1	1		1	1
Palestine				3		1		
Russia			1					
Somalia	1							
Sri-Lanka						2		
Sudan		1	2	1	1			
Syria			1	7	2	3		
Tunisia		1			1			
UAE			1					
USA					1		1	
Yemen				1				
Zimbabwe				1				
N/A						2		
Total	9	7	48	44	20	51	3	5
Total %	4.8	3.7	25.7	23.5	10.7	27.3	1.6	2.7

Table 14. Presents the amount of students that either increased or decreased weight during their stay in Georgia

Weight	Number		%	
	Female	Male	Female	Male
Increased Weight	51	54	27.3	28.9
Decreased Weight	25	45	13.4	24
N/A	4	8	2.1	4.3
Total	80	107	42.8	57.2

Discussion:

We studied the reason for weight gain among 187 students from 26 different countries. More than 86% of student sample do not live with their family or under supervision of a guardian which in turn affected their eating habits, causing them to engage in unhealthy eating habits. 82.3% of students are reported to be stressed most of the time or sometimes. Findings also reveal that 41.2% of the students sleep less than six hours a day, while according to the sleep foundation, young adults (18-25 years old) should get the appropriate seven to nine hours of sleep daily [25]. 77% of students reported not to smoke and 85% do not drink any alcohol. With regards to the effect of tobacco and alcohol use on weight gain, we didn't find any correlation. From our results, we cannot say that smoking and alcohol intake does affect weight gain. Only 23% of the sample population reported smoking while just 15% reported alcohol use which is contrary to finding from previous studies that shows that tobacco and alcohol use were associated with overweight and obesity [14, 15, 16, 17].

On physical activity, 67% of the students stated that they engaged in some kind of physical activity, but more than 50% were not engaging in 150 minutes of moderate-intensity aerobic physical activity throughout the week or at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week recommended by WHO [27].

In regards to their eating habits, only 20% of the students have breakfast every day, and 64.3% said they ate only two to one meal a day which is not in line with the three to five times day recommended [24]. 53.5% of participants stated to drink less than one liter of water per day; when the recommended amount of water per day is at least 2 to 2.5 liters a day according to Mayo Clinic [23]. Fruit intake and vegetables was not really a trend among students as their intake of both averaged one to three servings per day, but according to the American heart organization it should be four to five servings of each per day [26]. There is correlation between our study and previous findings [18], where students consumed low amounts of fruits and vegetables.

Factors contributing to weight gain included; daily or two to four times a week intake of fast food (48%), over snacking; 46% reported to eat more than 2 snacks per day and 34% of student from sample reported to drink sodas either daily or two to four times per week.

Our meta-analysis allowed us to identify the students with the greatest risk. There were 107 males and 80 females in which overall 8.5% were underweight, 49.2% were normal, and 38% were overweight and 4.3% were obese, which agrees with findings from previous studies [13, 18, 19, 21].

The group that presented the majority cases of overweight and obesity by country were Indian males (55.9%) and Iraqi males (55%).

On the contrary, we encountered unexpected findings that some students lost weight (37.4%) and most of them attributed this weight loss to being formerly overweight and their desire to lose weight. 56% of students that completed the questionnaire have gained weight during their study period in Georgia.

The strength of our study is that we were able to gather information from students from different geographical regions that share at least one thing in common which is to be currently living in Georgia.

Study limitation:

This study encountered a systematic bias as students from Iraq, Iran, Sudan, Jordan and some students from India were fasting due to Ramadan, which may have affected their response regarding their eating habits and their current weight.

Some questionnaires were excluded from this study because of inappropriate or missing data. In addition, considering that this study was self-reported, some responses could have been under or over reported.

Conclusion:

The result of this research reveals the increased prevalence of overweight over obesity among students. Overweight and obesity was more common among male students than females. As for normal weight was less than 50% of the total sample of participants.

Although this study had some limitations and was subject of bias, it findings are consistent with the general trends of an increasing prevalence of overweight, as results of decrease physical activity and exercise, the emergence of numerous resultant health risks and the great cost obesity necessitating heightened efforts towards controlling and reducing this trend. Therefore, there is a need to establish effective public health prevention and health promotion campaigns among students in order to curtail the future implications of overweight and obesity on their health.
Several specific health risk practices were identifies that can be utilized in health promotion programs. Universities need to address their obesogenic environment and the need for the university administration to promote healthy life styles as proposed by the WHO Global Strategy on Diet,

Physical Activity and Health. Students themselves should be engage in this process since they are also part of the medical community.

Acknowledgments:

We are grateful to Maia Gogashvili MD, PhD, Professor and Head of Nursing Department at University of Georgia, Mariam Lobjanidze and Professor Davit Tophuria, Head of the Department of Overseas Students Education in Tbilisi State Medical University for their valuable support during the research study.

