

in a previous study. This allowed comparisons within Sindh province to be made. Additional data on the availability of fundus fluorescein angiography (FFA) were collected.

Results: A total of 17,311 adults (aged 30 and older) were enumerated for the survey. Among the 16,507 subjects examined, 660 diabetic patients were identified. Of these, 101 (15.3%) exhibited evidence of DR. The overall prevalence of diabetes was 4% and the overall prevalence of DR was 0.6%. The odds ratio (OR) of DR was higher in adult diabetic subjects living in urban areas (OR 2.7, 95% confidence interval [CI] 1.08–4.1) compared to those living in rural areas. The risk was also higher in hypertensive (OR 2.77, 95% CI 1.0–4.1) and obese (body mass index >30) participants (OR 2.2, 95% CI 1.7–4.2). Government sector hospitals provided better diabetic eye care services in terms of diagnosis (100% had diagnostic facilities) and treatment (85% had functional laser facilities), compared to the situation in 1998 (when only 50% had functional lasers). Twenty per cent of government tertiary centres and 50% of non-government hospitals had FFA capability. We found the same picture as in 1998 regarding vitreo-retinal surgical facilities.

Conclusion: The burden of blindness due to diabetic retinopathy can be reduced by good planning. Equal distribution of resources among the rural and urban areas must be targeted to obtain a comprehensive diabetic eye care programme. There has been some training of human resources for the management of DR, but it needs to be improved. Further research regarding the affordability of the service is required.

Rapid assessment of avoidable blindness in Kunming, China



Min Wu

Ophthalmologist, Red Cross Hospital, Yunnan Province, People's Republic of China.

Email: min.ynwu@googlemail.com

Background: According to global estimates by the World Health Organization (WHO), there were 141 million people with visual impairment in 2002 and cataract was then the leading cause of blindness. A national survey of China in 1987 suggested that the prevalence of blindness (as defined by the WHO) was 0.42% for all ages.

Aim: To evaluate the prevalence and causes of visual impairment in people aged 50 and older in Kunming, China.

Methods: A population-based cross-sectional study was conducted using multi-stage cluster sampling (including probability proportional to size, compacted segment and non-compacted segment sampling) to select 46 clusters of 60 individuals, each over 50 years of age. The standardised protocol for rapid assessment of avoidable blindness (RAAB) was used to identify people with visual impairment (VI) and ophthalmic examination was used to determine the main cause of VI. The RAAB software package and STATA 9 software were used to enter and analyse data.

Results: A total of 2,588 people from the sample of 2,760 were examined. Age- and sex-standardised prevalence of blindness (available corrected visual acuity <3/60 in the better eye) was 2.7%. It was 2.3% for severe visual impairment (SVI) and 7.2% for VI. The main causes of blindness were cataract (63.2%), other corneal scarring (14.7%), and glaucoma (7.4%). In total, 84.2% of blindness was avoidable, including cataract, other corneal scarring, uncorrected aphakia, and surgical complications. Cost was the most common barrier to cataract surgery. Cataract surgical coverage (CSC) in persons with best corrected visual acuity <3/60 was 58.9%. Cataract operations had a good outcome (visual acuity ≥6/18) in 43% of operated eyes.

Conclusion: The prevalence of blindness in Kunming is relatively high. The leading cause of blindness, SVI, and VI is still cataract. CSC is quite low and the outcome of cataract surgery is poor in the survey area.

Aldo Noguera



Miriam Cano examines a patient in the ophthalmic ward of the Social Security Institute (IPS) Central Hospital. PARAGUAY

Prevalence and perceptions

Prevalence of diabetic retinopathy and barriers to uptake of eye care services by diabetic patients at the Social Security Institute Central Hospital in Asunción, Paraguay



Miriam Rafaela Cano

CONAVIP President and Chief Ophthalmologist, Social Security Institute General Hospital, Paraguay.

Email: miriam.cano@gmail.com

Aims: To estimate the prevalence of diabetic retinopathy (DR) among patients at the endocrinology department of the Social Security Institute (IPS) Central Hospital, Paraguay, and to explore the health-seeking behaviour of diabetic patients.

Methods: We randomly selected 307 patients from all diabetic patients attending the endocrinology clinic in order to establish the presence or absence of DR. Systemic and ophthalmic data were collected using questionnaires. DR was classified according to international disease severity scales for clinical diabetic retinopathy and diabetic macular oedema. Blindness and visual impairment were measured according to the grading system of the World Health Organization. Two focus groups, one comprising patients with visual impairment due to DR and another comprising diabetic patients with normal vision, were identified through purposive sampling. Patient behaviour with regards to seeking health care was explored in both groups. Quantitative data were analysed using EpiData and Stata, and a thematic framework was developed for the qualitative analysis.

Results: Of the 307 diabetic patients examined, 113 (36.8%) were male and 194 (63.2%) were female. A total of 304 (99%) patients had type-2 diabetes and three had type-1 diabetes (0.9%). Eighty-nine patients (29%) had some level of visual impairment. Of these, 16 were blind, a prevalence of 5.2% (blindness from all causes). DR accounted for 33% of visual impairment and 43.8% of blindness. The overall prevalence of blindness from DR was 2.28%, while 149 patients (48.53%) had some level of DR. Diabetic macular oedema was present in 88 patients (28.7%). Proliferative DR was