

PREVALENCE OF DIABETIC RETINOPATHY IN THE UNIVERSITY HOSPITAL DIABETIC POPULATION

TEOH GUAN HOE
YOW CHOI SIN
NGAN A
ANUAR ZAINI

SUMMARY

One hundred and forty-five diabetic patients attending diabetic clinic over a four week period were fully examined in an adjacent eye clinic. The fundi were examined with a Halogen light direct ophthalmoscope and the Binocular Indirect Ophthalmoscope after mydriasis to assess the presence of retinopathy. 44.1 percent of patients examined had Ophthalmoscopically detectable retinopathy while 11 percent were found to have 'serious diabetic eye disease'. The prevalence of diabetic retinopathy in Malaysia is comparable to those of Western countries and Japan.

INTRODUCTION

Diabetic retinopathy is one of the most dreaded complications of Diabetes Mellitus and it has become the single leading cause of blindness in many of the developed countries today.¹ Until recently there was no effective treatment one could offer the unfortunate victims. However photo-coagulation with either the Xenon Arc or Argon Laser has now been shown to effectively arrest or delay the progress of the retinopathy,^{2,3,4} Diabetic

Retinopathy Study Research Group, and vitrectomy may offer hope for some of the advanced cases. In Malaysia photocoagulation treatment and vitrectomy is available only in Kuala Lumpur.

This communication is based on part of a study on the complications of Diabetes Mellitus undertaken at the University Hospital, Kuala Lumpur and is an attempt to define the prevalence of diabetic retinopathy in the Malaysian diabetic population with a view to helping to assess the scale of the problem posed by diabetic retinopathy and the adequacy of diagnostic and treatment facilities available for this disease.

MATERIALS AND METHOD

Diabetic patients attending the medical diabetic clinic at the University Hospital over a four week period in August - September 1981 were examined fully by the first two authors in the Eye Clinic. A total of 145 patients were seen. This constitutes about 12 percent of the total population registered with the medical diabetic clinic.

Visual acuity was measured using the Snellen chart and a pin hole was used in those who had forgotten their spectacles or had poor vision. The pupils were dilated with 10% phenylephrine eye drops alone, or with 2% Homatropine and 10% Phenylephrine and the fundi examined with a Halogen Light Direct Ophthalmoscope both with and without a green filter, and also with the Binocular Indirect Ophthalmoscope.

The findings were classified as follows, using the worse eye where there was a difference in findings between the two eyes:-

Category 0 - no retinopathy.

Category 1 - Background retinopathy without soft

Teoh Guan Hoe, F.R.C.S. (Edin.)
Yow Choi Sin, F.R.C.S. (Glasg)
Department of Ophthalmology,
Faculty of Medicine,
University of Malaya.

Ngan A, F.R.A.C.P.
Associate Professor,
Anuar Zaini, M.R.C.P. (U.K.)
Department of Medicine,
Faculty of Medicine,
University of Malaya.

TABLE I
DISTRIBUTION OF PATIENTS BY CATEGORY

Category	No. of patients			Percentage
	Total	Males	Females	
0				
No retinopathy	81	40	41	55.9
1				
Background retinopathy	48	16	32	33.1
2				
Background retinopathy plus soft exudates	3	1	2	2.0
3				
Background retinopathy plus maculopathy	4	1	3	2.8
4				
Proliferative retinopathy	9	3	6	6.2
TOTAL	145	61	84	100.0

exudates or macular involvement.

Category 3 - Background retinopathy with maculopathy.

Category 4 - Proliferative retinopathy with new vessels at the disc or elsewhere on the retina (including those with advanced diabetic eye disease).

Those patients whose fundi were not visualised because of cataract or corneal disease were placed with category 0 unless there was a record of previous retinopathy. Those with dense vitreous haemorrhage were included in Category 4.

RESULTS

The 145 patients examined comprised 61 males and 84 females, whose ages ranged from 21 to 79 years. The average age of the patients studied was 53.7 years. The ethnic breakdown was 69 Chinese, 55 Indians, 19 Malays and 2 others. Fourteen percent of these 145 patients were insulin dependent while the rest were not.

44.1 percent of the patients examined showed evidence of diabetic retinopathy in one or both eyes, while 11 percent of all the patients examined had 'serious diabetic eye disease'* including 6.2 percent with proliferative retinopathy. See Table I (For comparative figures of prevalence of retinopathy in the U.K., Japan and Australia see Table II).

