

Abstracts of Asian research published in the international literature

Mycotic Keratitis in Mumbai

Between 1988 and 1996, 1010 clinically-suspected cases of mycotic keratitis were studied for evidence of fungal infection and for identification of the aetiological agents of keratitis in Mumbai. 367 patients had positive specimens by microscopy and culture and 79.0% were aged between 21 and 50 years. Male patients were more often affected than females. 88.0% of patients were farmers or construction workers and 89.9% gave a definite history of antecedent corneal trauma.

A single fungal isolate was obtained from 307 patients and multiple isolates from 20. Mixed isolates of bacteria and fungi were found in 40 patients. The predominant isolate was *Aspergillus* spp., which was found in 219 patients, followed by *Candida* spp. in 36, *Fusarium* spp. in 33, and *Penicillium* spp. in 34. Filamentous fungal isolates from 22 patients remained unidentified. Mycotic keratitis should be suspected in every patient with a corneal lesion.

Deshpande SD, Koppikar GV. A study of mycotic keratitis in Mumbai. *Indian J Pathol Microbiol* 1999;42:81-87.

Myopia Progression and Optical Component Changes Among Hong Kong Schoolchildren

This study investigated refractive errors and optical component changes in 142 Hong Kong schoolchildren aged between 6 and 17 years during a 2-year period between 1991 and 1993. The children's

eyes were subjectively refracted, and corneal curvatures and ocular dimensions were measured. At the end of the study period, the mean spherical equivalent refraction (SER) was -1.86 diopters (D; SD 1.99) and 62% of the children were myopic. The annual incidence of myopia was 11.8%.

Children aged 10 years or less had a greater change in SER toward myopia than did older children. The annual rate of myopia progression for the myopic children was -0.46 D (SD 0.40) and the rate of progression was greatest between the ages of 6 and 10 years. Vitreous depth/axial length elongation was the main component contributing to the progression of myopia.

These researchers concluded that Hong Kong schoolchildren develop myopia as early as 6 years. And the myopia progresses at a greater rate compared with children of European extraction.

Lam CS, Edwards M, Millodot M, Goh WS. A 2-year longitudinal study of myopia progression and optical component changes among Hong Kong school-children. *Optom Vis Sci* 1999;76:370-380.

Distance, Lighting, and Parental Beliefs: Understanding Close Work in Myopia

To develop measures and indices of factors (distance of eye from object, posture, and lighting) that may modify a possible effect of close work on myopia, the duration of close work, the distance of an object from the eye, lighting conditions, and other sociodemographic characteristics were ascertained from

interviews. Both distance and lighting information taken from the questionnaire were compared with more precise measurements.

Diopter hours were quantified as the duration of close work multiplied by the reciprocal of the distance at which the activity was performed. The intraclass correlation coefficient of the reliability of distance information for each type of close work activity ranged from 0.43 to 0.91. Home light meter readings were significantly higher for children who were reading under both room and reading lights, and the distances noted on the questionnaire were comparable with the measured distances. Measures of posture, distance, and lighting factors have been developed to study possible modifiers of the effects of close work on myopia.

Saw SM, Nieto FJ, Katz J, Chew SJ. Distance, lighting, and parental beliefs: understanding near work in epidemiologic studies of myopia. *Optom Vis Sci* 1999;76:355-362.

Progression of Myopia and Progressive Lenses in Hong Kong Chinese Schoolchildren

In Chinese societies, primary and secondary schoolchildren perform large amounts of reading and homework and thus spend long periods doing close work during their formative years. Progressive lenses, which can permit a focused retinal image at distance, intermediate, and near, without accommodation, may slow the development of myopia. This paper reports the results of a 2-year longitudinal study to examine the effects of progressive lenses on myopia progression in Chinese children.

Prestudy vision screening tests and 5 examinations, which included



Table 1. Mean refractive error and mean myopic progression over 2 years in 68 children with myopia using single vision or progressive lenses.

