



**GARO MEGHRIGIAN INSTITUTE FOR PREVENTIVE OPHTHALMOLOGY
CENTER FOR HEALTH SERVICES RESEARCH AND DEVELOPMENT
SCHOOL OF PUBLIC HEALTH
AMERICAN UNIVERSITY OF ARMENIA**

Garo Meghriyan Institute for Preventive Ophthalmology

2013 Annual Report

Prevent Avoidable Blindness



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Executive Summary

The Garo Meghrigian Institute for preventive Ophthalmology (Meghrigian Institute) is part of the Center for Health Services Research and Development (CHSR) of the School of Public Health, American University of Armenia (AUA). Meghrigian Institute's mission is to prevent avoidable blindness in Armenia.

This Annual Report highlights the main activities and accomplishments of the Meghrigian Institute in 2013. Meghrigian Institute conducted a 4-day training on “*Ophthalmic Diseases and Modern Diagnostic and Treatment Methods*” among ophthalmologists of Gegharkunik and Tavush marzes in May 11-26, 2013. The training course was organized at the Lions Regional Ophthalmic Unit (ROU) in Sevan. The training course helped participants to refresh their knowledge and skills and stay current with advances in ophthalmology.

In October 2013, Meghrigian Institute completed the project aimed at reducing the incidence of avoidable blindness and visual impairment among socio-economically disadvantaged population in Shahumian Region of Artsakh. Meghrigian Institute conducted free eye screenings for the residents of Shahumian Region. All patients diagnosed with eye pathologies received free ophthalmic consultation about their diagnosis and about their further treatment. Seventy two patients who had refractive errors or presbyopia received eye glasses from Meghrigian Institute.

World Sight Day (WSD) is an annual day of awareness to focus global attention on blindness and vision impairment. The international theme for World Sight Day 2013 was Universal eye health, with a call to action – “Get your eyes tested”. To celebrate the World Sight Day, Meghrigian Institute donated ophthalmic trial lens sets and trial frames to the ophthalmic offices of polyclinics and health centers of five main towns in Gegharkunik (Sevan, Gavar, Martuni, Vardenis and Tchambarak) based on the needs assessment that Meghrigian Institute conducted in these primary care facilities. In addition, Meghrigian Institute organized free screenings of the population to promote the idea of “Get your eyes tested” and gave eye frames to those who were diagnosed to have refractive errors. Overall, 232 patients underwent ophthalmic examinations.

The researchers at Meghriyan Institute submitted the abstract to the EUPHA conference entitled “The prevalence of and major risk factors associated with diabetic retinopathy in Gegharkunik region of Armenia, 2012”. The abstract was accepted for moderated poster presentation. It was presented in the EUPHA conference and published in the European Journal of Public Health in 2013.

The researchers at Meghriyan Institute submitted the abstract entitled “Visual impairment and depression among socially vulnerable older adults in Armenia” to the World Ophthalmology Congress 2014. It was accepted for oral presentation.

Meghriyan Institute provided eye screenings to 330 patients in Armenia and Artsakh, and distributed 87 free eye glasses and 101 eye frames to the population in need in 2013.

Introduction

The Garo Meghrigian Institute for Preventive Ophthalmology (Meghrigian Institute) is part of the Center for Health Services Research and Development (CHSR) of the School of Public Health, American University of Armenia (AUA). Meghrigian Institute's mission is to prevent avoidable blindness in Armenia.

The main objectives of the Meghrigian Institute are to:

- Conduct scientific investigations of ophthalmic epidemiology to increase understanding of eye disease in the community;
- Link ophthalmologic services with expertise in organizing, financing and delivery of services to increase the utilization of ophthalmologic care in Armenia;
- Educate eye care providers and the general public on scientific advances in detecting, preventing, and treating eye disease and in translating these advances into nationwide clinical practice;
- Establish an ophthalmic care and prevention network to expand service delivery to underserved populations in need of affordable, accessible, and high quality eye care services for prevention and treatment of blindness at all levels;
- Develop partnerships with organizations that are interested in blindness prevention and are capable of furthering the achievements of Meghrigian Institute's goal;
- Train the future professionals for blindness prevention activities in Armenia;
- Establish a regional blindness prevention network for the Caucasus, emphasizing underserved areas and minority populations.

This report highlights the main activities and accomplishments of the Meghrigian Institute in 2013.

