

SHORT COMMUNICATION

Prevalence of retinitis pigmentosa in urban and rural adult Chinese: The Beijing Eye Study

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PURPOSE. *To determine the prevalence of retinitis pigmentosa in the elderly Chinese population.*
METHODS. *The Beijing Eye Study is a population-based, cross-sectional cohort study and included 4439 subjects out of 5324 subjects invited to participate (response rate 83.4%) with an age of 40+ years. Readable fundus photographs were available for 4027 (90.7%) subjects. Diagnostic criteria for retinitis pigmentosa were visual field defects on frequency doubling perimetry, typical ophthalmoscopic abnormalities such as retinal pigment deposits, retinal arteriole attenuation, and pigment epithelial atrophy, and no other reason for perimetric defects and fundus abnormalities.*
RESULTS. *Retinitis pigmentosa was diagnosed in four subjects (all men). Its prevalence was 0.099±3.15% (95% CI: 0.00, 0.2).*
CONCLUSIONS. *Retinitis pigmentosa with typical fundus appearance and functional loss may be present in about 1 out of 1000 elderly Chinese in Northern China. Calculated for the whole population in China, the figure would be 1.3 million patients with retinitis pigmentosa. (Eur J Ophthalmol 2006; 16: 865-6)*

KEY WORDS. *Retinitis pigmentosa, Visual field loss, Visual impairment, Low vision, Blindness*

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INTRODUCTION

Retinitis pigmentosa is considered to be one of the frequent causes of blindness during working life in industrialized countries (1). Knowledge of the prevalence of retinitis pigmentosa is therefore important. Available population-based studies on the prevalence of retinitis pigmentosa have been conducted mainly in populations in Western countries (2, 3). For Asia, fewer studies have been performed (4), so that epidemiologic data for retinitis pigmentosa in Asia, particularly for mainland China, are limited. It was the purpose of the present study to investigate the prevalence of retinitis pigmentosa in Northern China.

METHODS

The Beijing Eye Study, a population-based cohort study in Northern China, was carried out in four communities from the Haidian urban district in the northern part of Central Beijing, and in three communities from a rural district in the village area of Yufa (Daxing District) in the South of Beijing (5). The Medical Ethics Committee of the Beijing Tongren Hospital had approved the study protocol and all participants had given informed consent, according to the Declaration of Helsinki. At the time of the survey in 2001, there were 5324 individuals aged 40 years or older residing in those seven communities. In total, 4439 (83.4%) individuals (2505

women) participated in the eye examination. From the 4439 individuals, readable fundus photographs were available for 4027 (90.7%) subjects. Mean age was 55.2 ± 10.0 years. The participants underwent a thorough ophthalmic examination as described in detail previously (5). It included measurement of visual acuity, visual field examination by frequency-doubling perimetry using the screening program C-20-1 (Zeiss-Humphrey, Dublin, CA), and assessment of intraocular pressure. Digital photographs of the cornea, optic disc, and fundus, and retro-illuminated photographs of the lens were taken using the Neitz CT-R camera (Neitz Instruments Co., Tokyo, Japan) after dilatation of the pupil. Diagnostic criteria for retinitis pigmentosa were visual field defect in the midperiphery, typical ophthalmoscopic abnormalities such as retinal pigment deposits, attenuation of retinal arterioles, and pigment epithelial atrophy, and no other reason for visual field defect and fundus abnormalities.

RESULTS

Retinitis pigmentosa was diagnosed for four subjects (all men) with a mean age of 57.0 ± 8.7 years and mean refractive error of -1.19 ± 1.16 diopters (-2.25 to -0.13 diopters). Mean visual acuity was -0.89 ± 1.30 logMAR. Prevalence of retinitis pigmentosa in the study population was $0.099 \pm 3.15\%$ (95% confidence interval; 0.00, 0.2).

DISCUSSION

Using visual field criteria and the ophthalmoscopic appearance of the fundus, the prevalence of retinitis pigmentosa in the present study was 4:4027, or about 1:1000 in the elderly population in a rural region and an urban region of Northern China. Epidemiologic surveys from geographically well-defined populations have been previously reported from different parts of the world. The first population-based investigation intending to include all patients from a geographically demarcated area was made by Bunker et al in 1984 in Maine, United States, finding a prevalence rate of 1:4756 (2). Bunday and Crews presented a population study on retinitis pigmentosa from Birmingham, England, reporting a prevalence rate of 1:4869 (3). In the study by Hu in Shanghai, China, a prevalence rate of 1:3784 was found (4). In this 10-year study, patients were detected by oph-

thalmic workers and by a survey of hospital files. A nationwide registration of Danish patients with retinitis pigmentosa provided 1890 persons diagnosed during the period 1850-1989, reflecting a prevalence rate of 1:3943 (1). These figures from the previous investigations are lower than the prevalence rate found in the present study. Reasons for the discrepancies between the studies may be differences in the definition of the disease and differences in the recruitment of study participants. Another reason may be a major limitation of the present study that, despite the figure of 4027 subjects included in the present study, the sample size of the study may still be too small to provide a relatively precise estimate of the prevalence of retinitis pigmentosa. The instability of the estimate is evidenced by the wide 95% confidence interval which includes zero, indicating that the retinitis pigmentosa prevalence in the examined population could be 0% to 0.2%. Taking the prevalence rate of retinitis pigmentosa of the present study and assuming a similar prevalence of patients or disease carriers in the younger Chinese population, the number of patients or carriers with retinitis pigmentosa in China would be estimated to be around 1.3 million, with a 95% confidence interval ranging between 0 to 2.6 million subjects affected by the disease.

Proprietary interest: none.

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