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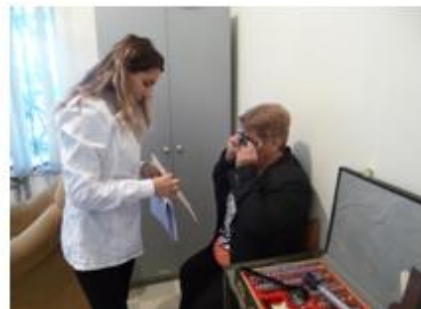
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ZVART AVEDISIAN ONANIAN CENTER FOR HEALTH SERVICES RESEARCH AND DEVELOPMENT

GERALD ADN PATRICIA TURPANJIAN SCHOOL OF PUBLIC HEALTH

Garo Meghrigian Institute for Preventive Ophthalmology

2017 Annual Report



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Executive Summary

In 1999, Mr. Garo Meghriqian of Los Angeles funded a Blindness Prevention Program in Armenia in memory of his daughter, Christine Hripsime. With a generous gift from the Meghriqian family, the Garo Meghriqian Institute for Preventive Ophthalmology (Meghriqian Institute) was established within the Zvart Avedisian Onanian Center for Health Services Research and Development at AUA's Gerald and Patricia Turpanjian School of Public Health. Meghriqian Institute's mission is to prevent avoidable blindness in Armenia.

This Annual Report highlights the main activities and accomplishments of the Meghriqian Institute in 2017.

In March 2017, Meghriqian Institute concluded a project, which provided eye care to diabetic patients in the Tavush province of Armenia. The project was dedicated to the late Gloria Meghriqian, wife of Garo Meghriqian, who passed away in 2016. Meghriqian Institute successfully provided free ophthalmic examinations and eyeglasses to diabetic patients with restricted access to ophthalmic services and provided education regarding diabetes management and diabetic retinopathy prevention.

In April 2017, Meghriqian Institute launched its annual eye screening program among socially vulnerable children. Forty seven out of 110 children at Mary Izmirlyan Orphanage and 52 out of 59 children at Gavar Children's Home were participated in detailed eye screenings. Meghriqian Institute distributed spectacles and medications to the children in need.

In May-July of 2017, the Garo Meghriqian Institute for Preventive Ophthalmology launched an eye screening and care program for family members of fallen soldiers and the socially vulnerable population living in Stepanakert, Artsakh. Overall, 182 people participated in eye screenings. Meghriqian Institute distributed 172 eye glasses to those who were diagnosed with refractive errors and provided medication to 27 people diagnosed with eye diseases.

From June to September 2017, Meghriqian Institute implemented a comprehensive eye screening program among socially disadvantaged children, the older people and disabled adults living in

Shirak and Lori regions. A total of 180 older and disabled adults, 103 children and 64 family members participated in the detailed eye screenings. Two hundred and twenty spectacles were distributed to those in need and medical assistance was provided to 41 people with eye diseases.

In October 2017, the Garo Meghriyan Institute for Preventive Ophthalmology organized eye screenings among disadvantaged children living in Fridtjof Nansen Boarding School No. 2 for Child Care and Protection in Gyumri, Shirak region in honor of World Sight Day 2017. Sixty-one children participated in detailed eye screenings.

In October 2017, the Meghriyan Institute published a research article “*Factors associated with vision-related quality of life among the adult population living in Nagorno Karabagh*” in the peer-reviewed journal of Public Health.

In October, 2017, Garo Meghriyan Institute for Preventive Ophthalmology launched eye screening program among patients with diabetes living in Armavir region of Armenia. The staff of the Meghriyan Institute visited to the main cities of Armavir region (Armavir and Metsamor) and their adjacent villages (Nalbandyan, Parakar, Aghavnatun, Geghakert, Gay, Arevik and Aragats) from October to December, 2017. A total of 590 diabetics were screened. Meghriyan Institute will continue this program in 2018 visiting Vagharshapat and other villages of Armavir region.

Meghriyan Institute started research work on migraine headache in normal tension and high tension glaucoma among adult population living in Armenia. This study tries to investigate the association between migraine headaches and normal tension and high tension glaucoma among adult population living in Armenia.