Activities and accomplishments

1. Meghrigian Institute Completes Ophthalmic Trainings in Gegharkunik and Tavush marzes

Meghrigian Institute for Preventive Ophthalmology conducted a 4-day training on “*Ophthalmic Diseases and Modern Diagnostic and Treatment Methods*” among ophthalmologists of

Gegharkunik and Tavush marzes in May 11-26, 2013. The training course was organized at the Lions Regional Ophthalmic Unit (ROU) in Sevan. Four of the participants were from Martuni, Gavar and Sevan towns of Gegharkunik marz and two participants were from Ijevan and Berd towns of Tavush marz.

Dr. Varsik Hakobyan, an Ophthalmic Consultant at Meghrigian Institute and an experienced practicing ophthalmologist, conducted the training course, which covered anatomy and physiology of eyes, refractive errors, main eye diseases, and new methods in diagnostic and treatment procedures. All participants received certificates from the Meghrigian Institute in recognition of successful completion of the course. The training course helped the participants to refresh their knowledge and skills and stay current with advances in ophthalmology. By enhancing the professional skills of ophthalmologists in Armenian marzes, Meghrigian Institute helps to improve the quality of ophthalmic care available to patients living in marzes and prevent avoidable blindness in Armenia.



2. Meghrigian Institute Completed Eye Screening among Adult Population in Shahumian Province of Artsakh

In October 2013, AUA's Garo Meghrigian Institute for Preventive Ophthalmology completed a project aimed at reducing the incidence of avoidable blindness and visual impairment among socio-economically disadvantaged population in Shahumian region of Artsakh. Meghrigian Institute conducted free eye screenings for the residents of Karvachar and Aknaberd towns, as well as Nor Brajur, Nor Verinshen, Tsar, Getashen, Dadivanq, Nor Erqej, Nor Karachinar, Yeghegnut and Nor Manashid villages. Overall, 98 patients received eye screenings. All patients diagnosed with eye pathologies received free ophthalmic consultation about their diagnosis and further treatment. Seventy two patients who had refractive errors or presbyopia received eye glasses from Meghrigian Institute. Some of them received two eye glasses for both near and far vision. Meghrigian Institute plans to continue its work in Artsakh.





3. Report on Eye Screenings in Kashatagh and Shahumyan Provinces of Artsakh

Visual impairment and blindness are major public health problems causing significant suffering, disability, loss of productivity, and diminishing quality of life for millions of people. Vision disability is one of the top 10 disabilities among adults 18 years and older worldwide.

The Republic of Nagorno-Karabakh (Artsakh) is divided into seven administrative provinces. The economy and health system of Artsakh was completely destroyed during the war (1991-1994). Kashatagh is one of the seven provinces of Artsakh and the largest by area.

Shahumian is the least populated province of Artsakh. In Kashatagh and Shahumian provinces, medical care is scarce, of uneven quality, and often inaccessible due to poor roads and transportation. Village-based facilities are practically nonexistent. Those who need primary care must travel to the underequipped, overburdened district hospital, 2-3 hours away from most of the villages.

Meghrigian Institute for Preventive Ophthalmology aimed to reduce the incidence of blindness and visual impairment through provision of free ophthalmic examination and free eye glasses to the people living in Kashatagh and Shahumian provinces of Artsakh. The project team conducted a cross-sectional interviewer-administered survey along with free eye screenings among adult residents of Kashatagh and Shahumian. A total of 240 residents (146 from Kashatagh and 94 from Shahumian) participated. Face to face interviews with adult population living in the target areas were conducted using a structured questionnaire containing questions about demographic data, education, socio-economic status, eye disease history, non-communicable diseases, and healthy lifestyle (smoking, physical activity and drinking).

About 61.0% of participants were from Kashatagh, and 39.0% from Shahumian. Mean age of the participants was 49, ranging from 18 to 75 years. Females comprised 65.3% of the sample. About 72.5% of participants had at least one non-communicable disease. About 23.0% were current smokers; 60.2% of men and 3.2% of women reported to be current smokers. Overall, 60.0% of participants were physically active. Almost sixty percent of all participants had never/seldom applied to ophthalmologists. Forty six percent of participants had refractive errors. In this sample 20.6%, 26.9% and 1.7% of participants had nearsightedness, farsightedness and astigmatism, respectively. Sixty percent of total participants had presbyopia. Eye diseases such as eyelid disease, conjunctivitis, pterygium, cornea diseases, strabismus, glaucoma and destruction of vitreous were diagnosed in 16.2% of participants. About 7.5% of participants were diagnosed with cataract. Retinal diseases such as pigmented retinopathy, hypertonic retinopathy, diabetic retinopathy, optic nerve disease, angiosclerosis, hypertonic angiopathy and myopic retinitis were diagnosed in 13.2% of patients.