	Single vision lenses (D)	+ 1.5 D progressive lenses (D)	+ 2.0 D progressive lenses (D)
Mean refractive error	-3.67	-3.73	-3.67
Mean myopic progression	-1.23	-0.76	-0.66

noncycloplegic refraction, were conducted at half-yearly intervals. Of those who completed the study, 32 children wore single vision lenses (SV group) and 36 wore progressive lenses. Of the latter, 22 wore a +1.50 D addition (P1 group) and 14 wore a +2.00 D addition (P2 group). Refractive error, corneal curvature, axial length, vitreous depth, and intraocular pressure were measured at every examination. Height was measured as an index of general growth.

Progressive lenses significantly retarded the progression of myopia in these children. Initially, the mean refractive error of the SV group was -3.67 D, -3.73 D in the P1 group, and -3.67 D in the P2 group. The mean myopic progression during the study period was -1.23, -0.76, and -0.66 D for the SV, P1, and P2 groups, respectively (table 1).

These researchers concluded that progressive lenses reduce the progression of myopia. It may be that the interaction of progressive lenses with the accommodation system is the cause of this reduction in myopia progression since the +2.00 D addition appeared to be more effective than the +1.50 D addition.

Leung JT, Brown B. Progression of myopia in Hong Kong Chinese schoolchildren is slowed by wearing progressive lenses. *Optom Vis Sci* 1999;**76**:346-354.

School Eye Screening for Indian Children

To assess the results of a vision-screening programme in schools in India 5 years after its introduction, questionnaires on

school eye screening activities were sent to 200 randomly selected districts. Data from 61 districts were analysed, using process indicators to assess performance at different stages of the screening procedure.

Teachers screened 5.39 million children in 61 districts. Refraction was performed for 205,082 children (3.8%), and 43,922 children (0.8%) were provided with spectacles. Children aged from 10 to 15 years had the most refractive errors.

Vision screening in schools has been taken up successfully in many districts in India, which has reduced the workload of eye care staff. The simplicity of the procedure facilitates widespread application, although monitoring and reporting needs to be improved.

Limburg H, Kansara HT, d'Souza S. Results of school eye screening of 5.4 million children in India — a five-year follow-up study. *Acta Ophthalmol Scand* 1999;**77**:310-314.

Central Corneal Thickness of Hong Kong Chinese

The aims of this study were to investigate the effect of age, intraocular pressure, refractive error (spherical equivalent) and corneal curvatures on the central corneal thickness of Hong Kong Chinese people. The central corneal thickness of Hong Kong Chinese people was compared with those previously reported for other ethnic groups. The central corneal thickness of 151 patients aged from 10 to 60 years was measured using an ultrasound pachometer. Intraocular

pressure, refractive error, and corneal curvatures were also recorded.

The mean \pm SD central corneal thickness of the right and left eyes were $575 \pm 32 \mu\text{m}$ and $574 \pm 31 \mu\text{m}$, respectively. No significant difference in central corneal thickness was found between the right and left eyes or between male and female subjects. Central corneal thickness decreased with increasing age but this effect was only apparent in females. The maximum decrease in central corneal thickness occurred in the 10 to 25 years age group, and central corneal thickness and age were significantly correlated in both males and females in this age group.

Intraocular pressure and central corneal thickness was significantly correlated. There was no correlation between central corneal thickness and refractive error or between central corneal thickness and corneal curvatures.

Central corneal thickness decreased with increasing age in females. Central corneal thickness was significantly correlated with intraocular pressure, but not with refractive error or corneal curvatures. These patients also had significantly thicker corneas than those reported for Caucasian subjects.

Cho P, Lam C. Factors affecting the central corneal thickness of Hong Kong Chinese. *Curr Eye Res* 1999;**18**:368-374.

Burden of Visual Impairment in Southern India

To assess the prevalence and causes of moderate visual impairment in an urban population in southern India, a population-based, cross-sectional study was performed. 2522 patients were included from 24 clusters representative of the population of Hyderabad. Eligible subjects underwent a detailed ocular



evaluation, including logarithm of the minimum angle of resolution (logMAR) visual acuity, refraction, slit-lamp biomicroscopy, applanation tonometry, gonioscopy, cataract grading, and stereoscopic dilated fundus evaluation. Automated threshold visual fields and slit-lamp and fundus photography were performed when indicated.