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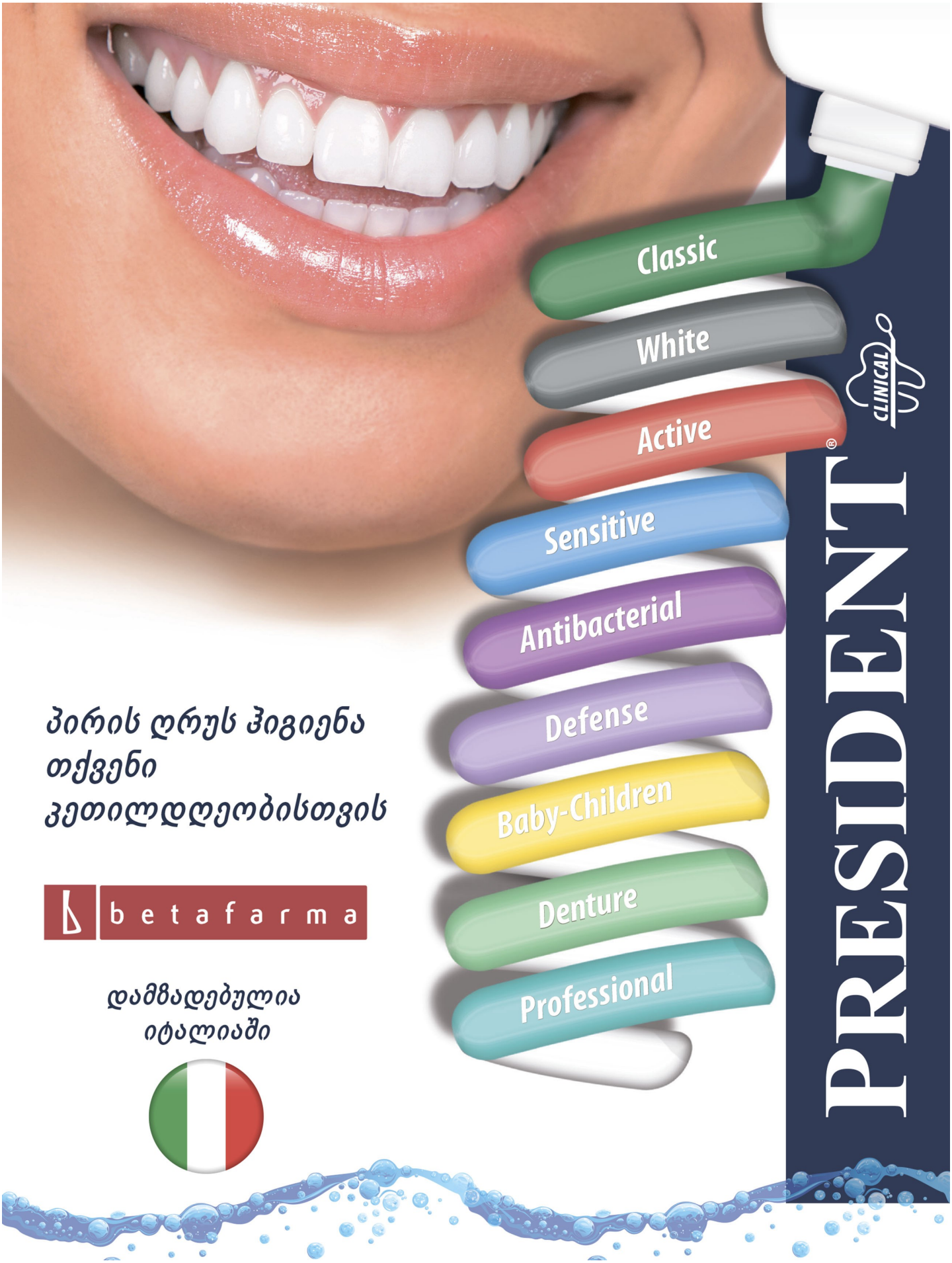
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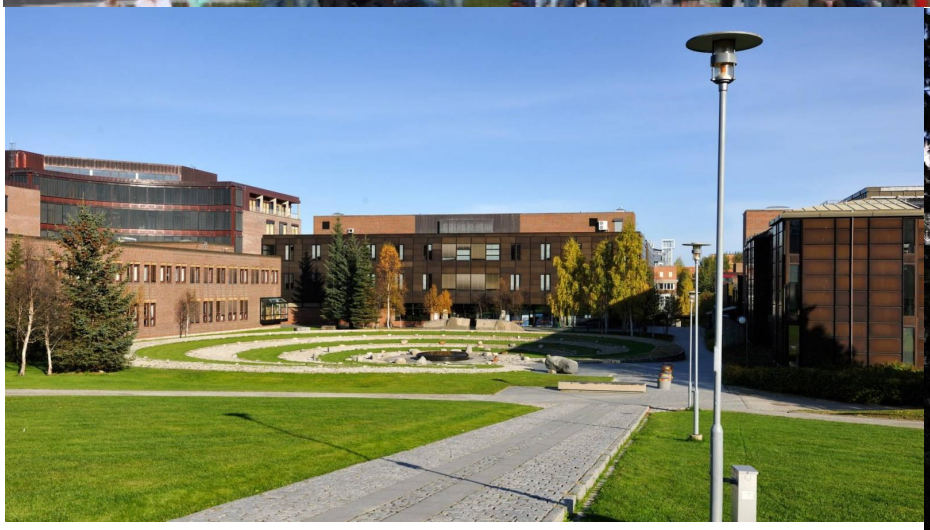

Caucasus Journal of Health Sciences and Public Health

Volume 2, Issue 2, June 2018

www.caucasushealth.ge

E ISSN 2449-2450
ISSN 2449-2647

The University of Georgia Publishing House

ISSN 2449-2647