Ocular Diseases and Blindness in Elderly Thais

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Abstract

The prevalence of ocular disease and blindness in 2,092 Thai subjects, aged 60 years and over, in 33 communities in the vicinity of Siriraj Hospital, Bangkok was studied. The subjects were examined by a team which consisted of 3-4 ophthalmologists, 6 nurses and a trainee health officer. The history, visual acuity and ocular tension were recorded. The anterior and posterior segments of the eye were assessed by using a portable slit lamp biomicroscope, and a direct and indirect ophthalmoscope. The examination revealed disease of the lens in 1656 cases (79.16%), cornea 852 cases (40.72%), lid 516 cases (24.67%), conjunctiva 462 cases (22.08%), retina 300 cases (14.34%), glaucoma 128 cases (6.12%) and of the optic nerve in 39 cases (1.86%) respectively. There were 66 cases of blindness (3.15%) and 743 cases of low vision (35.5%). The causes of blindness were cataract, glaucoma, late age-related maculopathy, optic atrophy and corneal opacity.

Key word : Prevalence, Blindness, Low Vision, Elderly, Glaucoma, Cataract, Age-Related Maculopathy

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Blindness is one of the major health problems which affects the economy and the development of a country. Each year, the government has to spend money for the prevention of blindness and treatment of patients with visual impairment. A report of the World Health Organization showed that the major causes of global blindness were cataract, trachoma and glaucoma(1). Most of these diseases

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found in elderly people can be prevented or are curable if they are detected early.

We studied the prevalence of ocular disease and blindness in an elderly population, aged 60 years and over, in a community around Siriraj Hospital, in order to achieve baseline data for the prevention of blindness.

MATERIAL AND METHOD

We studied 2,092 subjects, aged 60 years and over, in 33 communities in the vicinity of Siriraj Hospital, Bangkok. The study was carried out between October 1997 and September 1998. The study team included 3-4 ophthalmologists, 6 nurses and one trainee health officer.

The resident population aged 60 years and over registered by the survey team was invited to participate in this study. The subjects were examined in a community school. The subject's history of systemic and eye disease was recorded. Visual acuity was measured by Snellen chart at 6 meters. All subjects were tested using the best correction with pinhole or glasses. Ocular tension was measured by a Schiotz tonometer. The anterior segment of the eye was assessed by a portable slit lamp biomicroscope. The fundus was examined by using direct ophthalmoscopy if there were any changes in the retina, the pupil was dilated with 1 per cent tropicamide and reexamined by direct and indirect ophthalmoscopy.

The definition of blindness followed that included in the ICD-10[2]. Blindness is defined as a visual acuity of less than 3/60 (20/400, 0.05) in the better eye with the best possible correction, or a visual field loss in each eye to less than 10 degree from fixation. Low vision was defined as a visual acuity of less than 6/18 (20/60, 0.3) but equal to or better than 3/60 (20/400) in the better eye with the best possible correction.

Cataract was defined as a lens opacity accompanied by a visual acuity of 6/9 or worse. Degenerative disorder of the macula was classified into early age-related maculopathy (early ARM) and late age-related maculopathy (late ARM, or age-related macular degeneration). Early ARM was defined as the presence of drusen and hyperpigmentation or hypopigmentation of the retinal pigment epithelium. Late ARM included geographic atrophy of the retinal pigment epithelium or neovascularization in the macular area[3].

Retinal changes from diabetes mellitus were recorded and classified as nonproliferative and proliferative diabetic retinopathy[4].

The diagnosis of glaucoma depends on the ocular tension, cupping of the disc and the visual field. If the subject had ocular tension of more than 20 mmHg, a shallow anterior chamber and a cup : disc ratio more than 0.3, the subject was classified as having glaucoma or suspected glaucoma and was referred for reexamination at the glaucoma clinic, Siriraj Hospital. Applanation tonometry, gonioscopy and Humphrey automated perimetry were performed in all cases at the glaucoma clinic. A diurnal tension test was performed in cases of suspected normotension glaucoma. The criteria for definite glaucoma were at least two of the following : 1) intraocular pressure > 20 mmHg 2) glaucomatous optic disc 3) glaucomatous visual field defect. The types of glaucoma were classified as primary open angle glaucoma, primary angle closure glaucoma, normotension glaucoma and secondary glaucoma.

All the data was recorded in an SPSS program and analyzed by the statistician.

RESULTS

From 2,092 subjects in 33 communities, there were 676 males (32.3%) and 1,416 females (67.7%) with a median age of 67.9 $\pm$ 6.5 years (range 60-104 years).

