

Causes of Decreased Visual Acuity in Diabetics

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Diabetes Mellitus is the leading cause of blindness in most developed countries and today it is the third leading cause of blindness in our country also. Loss of vision in diabetics is usually assumed to be due to diabetic retinopathy. However it is possible that diabetics can have other causes of decrease in visual acuity. This study was taken up to assess the causes of decreased visual acuity among diabetic patients.

The study was taken up in two parts :

Study 1 deals with a series of 5649 consecutive diabetic patients who could undergo a complete ocular examination. The aim of this study was to note the overall prevalence of impaired vision and to delineate the causes of decreased visual acuity in diabetics in general.

Study 2 consisted of a computerized analysis of a cohort of diabetics with diabetic retinopathy who were registered in a separate diabetic retinopathy register. Again an attempt was made to elucidate the causes of decreased visual acuity among those with established retinopathy.

Impaired visual acuity was defined as a corrected visual acuity of less than 6/9 on the Snellen chart in any eye.

Ocular Studies :

The ocular examination consisted of recording of the corrected visual acuity, intraocular pressure, an anterior segment biomicroscopy and a detailed fundus examination (after full mydriasis) by both direct and indirect ophthalmoscopy. Retinopathy, when present, was graded using the Hammersmith Hospital Grading System.¹

RESULTS :

Study 1 :

Table 1 shows the study of the total diabetic population.

Table - 1 : Causes of visual impairment in diabetics in general

	No.	Percentage
Total No. of diabetics screened	5649	
Total blindness	17	(0.3)
Decreased visual acuity	1419	(33.0)
Cataract	1157	(20.8)

Thus, overall 33% of the diabetics had decreased visual acuity and in the majority of cases, this was due to cataract.

Study :

Table 2 shows the results of the study on the diabetic retinopathy cohort.

Table - 2 : Causes of visual impairment in diabetics with retinopathy

	No.	
Total No. of patients with diabetic retinopathy studied	1170	
Decreased visual acuity	650	
Break-up of causes of decreased visual acuity in these		
650 patients		
Diabetic retinopathy related causes	289	(44.5%)
Cataract	248	(38.1%)
Other eye diseases associated with diabetes (eg. Glaucoma)	113	(17.4%)

It can thus be seen that even among the cohort with diabetic retinopathy, cataracts account for 38% of impaired visual acuity.

Table 3 shows a further break-up of the 289 patients with diabetic retinopathy related decrease in visual acuity to show the causes of visual impairment.

Table - 3 : Causes of diabetic retinopathy related visual impairment

	<i>No.</i>	<i>Percentage</i>
Total No. of diabetic retinopathy related visual impairment	289	
Diabetic maculopathy	228	(78.8)
Vitreous haemorrhage	33	(11.4)
Pre-retinal haemorrhage	14	(4.8)
Tractional retinal detachment	11	(3.8)
Iatrogenic visual loss (viz after photocoagulation done elsewhere)	3	(1.0)

It can be seen that diabetic maculopathy is the commonest form of diabetic retinopathy causing decreased visual acuity in our patients with diabetic retinopathy.

Discussion :

We screened 5649 consecutive diabetics with non-insulin dependent diabetes mellitus without any selection bias. In this study cataract stands out as the commonest cause of visual impairment. What is more interesting is that even when a separate cohort of patients with diabetic retinopathy is studied, 38% of visual impairment was due to cataract which is only slightly lower than that produced by diabetic retinopathy itself (44.5%). Finally, when the actual diabetic retinopathy related causes are analysed, maculopathy stands out as the most important cause of visual impairment.

This data is from an unselected diabetic population attending a diabetic centre. If data are analysed from an ophthalmic centre, the results could be different because of referral bias, which influences data at ophthalmic centres because those with ocular symptoms would be specifically referred to ophthalmologists.

The messages from this study are clear. That cataract is very common in diabetic patients, Senile cataracts do occur with increased frequency at a younger age in diabetic patients.² Being a curable form of blindness, cataract should be looked for and operated in diabetic patients. This is particularly relevant because of the need for periodic retinal examination in diabetics and also possible need for performing Laser Photocoagulation in those with sight threatening forms of retinopathy.

It is of interest that maculopathy is the commonest form of diabetic retinopathy seen at our centre. This substantiates our earlier observations.³ Proliferative retinopathy, the more severe form of diabetic retinopathy, is fortunately less common.

Finally the study emphasizes the need for looking for non-diabetic related causes of visual impairment in diabetic patients.

References :

1. Oakley NW, Hill DW, Joplin GF, Kohner EM, Fraser TR : (1967) *Diabetic retinopathy I. Diabetologia* 3 : 402.
2. Kato K, Amaha E, Hagai A, Matui M : (1960) *Acta Soc Ophthalmol Jap* 64 : 577.
3. Rema Mohan, Mohan V : (1989) *Proc. All Ind. Ophthalmol Soc.* pp. 285 – 287.

It now costs more to amuse a child than it once did to educate his father.

—Herbert Prachnow