All participants in need received prescription of eyeglasses and consultation about their further treatment. Eighteen percent of patients received treatment prescription. About 76.2% of all participants had some type of refractive error or eye disease. Seventy three percent of patients from Kashatagh received free eye frames and 76.6% of patients from Shahumian received free eye glasses from Meghriyan Institute.

Timely screenings for eye problems and increasing knowledge about the importance of annual eye examinations in this population could facilitate early detection of visual pathologies and help to prevent vision loss.

4. Celebration of World Sight Day (WSD) 2013

Garo Meghriyan Institute for Preventive Ophthalmology Strengthens Ophthalmic Care in Gegharkunik Marz

Since 2003, Meghriyan Institute has continuously strengthened primary and secondary level eye care services in Gegharkunik through establishing the Lions Regional Ophthalmic Unit (ROU) in Sevan in collaboration with the Ararat Lions Club, enhancing rural examination centers with basic ophthalmic equipment and supplies, implementing eye screenings (among school children,

general population living in remote areas of the region, and diabetic patients), and ophthalmic trainings of ophthalmologists, primary health care specialists, and nurses including the school nurses.

World Sight Day (WSD) is an annual day of awareness to focus global attention on blindness and vision impairment. The international theme for World Sight Day 2013 was Universal eye health, with a call to action – “Get your eyes tested”. To celebrate the World Sight Day, Meghriyan Institute donated ophthalmic trial lens sets and trial frames to the ophthalmic offices of polyclinics and health centers of five main towns in Gegharkunik (Sevan, Gavar, Martuni, Vardenis and Tchambarak) based on the needs assessment that Meghriyan Institute conducted in these facilities. In addition, Meghriyan Institute organized free screenings of the population to promote the idea of “Get your eyes tested” and gave eye frames to those who were diagnosed to have refractive errors.

Overall, 232 patients underwent ophthalmic examinations. Various eye diseases were detected among screened population such as glaucoma, cataract, conjunctivitis (chronic & allergic) and diabetic or hypertonic retinopathy. All patients diagnosed with an eye disease received medical consultation. In addition, the patients having diseases other than refractive error or presbyopia were referred to the ROU in Sevan for further diagnosis and treatment.

Visual impairment and avoidable blindness are global public health problems, since they lead to disability, suffering, and loss of productivity. Visual impairments could be easily diagnosed and corrected at early age to avoid further complications. Donated equipment and continuous population screenings will help with early detection of refractive errors in Gegharkunik marz.

The National Public TV covered the event (see the links below).

<http://www.youtube.com/watch?v=7fRTEpxhFN8>

<http://gegharkunik.gov.am/news/item/2013/10/09/tesoxutyun/>

<http://www.nt.am/am/news/187044/>



5. Presentation at the European Public Health Conference 2013

The research team of the Meghriyan Institute submitted the abstract to the European Public Health Conference entitled “The prevalence of and major risk factors associated with diabetic retinopathy in Gegharkunik region of Armenia, 2012”. The abstract was accepted for moderated poster presentation. It was presented at the conference and later published in the European Journal of Public Health in 2013.

Published abstract: Giloyan A, Harutyunyan T, Petrosyan V. The prevalence of and major risk factors associated with diabetic retinopathy in Gegharkunik region of Armenia, 2012. European Journal of Public Health. Volume 23, Supplement 1, page 253, Oxford University Press, 2013.

Presented poster: Giloyan A, Harutyunyan T, Petrosyan V. The prevalence of and major risk factors associated with diabetic retinopathy in Gegharkunik region of Armenia, 2012. 6th European Public Health Conference. Brussels, Belgium, November 13-16, 2013. [moderated poster presentation] (see Appendix 1).

6. Abstract submitted to the World Ophthalmology Congress 2014

The researchers at Meghriyan Institute submitted the abstract entitled “Visual impairment and depression among socially vulnerable older adults in Armenia” to the World Ophthalmology Congress 2014. It was accepted for oral presentation.

7.1 Abstract on Visual impairment and depression among socially vulnerable older adults in Armenia

Objectives: Visual impairment among the elderly is a major public health problem. Untreated visual impairment might negatively impact physical and psychological health. This study assessed the association between visual impairment and depression among socially vulnerable older adults in Armenia.