The research team of the Meghriyan Institute presented the study on “*Visual outcome and vision related quality of life among patients after cataract surgery in Armenia*” at the European Public Health Conference in Stockholm, Sweden held in November 2017. The abstract was published in the European Journal of Public Health in 2017.

Each year Meghriqian Institute organizes outreach visits to different regions of Armenia and Artsakh as part of its activities. Outreach visits aimed to provide detailed ophthalmic examinations to those who have low access to ophthalmic services. In 2017, Meghriqian Institute organized outreach visits to Lori, Armavir and Shirak regions, and Artsakh. In total, 148 adult patients underwent ophthalmic examinations.

The Meghriqian Institute continued its partnership with the Lions Regional Ophthalmic Unit in Sevan, established earlier through the joint efforts of the Meghriqian Institute and the Ararat Lions Club (ALC), and funded by the Lions Club International Foundation-LCIF.

In total, Meghriqian Institute provided eye screenings to 263 children and 1,164 adult patients in Armenia and Artsakh, and distributed 1,073 free eye glasses to the population in need in 2017.

Introduction

In 1999, Mr. Garo Meghriqian of Los Angeles funded a Blindness Prevention Program in Armenia in memory of his daughter, Christine Hripsime. With a generous gift from the Meghriqian family, the Garo Meghriqian Institute for Preventive Ophthalmology (Meghriqian Institute) was established within the Zvart Avedisian Onanian Center for Health Services Research and Development at AUA's Gerald and Patricia Turpanjian School of Public Health. In partnership with local experts, the Meghriqian Institute seeks to assess and characterize the burden of eye diseases in Armenia, to promote preventive measures such as screenings, to develop professional and public awareness through educational programs, and to help increase the local health system's capacity to effectively identify and prevent vision disorders before they lead to blindness.

The main objectives of the Meghriqian 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 Meghriqian 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.

Since 2004, the Meghriyan Institute has also been sponsoring a fellowship program to encourage Armenian ophthalmologists to combine population-based prevention activities with clinical ophthalmology, as part of the Master of Public Health program at AUA.

Vision loss, or blindness, is a major public health problem. The leading causes of chronic blindness include cataract, glaucoma, age-related macular degeneration and diabetic retinopathy. Blindness decreases quality of life and has a great impact on the socio-economic development of individuals and society. The Meghriyan Institute's activities include eye screenings and treatment for socially vulnerable children and the older people, for patients with diabetes living in provinces of Armenia and for family members of fallen soldiers living in Artsakh; delivering educational programs to ophthalmologists, ophthalmic nurses, endocrinologists, primary health care providers, and school nurses working in rural areas of Armenia; donating ophthalmic equipment to ophthalmic offices of primary care facilities; and establishing a high quality ophthalmic services, such as the Lions Regional Ophthalmic Unit, established in Sevan, Gegharkunik province. The Meghriyan Institute founded this unit in partnership with the Ararat-1 Lions Club and with funding from the Lions Club International Foundation. The establishment of this center was the first step in expanding affordable, accessible, and high quality ophthalmic service delivery to underserved populations, and serves as a model regional ophthalmic system in Gegharkunik province. The Unit has served around 32,088 people and performed 3,975 surgeries for free or at a cost much lower than in Yerevan. In addition, the Meghriyan Institute has conducted eye screenings among socially disadvantaged children and adults in Armenia and Artsakh, and ophthalmic research among different population groups, including people with glaucoma, cataract surgery and diabetes.

This report highlights the main activities and accomplishments of the Meghriyan Institute in 2017.

Activities and accomplishments

1. Meghrigian Institute for Preventive Ophthalmology Dedicates Work in Memory of Gloria Meghrigian

In December of 2016, the Garo Meghrigian Institute for Preventive Ophthalmology (Meghrigian Institute) embarked on a new project to provide eye care to diabetic patients in the Tavush province of Armenia. The project was dedicated to the late Gloria Meghrigian, wife of Garo Meghrigian, who passed in 2016. In lieu of flowers, Ms. Meghrigian's daughter, Anahid Boulanikian, asked friends and family to donate to her parent's legacy, the American University of Armenia's Meghrigian Institute. The \$1,810 gifted in memoriam allowed the project to be expanded past the initial towns of Dilijan, Ijevan, Berd and Noyemberyan to the border villages of Voskevan, Ptghavan, Koghb, Berdavan, Haghtanak, Bagratashen, Voskepar, Debetavan, Koti and Baghanis.

