

Clinical Study Of Primary Open Angle Glaucoma In Diabetic Patients

Abishek Paul,Sundararajan, NamithaBhuvaneswari*

* Department of Ophthalmology,Meenakshi academy of higher education and research, Meenakshi medical college and research institute, Chennai, Tamilnadu, India

Abstract:

Primary open angle glaucoma is the commonest form of glaucoma accounting for at least half of all the glaucoma's. Diabetes Mellitus is one of the risk factors for POAG. The main interest in this topic is because patients suffering from diabetes are typically asymptomatic until significant visual field loss has occurred. Patients usually present with significant visual field loss in one eye and advanced disease in the other. Objective of the study: To study the hospital-based prevalence of POAG among the diabetic patients attending ophthalmology OPD.To screen all diabetics for glaucoma. METHODOLOGY: It's a cross sectional study conducted in two hundred diabetic patients, both insulin dependent and non-insulin dependent, above forty years of age, from February 2019-August 2020 attending the Ophthalmology department of Meenakshi medical college hospital research institute (MMCH&RI), RESULTS The results of the study show a clear evidence of an excess of POAG in diabetic population, which was 4.5 %. The prevalence among males was slightly more (5.1 %) as compared to females (3.12%).Study also showed prevalence of POAG and the duration of DM was proportional and that the mean blood glucose level was higher in diabetics with POAG.

1. INTRODUCTION

It has been discussed various times regarding the relationship of diabetes and POAG, In 1971, Becker stated "Diabetes Mellitus occurs more often in patients with primary open angle glaucoma than in non-glaucomatous populations. Similarly, Glaucoma is more prevalent in diabetic than in non-diabetic population". Diabetes Mellitus has been suggested as one of the risk factors of POAG along with other risk factors. Armstrong et al have reported a prevalence of POAG of 4.1% in the diabetic patients. The prevalence of diabetes in POAG was 1.7%. Population based prevalence data on association of glaucoma and diabetes among Asians are limited in number and of variable quality. Hence, my aim is to study the relation between the two in a semi urban population in tamilnadu .

2. OBJECTIVES:

To study the hospital-based prevalence of POAG among the diabetic patients attending ophthalmology OPD and To screen all diabetics for glaucoma.

3. METHODOLOGY

MATERIALS AND METHODS

It's a cross sectional study conducted in two hundred diabetic patients, both insulin dependent and non-insulin dependent, above forty years of age, from February 2019-August 2020 attending the Ophthalmology department of Meenakshi medical college hospital research institute

(MMCH&RI), Enathur .,Kanchipuram. MMCH&RI is a tertiary care teaching hospital situated in Semi-Urban area of Tamil-Nadu. Approval from competent authority:

TOOLS USED

Slit lamp, Schiottz tonometer, Ophthalmoscopy, Gonioscopy, Automated perimeter (Octopus /Humphrey)

4. RESULTS

Sex	Total No. of patients	Diagnosed			
		POAG (%)	NTG (%)	OH (%)	Normal (%)
Males	136	7(5.1)	4(2.9)	0	125(91.9)
Females	64	2(3.1)	0	2(3.1)	60(93.8)
Total	200	9(4.5)	4(2.0)	2(1.0)	185(92.5)

Table I- Sex-wise distribution of patients with POAG

In our study done on 200 patients with diabetes it was observed that there was around 4.5%(9 out of 200)cases with POAG, 2%(4out of 200) with NTG, and 1% WITH OH , rest 93% were normal. . Among the males 5.1% (7 out of136) and females 3.12% (2 out 64) POAG cases were diagnosed.

Age group	Diagnosis				Total
	POAG	NTG	OH	N	
40-49	0	0	0	60	60
50-59	6	4	0	84	94
60-69	2	0	2	36	40
>=70	1	0	0	3	03
Total	9	4	2	185	200

Table II-Age distribution of patients diagnosed

In our study on 200 patients, it was observed that the total number of diabetic patients observed in 40 to 29 years is 60 (30.0%), 50 to59 years 94(47.0%), 60-69 years 40 (20.0%) and >70 years 6 (3.0%). The majority of the diabetics are above 50 years age. proportion of POAG was seen

more in patients above 50 years age. It also shows the prevalence of NTG is more in patients in the age group of 50-59 years.

IOP		POAG				p
		Present		Absent		
		Mea n	S.D .	Mea n	S.D.	
Right Eye		27.4 9	4.1 7	16.6 2	2.62	0.0001 Significant
Left Eye		25.8 2	4.9 8	17.8 2	2.6	0.0001 Significant

Table III- IOP and prevalence of POAG in DM cases

In our study it was observed IOP in right eyes were (27.49 + 4.17) significantly higher for patients with POAG than for cases without POAG (16.62 + 2.62). Similarly, in left eye also IOP values were significantly higher for POAG cases. Thus, there was statistically significant association between IOP values and incidence of POAG. ('p' = 0.0001)

Duration of DM	No. of Patients	POAG	Percentage
<5 yrs	100	02	2
5-10 yrs	92	06	6.52
>10 yrs	08	-	--
Total	200	08	4.00

Table IV– Distribution of POAG cases according to duration of DM

In our study few finding on POAG and duration of diabetes was also observed , 75 %(6 out of 8) were suffering from diabetes from between 5 to 10 years and 25%(2 out of 8) were less than 5 years suffering from diabetes

Sex	No of pts	DR	Percentage
Male	136	34	25.0
Female	64	20	31.3
Total	200	54	27.0
Statistic	DF	Value	Prob
Chi-Square	1	0.4313	0.5114

Table V- Distribution of proportion of Diabetic Retinopathy among diabetic patients

The mean study of FBS was 200.25 among POAG patients and 115.51 among other patients. The PPBS was 305.75 among POAG patients and 198.41 among other patients. The difference observed was statically significant ($p < 0.05$)

Sex	DR	POAG	Percentage
Male	34	4	11.8
Female	20	0	0
Total	54	4	7.4

Table VI- Proportion of POAG among Diabetic patients with retinopathy

In our study 7.4% (4 out of 54) POAG patients had diabetic retinopathy. Among males it was observed that 11.8% (4 out of 34) were diagnosed as POAG, and among females no patients were diagnosed as POAG. It was observed that proportion was more in male diabetics than in females.

5. DISCUSSION

This study shows a clear evidence of an excess of POAG in diabetic population, which is 4.5 %. The prevalence among males, is slightly more (5.1 %) as compared to females (3.12%). In this study, the mean age of POAG among males was 54.5 yrs and 50.0 yrs among females. It also show that the prevalence of POAG and the duration of DM is proportional and that the mean blood glucose level is higher in diabetics with POAG. Screening all diabetic patients for POAG at the time of annual screening for retinopathy is an attractive proposition provided a clear clinical benefit could be demonstrated. A screening test should ideally be relatively inexpensive, simple, and quick to perform to identify and correct before it get irreversible. Limitations of the study- A small population was used for this study and they were taken from the patients attending the OPD in the hospital.

6. CONCLUSION

From my study, I come to a conclusion that there is an excess of POAG in diabetic population, which is 4.5% (as compared to 2.1% in normal population), thereby showing an association between primary open angle glaucoma and diabetes. Several studies have shown an association between POAG and diabetes. Thus, the public health importance of detecting undiagnosed and treatable glaucoma is important, as blindness has economic and societal consequences for the rest of an individual's life.

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