TABLE II
PREVALENCE FIGURES FOR DIABETIC RETINOPATHY, MALAYSIA, UNITED KINGDOM, JAPAN & AUSTRALIA

	% of Diabetics with retinopathy	% with proliferative Diabetic retinopathy
U.H. 1981		
Teoh <i>et. al</i>		
145 patients	44.1	6.2
Japan 1964		
Tosa S ⁸		
106 patients	39.6	7.2
U.K. 1978		
Donovan R. J. ⁶		
704 patients	22.7	5.5
Western Australia		
1980		
Constable I. J. <i>et al</i> ⁷		
400 patients	32.0	

More than 50 percent of the patients showed some retinopathy after 10 years of the disease (see Table III). With longer duration the prevalence increases, but not to 100 percent as some patients with long standing diabetes did not show any evidence of retinopathy (see Table III). This has been noted by previous studies.⁵

* These were patients with changes belonging to Categories 2, 3, & 4.

DISCUSSION

It has long been believed that diabetic retinopathy is uncommon or less common in the Malaysian population as compared with the European populations. However, the results of this study show that this is not true. The prevalence of ophthalmoscopically detectable retinopathy in the diabetic population studied (44.1 percent) is comparable to those for the Western world, (22.7 percent),⁶ 32 percent⁷ and Japan (39.6 percent).⁸

The reason for this false clinical impression we believe is probably because there has been no motivation or concerted effort in the past to detect retinopathy early in this country owing to the absence of treatment facilities. While it may have been shown here that over 40 percent of the patients seen had retinopathy, 71 percent of these patients had no visual complaints and had not sought treatment nor had they been referred to the Eye Clinic for assessment and/or treatment. Only 50 percent of those with 'serious diabetic eye disease' had been seen in the Eye Clinic or had

TABLE III
PREVALENCE OF RETINOPATHY BY AGE AT
ONSET AND DURATION OF DIABETES

Age at onset	Known duration of diabetes:			
	Less than 5 years	5-10 years	11-20 years	More than 20 years
0-19 years (3 patients)	-	50%	100%*	-
20-39 years (50 patients)	7%	42%	63%	88%
40-59 years (77 patients)	26%	32%	55%	83%
60 years + (15 patients)	30%	67%	-	-

* There was only one patient in this category.

treatment for their retinopathy.

There are several factors to account for this figure of 50 percent of patients with serious diabetic eye disease not being seen by Ophthalmologist before. First some diabetic patients are not aware that diabetes can affect their eyes and even if they know they seldom seek treatment unless they are visually handicapped or have pain in the eye (we are all aware that serious diabetic retinopathy can exist in patients who have no complaints whatsoever).

Secondly diabetic clinics generally are overworked, having to check blood sugar, urine sugar, weight etc. and it is not feasible to dilate all patients to examine their fundi fully.

The third factor is that this study was done on University Hospital Diabetic Clinic population and not a random sampling of a diabetic cohort. Most of these cases were initially referred cases. The bad diabetics tend to be followed up here while the mild uncomplicated ones go back to their panel doctor or government doctor.

The Malaysian Diabetic population does not appear to differ significantly from the European population in so far as the prevalence of retinopathy and the natural history of the disease are concerned.

The incidence of diabetes mellitus in Malaysia has been reported as 0.65 percent⁹ and 3.5 percent¹⁰ and recently Mustaffa Embong¹¹ reported a prevalence of 2.1 percent for Malaysian population. Assuming prevalence of 2.1 percent in Malaysia there would approximately be 294,000 diabetics out of the total population of 14 million in Malaysia. Based on the prevalence figures in this study we would have an estimated 32,000 diabetics

with serious diabetic eye disease who would need to be assessed by an Ophthalmologist or who would need treatment for their retinopathy. It is quite apparent that the diagnostic and treatment facilities available in Kuala Lumpur are quite inadequate to cope with all these patients.

CONCLUSIONS

44.1 percent of Malaysian diabetics attending a medical diabetic clinic show ophthalmoscopic evidence of retinopathy. Eleven percent have serious diabetic disease including 6.2 percent with proliferative retinopathy. The prevalence figure is comparable to figures reported in the western world and Japan. Physicians, Ophthalmologists and those involved in primary care of diabetics should endeavour to examine the fundi at regular intervals with a mydriatic. The single centre in Kuala Lumpur with facilities for treatment of diabetic retinopathy is obviously inadequate for the population.

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