Concluded in March 2017, the project successfully provided free ophthalmic examinations and eyeglasses to diabetic patients with restricted access to ophthalmic services and provided education regarding diabetes management and diabetic retinopathy prevention. In addition to conducting screenings, the Meghrigian Institute provided to the participants informational brochures and booklets that included valuable information on diabetes management and complications, including diabetic retinopathy and its prevention.

During the course of this project, 449 diabetics were screened: 109 from Dilijan, 167 from Ijevan, 92 from Noyemberyan and 81 from Berd and adjacent villages. Those served ranged in age from 19 to 86 years old, the majority of which being in their early 60's. Over half of those served were women and the majority of those served were from families who categorized their standard of living as below average.

Of those screened, it was found that patients had been suffering from diabetes for about seven years, on average. Diabetic retinopathy was detected in 18.7% of patients, and it was proliferative in 3.6% of patients. The prevalence of visual impairment was 9.0% in the better eye with best possible correction. Almost 1.3% of those patients were blind.



2. Meghriqian Institute continues annual eye screening program among socially disadvantaged children

In April 2017, Garo Meghriqian Institute for Preventive Ophthalmology of the AUA Gerald and Patricia Turpanjian School of Public Health launched its annual eye screening program among socially vulnerable children. The staff of the Meghriqian Institute visited Mary Izmirlyan Orphanage and Gavar Children's Home. Forty seven out of 110 children at Mary Izmirlyan Orphanage and 52 out of 59 children at Gavar Children's Home were able to participate in detailed eye screenings. On May 26-27 2017, Meghriqian Institute distributed spectacles and medications to the children in need. Forty six children diagnosed with refractive errors such as nearsightedness, farsightedness, and astigmatism received spectacles and sixty children diagnosed with eye diseases including infection and allergic conjunctivitis, accommodation spasm, retinal dystrophy, blepharitis and keratoconus received medical assistance from the Meghriqian Institute. One child from Gavar Children's Home with congenital aniridia received colored contact lenses. Those who had other eye conditions which need hospital care were referred to specialized centers for more detailed examination.



3. Meghrigian Institute Serves Family Members of Fallen Soldiers and the Socially Vulnerable Population in Artsakh

In May-July of 2017, Meghrigian Institute launched an eye screening and care program for family members of fallen soldiers and the socially vulnerable population living in Stepanakert, Artsakh. Goyamart National Charitable Union and the Ministry of Health of the Republic of Artsakh helped the Meghrigian Institute in reaching family members of fallen soldiers in Artsakh.

The staff of the Meghrigian Institute carried out eye screenings and visited the Stepanakert Retirement Home as well as the Center for Single Elderly and Disabled People. Overall, 182 people participated in eye screenings: 112 family members of fallen soldiers, 40 residents of the Stepanakert Retirement Home, and 30 members of the Center for Single Elders and Disabled People.

On July 17, the Meghriyan Institute distributed 172 eye glasses to those who were diagnosed with refractive errors such as nearsightedness, farsightedness, astigmatism and presbyopia and provided medication to 27 people diagnosed with eye diseases. Those who had eye conditions needing more advanced care were referred to specialized centers.



4. Meghriian Institute Continues its Work with Disadvantaged Population Groups

From June to September 2017, the Garo Meghriian Institute for Preventive Ophthalmology (Meghriian Institute) of the Gerald and Patricia Turpanjian School of Public Health (SPH) implemented a comprehensive eye screening program among socially disadvantaged children, the older people and disabled adults living in Shirak and Lori regions.

The staff of the Meghriian Institute visited and treated patients at several locations, including a Gyumri retirement center, home to 160 older people, the Armenian Caritas NGO in Vanadzor, which serves around 100 older and disabled adults that live alone, the Poqrik Ishkhan social center in Vanadzor serving around 60 socially disadvantaged children and their family members, and a Vanadzor orphanage, home to 52 children. A total of 180 older and disabled adults, 103 children and 64 family members participated in the detailed eye screenings.