The eye diseases found in this study were: diseases of the lens 1,620 cases (76.61%), cornea 852 cases (40.72%), lid 516 cases (24.67%), conjunctiva 462 cases (22.08%), retina 300 cases (14.34%), glaucoma 128 cases (6.12%) and optic nerve 39 cases (1.86%). The details are shown in Tables 1-6.

Cataract was found in 1402 cases (66.19%), most of them were the nuclear sclerosis type (1172 cases). The rest consisted of 11 cases of posterior subcapsular cataract, 3 cases of cortical opacity and 209 cases of combined type. Mature cataract was found in 7 cases.

Most of the retinal diseases were age-related maculopathy (ARM). There were 132 cases (6.3%) of early ARM and 13 cases (0.62%) of late ARM. In late ARM, 12 cases were the wet type and one case was the dry type which presented with geographic atrophy. Diabetic retinopathy was found in 14 cases (0.67%), all were nonproliferative diabetic retinopathy.

Table 1. Rate of diseases of the lens.

Eye diseases	No. of patients	Per cent
Cataract	1,402	66.19
Pseudophakia	194	9.27
Aphakia	24	1.15
Total	1,656	79.16

Table 2. Rate of diseases of the lid.

Eye diseases	No. of patients	Per cent
Dermatochalasia	458	21.89
Blepharitis	19	0.91
Trichiasis	19	0.91
Entropion	15	0.72
Ectropion	4	0.19
Ptosis	1	0.05
Total	516	24.67

Table 3. Rate of diseases of the conjunctiva.

Eye diseases	No. of patients	Per cent
Pterygium	391	18.69
Pinguecula	44	2.10
Conjunctivitis	27	1.29
Total	462	22.08

Table 4. Rate of diseases of the cornea.

Eye diseases	No. of patients	Per cent
Peripheral degeneration (arcus senilis)	825	39.44
Central corneal opacity	27	1.29
Total	852	40.72

Glaucoma was diagnosed in 128 cases (6.1%), out of the total number of all glaucoma cases, there were 47.65 per cent of primary open angle glaucoma, 41.41 per cent of primary angle closure glaucoma, 9.38 per cent of normotension glaucoma and 1.56 per cent of secondary glaucoma.

Table 5. Rate of diseases of the retina.

Eye disease	No. of patients	Per cent
Early age-related maculopathy	132	6.30
Late age-related maculopathy	13	0.62
Arteriosclerosis of retinal vessels	78	3.72
Hypertensive retinopathy	38	1.82
Myopic fundus	22	1.05
Diabetic retinopathy	14	0.67
Retinal tear	2	0.10
Macular hole	1	0.05
Total	300	14.34

Table 6. Types of glaucoma.

Type	No. of patients	Per cent
Primary open angle glaucoma	61	2.91
Primary angle closure glaucoma	53	2.53
Normotension glaucoma	12	0.57
Secondary glaucoma	2	0.1
Total	128	6.1

Table 7. Causes of blindness.

Cause	No. of patients	Per cent
Cataract	44	2.1
Cataract & Glaucoma	8	0.38
Glaucoma	3	0.14
Late ARM*	5	0.24
Late ARM* & Cataract	2	0.09
Optic atrophy	3	0.14
Corneal opacity & Cataract	1	0.05
Total	66	3.15

* ARM = age related maculopathy

Thirty-nine cases of optic nerve diseases were optic atrophy.

Low vision was found in 743 cases (35.5%) and there were 66 cases of blindness (3.15%). The causes of blindness were cataract, glaucoma, late ARM, optic atrophy and corneal opacity (Table 7).

DISCUSSION

This survey of the elderly from a community in Bangkok showed that most of the eye

diseases in this population were caused by degenerative changes such as cataract, dermatochalasis of the lid, peripheral corneal degeneration, pterygium and age-related maculopathy. Cataract was the most common eye disease. 66.19 per cent of the subjects had cataract, only 9.27 per cent had received intraocular lens implantation and 1.15 per cent were aphakic. The prevalence of cataract depends on age and race and increases with age. The Framingham Eye Study[5] and Beaver Dam Eye Study[6] showed that the prevalence of cataract in subjects aged 65-74 years was 18-23.5 per cent and aged 75-84 years was 38.8-45.9 per cent. Our study showed a high prevalence of cataract. There are many factors related to cataract formation[7-10] such as low protein intake, high intake of lactose and galactose, lack of antioxidant such as vitamin E, vitamin C, carotenoid, exposure to sun light, diarrhea, renal failure and glaucoma. All these factors should be studied further.

In this survey, the prevalence of blindness in the elderly in Bangkok was found to be 3.15 per cent. This is higher than the prevalence found in a national survey of blindness in Thailand in 1994 which was conducted in 30,841 people of different age-groups[11]. Cataract was responsible for a higher proportion (66%) of total blindness, glaucoma, late AMD and optic atrophy were the next most common causes.