In addition to the 1% prevalence of blindness in this sample, moderate visual impairment was present in 303 subjects, an age-gender-adjusted prevalence of 7.2% (95% confidence interval [CI], 4.5%-9.9%; design effect, 2.7). The major cause of moderate visual impairment was refractive error (59.4%, 95% CI, 52.3%-66.5%) followed by cataract (25.3%, 95% CI, 19%-31.6%).

Multivariate analysis showed that the prevalence of moderate visual impairment was significantly higher in those aged 40 years or older (odds ratio, 10.9; 95% CI, 8-15) and females (odds ratio, 1.89; 95% CI, 1.41-2.53) and lower in those belonging to the highest socioeconomic group (odds ratio, 0.27; 95% CI, 0.14-0.51). However, because of the pyramidal age distribution of the population, 38.1% of the total moderate visual impairment was present in those younger than 40 years old. The proportion of moderate visual impairment caused by refractive error was higher in the younger than in the older age groups ($p < 0.0001$).

Projecting the results to the 26.5% urban population of India, there would be 18.4 million (95% CI, 11.5-25.2 million) persons with moderate visual impairment in urban India alone. The absolute proportion of moderate visual impairment in those aged younger than 40 years was considerable.

The eye care policy of India, apart

from dealing with blindness, should address the issue of the relatively easily treatable uncorrected refractive error as the cause of moderate visual impairment in an estimated 10.9 million persons in urban India.

Dandona L, Dandona R, Naduvilath TJ, *et al.* Burden of moderate visual impairment in an urban population in southern India. *Ophthalmology* 1999;**106**:497-504.

Phacoemulsification of White Hypermature Cataract

To evaluate the safety of phacoemulsification of white hypermature cataract, which is common in developing countries, a prospective evaluation of phacoemulsification in 25 eyes of 25 consecutive patients with hypermature cataract was performed. Patients with good pupil dilation, optimal endothelial cell count, and disease-free ocular and systemic status were included. High magnification, sodium hyaluronate, and a Utrata capsulorhexis forceps were used to perform continuous curvilinear capsulorhexis (CCC).

The stop and chop technique was used for nuclear emulsification. A 5.5 mm optic allpoly (methyl methacrylate) intraocular lens (IOL) was implanted, and wound closure was sutureless.

Successful CCC was performed for 23 of 25 patients. In 2 patients, the CCC edge extended toward the periphery and a Vannas scissors was used to achieve an even cut. No complications were seen during nuclear emulsification and IOL implantation.

80% of patients had a visual acuity of 20/40 or better on the first postoperative day. Five patients had significant corneal oedema that resolved within 1 week.

Phacoemulsification was successfully and safely performed in appropriately selected patients with white hypermature cataract.

Vajpayee RB, Bansal A, Sharma N, *et al.* Phacoemulsification of white hypermature cataract. *J Cataract Refract Surg* 1999;**25**:1157-1160.

Blindness and Cataract Surgery in China

A population-based, cross-sectional study was performed among 5342 persons older than 50 years to assess blindness prevalence and that caused specifically by cataract in rural southern China. Visual acuity and eye examinations were performed in 1997 in a random sample of villages in Doumen County.

Bilateral blindness (presenting visual acuity < 0.10) was found in 4.37% (95% confidence interval, 3.67%-5.06%). Blindness was associated with increasing age ($p < 0.001$) and with lack of education ($p < 0.01$).

Cataract was the principal cause of blindness in at least one eye in 61.5% of blind people, with refractive error responsible for another 10%. An estimated 40% of people with cataract underwent surgery; surgical coverage was lowest among the elderly, women, and those without schooling, although not at statistically significant levels.

Despite the increased attention given to eye care in Doumen County, blindness remains a major public health problem, with cataract surgery reaching fewer than half of those who could benefit from it.

Li S, Xu J, He M, *et al.* A survey of blindness and cataract surgery in Doumen County, China. *Ophthalmology* 1999;**106**:1602-1608.