The Meghriian Institute distributed spectacles and medication to those in need. Two hundred and twenty spectacles were distributed to those diagnosed with refractive errors such as nearsightedness, farsightedness, astigmatism and presbyopia. Medical assistance was provided for 41 people who were diagnosed with eye diseases including infection and allergic conjunctivitis, retinal dystrophy, blepharitis and keratoconus. Those who had additional eye conditions needing hospital care were referred to specialized centers for more detailed examinations.



5. Meghrigian Institute Celebrates World Sight Day 2017

On October 12, the Garo Meghrigian Institute for Preventive Ophthalmology (Meghrigian Institute) of the Gerald and Patricia Turpanjian School of Public Health organized eye screenings among disadvantaged children living in Gyumri, Shirak region in honor of the World Sight Day 2017. World Sight Day is an annual day of awareness held on the second Thursday of October to focus global attention on blindness and vision impairment. The theme of this year's campaign was "Make Vision Count."

From October 12-14, the staff of the Meghrigian Institute visited Fridtjof Nansen Boarding School No. 2 for Child Care and Protection in Gyumri, which serves 72 children of school age. Sixty-one children participated in detailed eye screenings. Out of those, 22 children were found to suffer from some type of refractive error such as nearsightedness, farsightedness, and astigmatism, and received ophthalmic eyeglasses for free from the Meghrigian Institute. Other eye conditions such as accommodation spasm, infections, allergic conjunctivitis and amblyopia were diagnosed in 16 children at the boarding school. All children with eye diseases received free medical assistance from the Meghrigian Institute.



6. Garo Meghrigian Institute for Preventive Ophthalmology Publishes Study on Artsakh in the Journal Public Health



Visual impairment and blindness are major public health problems causing significant suffering, disability, loss of productivity, and diminished quality of life for millions of people.

Multidimensional self-reported measures of vision-specific health-related quality of life have been devised in the last several decades to provide a comprehensive overview of the experiences of

visually impaired people. Vision-related quality of life was assessed using the National Eye Institute Visual Functioning Questionnaire – 25 (NEI VFQ-25).

The study found that the prevalence of moderate and severe visual impairment including blindness was 10.6%, which is slightly higher compared to the rate of 9.3% found in studies conducted among socially vulnerable older adults in Armenia and much higher compared to other countries. In the adjusted linear regression model having moderate/severe visual impairment or blindness, older age, lower socioeconomic status, and having eye diseases such as glaucoma and cataract were significantly associated with lower vision-related quality of life. Efforts are needed to improve access to eye care services in Artsakh for early detection of eye conditions and timely prevention of further eye complications.

The article is available at the following [link](#).

The reference to the article is included below.

Harutyunyan T, Giloyan A, Petrosyan V. Factors associated with vision-related quality of life among the adult population living in Nagorno Karabagh. Public Health. 2017 Oct 16;153:137-146. doi: 10.1016/j.puhe.2017.09.004

7. Garo Meghrigian Institute for Preventive Ophthalmology launched eye screening program among diabetics in Armavir province of Armenia

In October, 2017, Garo Meghrigian Institute for Preventive Ophthalmology launched eye screening program among patients with diabetes living in Armavir province of Armenia. The primary aim of this program was to provide free ophthalmic examination and eye glasses among patients with diabetes who have low access to the ophthalmic services. The secondary aim was to increase the awareness about diabetes and diabetic retinopathy among target population.

The staff of the Meghrigian Institute visited to the main cities of Armavir region (Armavir and Metsamor) and their adjacent villages (Nalbandyan, Parakar, Aghavnatun, Geghakert, Gay, Arevik and Aragats) from October to December, 2017. A total of 590 diabetics were screened. In addition, Meghrigian Institute distributed brochures and booklets about diabetes and diabetic retinopathy to the participants. Overall, 613 ophthalmic eye glasses were distributed for free to the participants in need. Meghrigian Institute will continue this program in 2018 visiting Vagharshapat and other villages of Armavir region.



8. Meghriyan Institute started research work on migraine headache in normal tension and high tension glaucoma among adult population living in Armenia

Introduction

Glaucoma is the leading cause of global irreversible blindness and the second leading cause of blindness globally and in most regions. There are two major types of glaucoma: open-angle glaucoma (OAG) and angle-closure glaucoma. Primary open angle glaucoma (POAG) and normal-tension glaucoma (NTG) are variations of open-angle glaucoma.