The prevalence of blindness in each area and at each age interval is different[12]. The report of the World Health Organization on the prevention of blindness demonstrated that the prevalence of blindness in a developed country was 0.3 per cent while in developing countries the prevalence was higher[13-16]. It has been estimated that the prevalence of blindness in people of 60 years or more around the world is 4.4 per cent and in developing countries is 6.8 per cent[1].

In this community survey we found a glaucoma prevalence of 3.77 per cent and of suspected glaucoma of 5.59 per cent. After follow-up and complete investigations, definite glaucoma was diagnosed in 6.12 per cent. The rate of primary open angle glaucoma (POAG) and primary closure angle glaucoma (PACG) was nearly identical (POAG 47.65%, PACG 41.41%). This finding is markedly different when compared to Western countries where primary open angle glaucoma is prominent. The prevalence of glaucoma increases with age and varies in each area. In the Beaver Dam Eye Study, people aged 43-84 years had a glaucoma prevalence of 2.1 per cent[17]. In Japan, in subjects aged over 40 years, glaucoma was found 2.6 per cent[18] and in Sweden aged 65-74 years there was a glaucoma prevalence of 5.7 per cent[19]. The present study found the prevalence of glaucoma rather higher than other reports for this age group. Blindness arising from glaucoma was found in 12 out of 66 blind subjects (18.18%), it was the most important irreversible cause of blindness in our study.

We found the prevalence of early ARM to be 6.3 per cent and late ARM to be 0.62 per cent which was lower than reports from a Caucasian population. The Beaver Dam Eye Study showed that the prevalence of early ARM in people aged 65-74 years was 18.3 per cent in females and 17.5 per cent in males and late ARM was 1.15 per cent in females and 1.1 per cent in males[20]. In Europe, in Rotterdam, the prevalence of late ARM was 1.7 per cent in people 55 years or older[21], while in the Blue Mountain area, Australia, age-related macular degeneration was present in 1.9 per cent of the population 49 years of age or older[22]. Late ARM was the second most important irreversible cause of blindness in this study.

In conclusion, this study demonstrated that the common causes of blindness in the elderly are cataract, glaucoma and late age-related maculopathy. Cataract was the major problem causing blindness and low vision. Although people in urban areas live not far from a hospital, and have no communication problem, they still have a high rate of blindness. The promotion for health education and vision screening, including making an early diagnosis and subsequent proper management should be a policy of the government for the prevention of blindness in both rural and urban areas.

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โรคตาและภาวะตาบอดในผู้สูงอายุไทย

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คณะผู้รายงานได้ศึกษาความชุกของโรคตาและการเกิดตาบอดในประชากรไทยอายุ 60 ปี หรือมากกว่า จำนวน 2,092 คน ใน 33 ชุมชนรอบโรงพยาบาลศิริราช ระหว่างเดือน ตุลาคม 2540 ถึงเดือนกันยายน 2541 ผู้สูงอายุได้รับการตรวจตาโดยคณะจักษุแพทย์ พยาบาล และพนักงานวิทยาศาสตร์ โดยทำการซักประวัติ ตรวจวัดสายตา วัดความดันตา ตรวจการเปลี่ยนแปลงของนัยน์ตาและตรวจจอประสาทตาโดยใช้ slit lamp biomicroscope, direct และ indirect ophthalmoscope พบว่าผู้ป่วยทั้งหมด 2,092 คน เป็นชาย 676 คน (32.3%) หญิง 1,416 คน (67.7%) อายุระหว่าง 60–104 ปี (เฉลี่ย 67.9 ± 6.5 ปี) พบผู้ป่วยเป็นโรคของเลนส์ตา 1,656 ราย (79.16%) กระจกตา 852 ราย (40.72%) เปลือกตา 516 ราย (24.67%) เยื่อบุตา 462 ราย (22.08%) จอประสาทตา 300 ราย (14.34%) ต้อหิน 128 ราย (6.12%) และโรคของขั้วประสาทตา 39 ราย (1.86%) ตามลำดับ พบผู้ป่วยตาบอด 66 ราย (3.15%) และมีสายตาพิการ 743 ราย (35.5%) สาเหตุของตาบอดที่พบได้แก่ ต้อกระจก ต้อหิน จอประสาทตาเสื่อม ขั้วประสาทตาฝ่อ และกระจกตาเป็นฝ้าขาว

คำสำคัญ : ตาบอด, สายตาพิการ, ผู้สูงอายุ, ต้อกระจก, ต้อหิน, จอประสาทตาเสื่อม

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