Method: The analytical cross-sectional survey and eye screenings were carried out among 339 participants who were the residents of retirement homes and single elderly living in the households. The study team used Golovin-Sivtsev chart and cycloplegic skiascopy to measure visual impairment and Center for Epidemiologic Studies Depression scale [CES-D] to measure depression.

Result: The prevalence of visual impairment in the sample was 13.3%. Almost 24.0% of participants reported depression symptoms. Participants living in the retirement homes had substantially higher rates of visual impairment (21.5%) and depression (28.0%) than those living in households (9.3% and 15.0%, respectively). The odds of having depression were higher among those with visual impairment compared with those without after adjusting for confounders (OR = 2.72; 95% CI: 1.29 – 5.76). Those living in retirement homes had higher odds of depression compared with those living in households after adjusting for confounders (OR = 2.09; 95% CI: 1.03 – 4.25). Having at least one chronic non-communicable disease was another independent risk factor for depression in adjusted analysis (OR=2.40; 95% CI: 1.25; 4.58).

Conclusion: Timely eye screenings in socially vulnerable older adults, particularly among those living in retirement homes, could lead to early detection of visual impairment and prevention of visual loss and associated mental health problems.

7. Lions Regional Ophthalmic Unit

The Meghriyan Institute continued its partnership with the Lions Regional Ophthalmic Unit in Sevan, established earlier through the joint efforts of the Meghriyan Institute and the Ararat Lions Club (ALC), and funded by the Lions Club International Foundation-LCIF. Since its establishment, this Unit has served around 23,883 people and performed 2,486 surgeries. Meghriyan Institute is responsible for preparing annual reports to LCIF headquarters.

8. 2013 in numbers

Meghriyan Institute provided eye screenings to 330 patients in Armenia and Artsakh, and distributed 87 free eye glasses and 101 eye frames to the population in need in 2013.

Appendix 1



The prevalence of and major risk factors associated with diabetic retinopathy in Gegharkunik region of Armenia

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Background

Diabetic retinopathy (DR) is a well-recognized complication of diabetes mellitus. It is the leading cause of vision loss in adults of working age in industrialized countries and the emerging cause of blindness in developing countries. There are few published studies about DR in the countries of former Soviet Union.

The objective of this study was to describe the prevalence of DR and risk factors associated with it among diabetic patients in Gegharkunik region of Armenia.



Methods

Diabetic patients registered at the polyclinics in Gegharkunik region participated in the eye screenings and face-to-face interviews in 2012 (n=625).

A structured questionnaire included questions about demographic characteristics, disease history, knowledge, attitude, and practice towards DR, health status, family history of diabetes, healthy lifestyle, and medication adherence. Descriptive statistics and logistic regression were used to analyze the data.

Results

The prevalence of DR in the sample was 36.2%. Ninety percent of patients with DR had non-proliferative DR, while 9.8% had proliferative DR. In bivariate analysis, age, diabetes duration, being overweight, being under insulin treatment, blood glucose level, having hypertension and heart diseases were significantly associated with DR.

The likelihood of having diabetic retinopathy according to risk factors: Results of adjusted logistic regression*

	P	OR	95% CI
Age (in years)	0.00	1.05	(1.03 – 1.08)
Diabetes duration (in years)	0.00	1.24	(1.18 – 1.31)
BMI			
Normal weight			
Overweight	0.02	2.10	(1.14 – 3.86)
Obese	0.40	1.29	(0.71 – 2.36)
Being under insulin treatment	0.00	2.35	(1.32 – 4.20)

*Adjusted for current blood glucose level, having hypertension and having heart disease

In the adjusted analysis, being under insulin treatment (OR = 2.35; 95% CI: 1.32–4.20), being overweight (OR = 2.10; 95% CI: 1.14–3.86), diabetes duration (OR = 1.24; 95% CI: 1.18–1.31) and age (OR = 1.05; 95% CI: 1.03–1.08) were independently associated with DR.

Only 6.7% of patients heard about DR and knew that it could affect vision. Younger and more educated patients had higher level of awareness of DR.

The patients with better awareness of DR were more likely to make regular visits to ophthalmologists.



Conclusion

Our study found high prevalence of DR among Armenian diabetic patients. Improving the knowledge about diabetes and its eye-related complications will stimulate diabetes patients to visit ophthalmologists, which will increase the likelihood of early diagnosis of DR.

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