It has been estimated that 60.5 million people were affected by POAG and primary angle-closure glaucoma (PACG) globally in 2010. In 2013, the number of people (aged 40-80 years) with glaucoma worldwide was estimated to be 64.3 million, increasing to 76.0 million in 2020 and 111.8 million in 2040.

Migraine is the most common cause of recurrent moderate to severe headache. Affected patients often begin to suffer from migraine headaches during adolescence or young adulthood and find that they change in character over time. Migraine is associated with decreased cerebral blood flow, and attacks of migraine have been reported to cause ischemic infarctions of the brain, retina, and optic nerve. Ischemia, either chronic or intermittent, is a possible cause of the optic nerve damage in low-tension glaucoma. Thus, it is possible, if migraine is truly more frequent in patients with low-tension glaucoma than in normal subjects that the optic nerve damage in some patients is due to migraine-related ischemia. Several studies explored the association between migraine and different types of glaucoma and different findings have been reported. Some researchers found no association between these two conditions, whereas others reported higher incidence of glaucoma in patients with migraine, higher frequency of migraine in patients with normal tension glaucoma, and higher rate of glaucomatous visual field defects in cases with migraine.

The other risk factors of developing open angle glaucoma are age, gender, family history of glaucoma, intraocular pressure level, central corneal thickness, baseline optic disc hemorrhage, recurrent optic disc hemorrhages, family history of stroke, systemic hypertension, systemic hypotension, abrupt change of blood pressure, nocturnal dips in blood pressure and obstructive sleep apnea syndrome.

This study tried to investigate the association between migraine headaches and normal tension and high tension glaucoma among adult population living in Armenia.

Methods

This study used the case-control study design to explore the association between migraine headache and glaucoma. Optomed Canada Eye Diagnostic Center was selected to draw the study sample. The data about the diagnosis of glaucoma (normal and high tension glaucoma), patients' eye health and demographics was retrieved from medical records. Cases were patients diagnosed with any type of glaucoma aged 18 years and over. Controls were adult patients, who have not been diagnosed with glaucoma and other eye disorders except refractive errors. A structured questionnaire was developed for conducting interviews. Migraine Screening Questionnaire (MS-Q) was administered to diagnose migraine headache and Berlin Questionnaire was used to diagnose Obstructive Sleep Apnea Syndrome among the study participants. Both tools are validated and widely used in clinical practice and research projects. The study questionnaire also included demographic data, diagnosis of glaucoma, details on other eye disorders and refractive errors, intraocular pressure level, optic disc hemorrhage, family history of glaucoma, and having hypertension. The sample size of this study was 546 (182 cases and 364 controls). This study is in the stage of data collection and data entry.

9. Presentation at the European Public Health Conference 2017

Aida Giloyan, MPH, Senior Researcher and Operations Manager of the Meghriyan Institute presented the study on “*Visual outcome and vision related quality of life among patients after cataract surgery in Armenia*” at the European Public Health Conference in Stockholm, Sweden held in November 2017. The abstract was published in the European Journal of Public Health in 2017. The reference to the abstract is provided below.

Giloyan A, Harutyunyan T, Petrosyan V. Visual outcome and vision related quality of life among patients after cataract surgery in Armenia European Journal of Public Health, Volume 27, Issue suppl_3, 1 November 2017,ckx187.275, <https://doi.org/10.1093/eurpub/ckx187.275>

10. Meghrigian institute organized outreach visits to regions of Armenia and Artsakh

Each year Meghrigian Institute organizes outreach visits to different regions of Armenia and Artsakh as part of its activities. Outreach visits aimed to provide detailed ophthalmic examinations to those who have low access to ophthalmic services. In 2017, Meghrigian Institute organized outreach visits to Lori, Armavir and Shirak regions, and Artsakh. In total, 148 adult patients underwent ophthalmic examinations. All patients diagnosed with eye diseases received medical consultation. In addition, patients having eye disorders which needed surgical intervention or hospital care, were referred to the nearest hospital for further diagnosis and treatment.

11. Meghrigian Institute: 2017 in numbers

Meghrigian Institute provided eye screenings to 263 children and 1,164 adult patients in Armenia and Artsakh, and distributed 1,073 free eye glasses to the population in need in 2017.