Mekong Eye Doctors set sights on improving eye care in Southeast Asia

Cheryl Guttman

MEKONG Eye Doctors (MED) is a private Dutch organisation (NGO) founded in 1993 with a mission to aid in the prevention and treatment of curable blindness among poor people living in the Mekong region of Southeast Asia. The organisation offers a progressive programme aiming not only to bring in volunteers who can provide temporary assistance, but also to foster solutions that will have more far-reaching and durable consequences on eye care delivery.

Ype Henry MD, department of ophthalmology, VU Medisch Centrum, Amsterdam, is a member of the MED project committee and country coordinator for Vietnam. In 2000, he made his first two-week trip to Tra Vinh province in Vietnam, and he has returned each year thereafter. The experience of his five annual journeys effectively illustrates the objective of the MED to enable sustainable local eye care and demonstrates the ability to accomplish impressive achievements in just a short period of time.

Current estimates suggest that 600,000 of the 170 million inhabitants of the Mekong region are affected by blindness associated with cataract, pterygium, nutritional deficiencies, and trachoma. The MED has partnered with the National Committees for the Prevention of Blindness in Cambodia, Vietnam, and China.

Dr Henry and other MED participants are attacking the problem of insufficient eye care services in a comprehensive manner. Sharing their expertise and working side-by-side with local ophthalmologists to perform surgery is part of their activities. However, those efforts are not intended only for easing patient backlogs. Rather their main objective is to train the resident eye care providers to become self-sufficient so that they can better serve their own population year-round.

Coinciding with that hospital-based work are projects devised to improve primary eye care at the community level. Taken together, the programmes of the MED will ultimately allow local professionals to stand on their own two feet instead of relying on a crutch in the guise of short-term visits from foreign volunteers.

Located in the south Mekong delta, Tra Vinh is a province of about one million people that has no effective primary eye care system and only four ophthalmologists working in the provincial hospital. In his initial visit to Tra Vinh, Dr Henry and his team focused on training those doctors in the technique of extracapsular cataract extraction with IOL implantation. Over the next few years, they incorporated instruction on perioperative and postoperative care. Then, in 2003, a second programme was launched to improve primary eye care delivery and refraction services for the general community.

Hands-on training

In his first visits to Tra Vinh, Dr Henry, his team, and representatives from the Can Tho Eye Centre provided hands-on training by operating side by side with the Vietnamese doctors. With procedures being performed on three tables, they completed 270 procedures over eight working days. Patients selected to receive cataract surgery services were those deemed in greatest financial need based on a formal government designation of low-income status.

However, the visits also incorporated instruction about pre-, per- and postoperative patient management. Dr Henry sees that aspect as an equally important component of his visits.

“The Vietnamese are highly intelligent people, and it is easy enough for them to become adept with the operative technique. However, the long-range goal of the Mekong Eye Doctors is to improve overall eye care. Unfortunately, the ophthalmologist training programme at institutions in many developing countries is so short that physicians cannot be taught adequately about such issues as selecting appropriate candidates for surgery and the critical value of providing good aftercare for affording patients the maximal benefit from their operation,” Dr Henry said.

The fact that 35 of the patients seen at follow-up needed spectacle correction highlights other deficiencies of eye care service in Vietnam with respect to the lack of trained refractionists and of optical shops able to precisely grind prescription lenses. “Now that the ophthalmologists we trained are operating independently, our main concern is that they become better equipped to provide postoperative care and that there be pathways for patients to obtain glasses after their surgery. Hopefully, in the future the surgery will become more customised, but that will depend on the ability to equip these centres with the technology they need for biometry and keratometry and to find a source for obtaining a broader range of IOLs at an affordable price,” Dr Henry said.

Refractive training programme

To address the issue of refraction, Dr Henry entered into a second project in 2003 focusing on training optometric assistants who will be able to perform refractions. That programme is underway at the Ho Chi Minh City Eye Hospital, and their analyses of the data showed uncorrected vision had improved 2 or 3 lines in 75% of eyes, while more than half had achieved a visual acuity of 0.8 or better after refractive correction.

“Those visual acuity results were satisfying to us considering that these eyes underwent ECCE with implantation of a standard 21 or 22 D IOL,” he observed.
of the World Council of Optometry and the International Centre for Eyecare Education.

“Now that the ophthalmologists we trained are operating independently, our main concern is that they become better equipped to provide postoperative care and that there be pathways for patients to obtain glasses after their surgery.”

“The two (French-trained) HCMC Eye hospital optometrists gave two refraction courses at the Ho Chi Minh City Eye Hospital, refractionists and if we ultimately want to establish a full school of optometry, we would have to further develop that programme to create an expanded pool of well-trained personnel who could become instructors,” Dr Henry said.

Work on a curriculum has been completed, and current plans are to establish a core of six trainers to staff the refraction course. During the second week of his recent trip, Dr Henry travelled with a Dutch optometrist, Gabrielle Janssen, to Ho Chi Minh City Eye Hospital. During that week they selected four of the recently trained refractionists to receive further education. Each day Dr Henry and Ms. Janssen lectured and provided hands-on training.

