



Awareness of Glaucoma among Diabetic Patients at A Tertiary Care Teaching Hospital in Puducherry – A Cross Sectional Study

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ABSTRACT

Glaucoma is a chronic, progressive optic neuropathy caused by a group of ocular conditions, which lead to damage of the optic nerve with loss of visual function. The aim is to assess the level of knowledge regarding the association between diabetes and glaucoma, highlighting potential gaps in awareness. A cross-sectional approach was employed with 300 diabetic patients attending the hospital. Data was collected through semi-structured questionnaire and analyzed to determine the prevalence of glaucoma awareness, identify factors influencing awareness, and assess the impact of awareness on preventive measures. Among 300 patients involved in the study, a mere 26 individuals (8.6%) were familiar with the term glaucoma and only 14 individuals (4.6%) had some understanding of glaucoma. The subjects exhibited a notable lack of awareness and knowledge about glaucoma. Findings from this research will contribute to valuable insights for healthcare professionals and policymakers to enhance awareness programs, ultimately promoting early detection and management of glaucoma in diabetic population.

Keywords: Diabetes mellitus, Glaucoma, Awareness, Knowledge.

INTRODUCTION

Diabetes mellitus has emerged as a significant global public health concern, driven by lifestyle changes, urbanization, limited physical activities, and increasing obesity rates. The global prevalence of diabetes is expected to increase from 640 million in 2030 to 783 million by 2045. The impact of diabetes is particularly severe in low and middle-income countries. By 2025, India is predicted to become the world's "diabetes capital," with an estimated 69.9 million individuals affected by the condition [1–3]. Glaucoma stands as one of the primary causes of irreversible blindness worldwide [4]. This optic nerve neurodegenerative disorder results in the death of retinal ganglion cells (RGCs), culminating in vision loss. The relationship between diabetes and glaucoma has been a topic of debate, but contemporary research indicates that individuals with diabetes are at an elevated risk of developing glaucoma [5, 6]. Diabetes and hyperglycemia contribute to the glycation of lipids and lipid metabolism abnormalities, which heighten oxidative stress and foster cellular apoptosis, exacerbating the progression of glaucoma [7]. The patient's knowledge and awareness play a vital role in the dissemination of information regarding ocular complications of diabetes like glaucoma and diabetic retinopathy. Study aimed to evaluate awareness regarding glaucoma among diabetic patients attending tertiary care teaching hospital and to correlate the socioeconomic status with knowledge about glaucoma among diabetic patients.

Material & Method

This cross-sectional study was conducted among patients with Diabetes attending the Diabetology, General Medicine and Ophthalmology OPD, SVMCH &RC, Puducherry for period of 3 months. Patients aged 18-80yrs of both gender were included. Patients with known glaucoma, and less than 18yr were excluded. Scientific research committee and Institutional human ethical committee approval was obtained before the start of the study. A semi-structured questionnaire was explained to the participant and filled by the participant/principal investigator. Demographic details like age, sex and socio-economic status (determined using modified BG Prasad scale) will be obtained from the participants. The questionnaire comprises 25 questions to assess the current knowledge, awareness of patients regarding glaucoma, which included 15 knowledge-based questions and 10 awareness-based questions.

Statistical analysis: the data were entered in excel sheet and analysed using SPSS v23.0 operating windows. The data were summarised as mean, standard deviation, frequency and percentage. The data were represented using tables and for all statistical analysis a p-value of <0.05 was statistically significant.

RESULT

Present study included total of 300 patients fulfilling inclusion criteria.

Table 1: Showing the awareness about glaucoma among patients

		Frequency	Percent
Awareness	Heard of glaucoma	26	8.6%
	Not aware of glaucoma	274	91.4%
Knowledge	Risk factors of glaucoma		
	One factor		
	Obesity	3	1%
	Increased IOP	6	3%
	Steroids	3	1%
	Chronic smoker + alcohol using	6	2%
	Two factors		
	IOP + steroids	1	0.33%
	IOP + family history	6	2%
	Steroids and family history	3	1%
	Three factors		
	IOP, steroids and family history	2	0.66%
	Loss of side vision	9	3%

Awareness of glaucoma was present in 8.6% of the cases and 1% with one factor, increased IOP in 3% cases.

Table 2: Comparison of the factors with awareness of glaucoma

		Aware	Not aware	p-value
Gender	Male	22	170	0.52
	Female	11	97	
Age group	20-40yr	7	60	0.44
	41-50yr	11	68	
	51-60yr	12	69	
	61-70yr	1	40	
	70-80yr	2	30	
Residence	Rural	12	160	0.24
	Urban	22	106	
Literacy	Illiterate	1	96	0.01*
	Primary	2	105	
	Secondary	10	30	
	College	22	34	
Glaucoma status	Non-glaucoma	25	262	0.01*
	Glaucoma patient	10	3	
Family history of glaucoma	Yes	5	144	0.01*
	No	22	129	

On comparison of the awareness with various characters, there is significant higher odds of awareness among the literate patients, patients already having the glaucoma and patients with family history of glaucoma.

Table 3: Showing the knowledge about the treatment among participants

		Frequency	Percent
Is glaucoma treatable		18	6.0
Aware of single therapy	Eye drop	11	3.66
	Surgery	9	3.0
	Laser treatment	6	2.0
Aware of two therapy	Eye drop and surgery	4	1.33
	Eye drop and laser	4	1.33
	Surgery and laser	1	0.33
Aware of more than two therapies	Eye drop, surgery and laser	2	0.66
Treatment not known		11	3.66
Can't say / No response		5	1.66

On knowledge about the treatability of glaucoma, 6% were aware.

DISCUSSION

Glaucoma, a leading cause of irreversible blindness worldwide, is a significant public health concern, particularly among individuals with diabetes. Diabetic patients are at an elevated risk of developing glaucoma due to the vascular complications associated with the disease [8]. Awareness and understanding of glaucoma in this population are crucial for early diagnosis and effective management, yet studies indicate that many diabetic patients lack sufficient knowledge about their heightened risk and the importance of regular eye examinations. Enhancing awareness among diabetic patients about glaucoma can lead to timely intervention and potentially prevent the progression of vision loss [9, 10]. This paper aims to explore the current level of glaucoma awareness among diabetic patients and identify strategies to improve their understanding and proactive management of this sight-threatening condition.

In a similar study by Graham E *et al.*, documented among the 704 participants in the study, only 34 individuals (4.8%) were aware of glaucoma, and just 22 (3.1%) had some understanding of the condition. Factors associated with greater awareness of glaucoma included higher educational attainment, having diabetes, and a family history of glaucoma [11]. Awareness of glaucoma among the participants was notably low at 4.8%, significantly less than the awareness levels reported in developed countries but somewhat higher than those in some developing countries like Nepal and Ethiopia, both at 2.4% [9, 12]. Knowledge of glaucoma, at 3.1%, was also comparatively lower than findings from urban Chennai and Hong Kong studies [13, 14]. Participants with a family history of glaucoma and those who were glaucoma patients themselves demonstrated higher awareness levels, aligning with findings from other studies. This suggests that a family history of glaucoma significantly enhances awareness [10, 13, 15].

CONCLUSION

The subjects exhibited a notable lack of awareness and knowledge about glaucoma. Findings from this research will contribute to valuable insights for healthcare professionals and policymakers to enhance awareness programs, ultimately promoting early detection and management of glaucoma in diabetic population.

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