“There are about eight million people living in the district of Ho Chi Minh City and that population is vastly underserved with respect to refraction services for people of all ages. This project to set up a training course is very important because it is addressing a basic need existing in a country of people who hope to advance rapidly into a more modernised society as they enter the 21st century,” Dr Henry said.

To better serve the community’s needs for primary eye care services, in 2003 MED also launched a primary eye care training programme in Tra Vinh province. That programme is targeting general practitioners, nurses, and teachers who might be involved in eye screening or delivery of primary eye care services and is being conducted in conjunction with the Vietnam National Institute of Ophthalmology (VNIO).

Lead exposure may be an important unrecognised risk factor for cataract

Devon Schuyler

CUMULATIVE exposure to lead may be an important risk factor for age-related cataract, a new epidemiological study reveals. The study was among the first to examine the relationship between bone lead levels and cataracts in humans.

“One of the well-known biological effects of lead in the body is to increase oxidative damage. And cataract is one of the quintessential age-related diseases associated with oxidative damage,” said Debra A. Schaumberg ScD, of Boston’s Brigham and Women’s Hospital, Division of Preventive Medicine, in an interview with EuroTimes.

These two pieces of information led her and colleagues at the Harvard School for Public Health to investigate the relationship between lead and cataract. The study involved 642 men aged 60 years and older (average age 69 years) from the Normative Aging Study, a longitudinal study of veterans based in Boston.

The researchers used x-ray fluorescence to measure levels of lead in the participants’ tibias and patellae between 1991 and 1999. Each participant had at least one eye examination between 1990 and 2002.

Cataract was diagnosed in 122 men during the course of the study. Men with the highest levels of lead in the tibia were more than three times as likely to develop cataracts as those with the lowest levels, after adjusting for various potential confounding factors. The concentration of tibial lead was a marker for cumulative lead exposure. Overall, lead was a contributing factor to cataract in 42% of cases, she said.

The concentration of lead in participants ranged from 0 to 126 mcg/g in the tibia (median, 29 mcg/g) and 0 to 165 mcg/g in the patella (median, 29 mcg/g), with a correlation of 0.68 between lead levels in the tibia and patella. These amounts were in line with what the researchers expected to find.

Men in the highest quintile of tibia lead levels had an age-adjusted odds ratio for cataract of 2.68 compared with those in the lowest quintile. After further adjustment for cigarette smoking, diabetes, blood levels of lead, and intake of vitamin C, vitamin E, and carotenoids, the odds ratio was 3.19.

As for patellar lead levels, men in the highest quintile appeared to be increased risk of cataract compared with those in the lowest quintile, but the trend was not considered to be statistically significant.

Blood levels of lead were also measured, but these indicate only recent lead exposure—about 95% of the body’s lead is stored in the skeleton. The tibia provides an especially good measurement of long-term lead exposure because it has a relatively low turnover rate; the half-life of lead is more than 10 years in the tibia, versus one to five years in the patella, Dr Schaumberg noted.

Cataract-associated lead levels within normal range

She said that the levels of lead found in the study were not unusually high; in fact they were quite reflective of the general population. Current U.S. limits for occupational lead exposure can produce bone lead levels about three times higher than those found in upper group in this study, she added.

Lead appears to contribute to cataract in several ways. First, it can disrupt normal oxidation in the lens. Second, lead inhibits the metabolism of glutathione in the lens, increasing the amount of glutathione and cysteine bound to protein. Third, lead exposure increases the amount of malondialdehyde, a by-product of lipid metabolism, in the lens. Finally, lead can interfere with calcium homeostasis. All of these processes can interfere with lens clarity.

The main sources of environmental lead are leaded gasoline and paint. Leaded gasoline is dangerous because it can be inhaled; it also contaminates soil. When lead-based paint peels or chips, it creates dust that can get in the body when people inhale or put their hands or contaminated objects in their mouth. Other sources of lead include water from plumbing with lead solder, foods and liquids stored in leaded crystal or pottery, employment as a lead smelter, and some old-fashioned or ethnic cosmetics.

Most American adults have substantial amounts of lead in their bodies, and there’s “no reason to think that the problem is any different in Europe,” said Dr Schaumberg.

The United States phased out leaded gasoline and paint in the 1970s and 1980s; most European countries banned these substances slightly later.

Recent studies have linked lead exposure to other age-related disorders associated with oxidative stress, namely hypertension and cognitive decline. The study, ‘Accumulated Lead Exposure and Risk of Age-Related Cataract in Men’, appeared in the Journal of the American Medical Association (December 2004 292:2750-2754).

Debra A. Schaumberg ScD
dschaumberg@rics.bwh.harvard.edu

MED banner during Eye Camp Hands-on training cataract surgery Brown nucleus removed in ECCE+IOL

Working in Vietnam as an Ophthalmologist is very rewarding. Every year when I come back a lot of progress in eyecare delivery has been made. At the moment the Vietnamese government is asking foreign NGO's like MED to help deliver eye care in many provinces. I think that Vietnam will be able to provide all the needed eye care, without help from foreign NGO's, within the next 10 years.

Ype Henry MD FEBO
y.henry@vumc.nl