PREVALENCE OF DIABETES MELLITUS AND OBESITY AMONG PATIENTS WITH EYE DISEASES IN GADAP TOWN, KARACHI, PAKISTAN.

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ABSTRACT

Objective:

To determine the prevalence of diabetes mellitus and obesity among patients with eye diseases

Background: The rapid rise of diabetes is one of the major health challenges, and the most important risk factors are obesity and physical inactivity. Diabetes is the leading cause of blindness.

Methodology:

Study Design: Cross-sectional

Place: Gadap Town, Karachi, Pakistan.

Duration of study: 02-01-2007 to 15-01-2009

Sample size: 15,059

Results:

The total number of the study subjects was 15059, with male to female ratio of 28:72%, representing almost all the age groups and various occupations.

Among the patients of 20 years age and above, 12% were diabetics; and 3% of them had no idea of their suffering from diabetes. A total of 45% of males and 46.9% of females were overweight or obese.

Conclusions:

There was a high prevalence of diabetes among patients with eye diseases.

Many of them did not have knowledge of their diabetic status. People from all walks of life were overweight and obese.

Key Words:

Diabetes Mellitus, Obesity, Eye Diseases

INTRODUCTION:

Diabetes mellitus is a multi-systemic illness associated with a variety of short-term and long-term complications; including microvascular (i.e., retinopathy, neuropathy, and nephropathy) and macrovascular (i.e., heart disease and stroke) problems.[1]

The most important environmental risk factors for diabetes are obesity and physical inactivity. The massive explosion in obesity rates worldwide has largely been responsible for the increase in diabetes, and it is estimated that up to 80% of all new cases of diabetes can be attributed to obesity.[2] Change in life style has increased the incidence of obesity.[3]

The economic and social costs of diabetes are enormous, both for health care services and through loss of productivity.[4,5]

Death rates are twice as high among middle-aged persons (45-60 years) with diabetes than among those without diabetes. Diabetes is the leading cause of new cases of blindness among adults aged 20-74 years.[6]

A total of 5.9% of the world's adult population now has diabetes. Every 10 seconds two people develop diabetes. The regions with the highest rates are the Eastern **Mediterranean and Middle East, where 9.2 % of the adult population are affected.**[7]

Despite several advances in the field of diabetology, it is unfortunate that there exists a low awareness of the disease among public.[8] For an effective control and prevention of diabetes; 88 % of Pakistanis, 87 % of Bangladeshis and 71 % of Indians do not meet the guidelines as compared to 52% Europeans.[9]

Pakistan ranks seven (in number of diabetics of 20-79 age group with 6.9 millions in 2007 (compared to 4.3 millions, ranked 8th in 1995).[10] In the year 2025, Pakistan will be 4th on the list with 14.5 million people with this disease.[11] Only half of the persons with diabetes know they have the disease.[10]

The rapid rise of diabetes mellitus is one of the major health challenges. In fact, up to 80% of type-2 diabetes is preventable by adopting a healthy diet, increasing physical activity and promoting a healthy lifestyle.[12]

This study determines the prevalence of diabetes mellitus and obesity among patients with eye diseases.

MATERIALS AND METHODS:

This was a cross-sectional study conducted at Memon Goth, Manghopir and Kathore Primary Eye Care Centers (PECs) of Gadap Town, run under the administrative control of Al-Ibrahim Eye Hospital, Karachi, Pakistan. At these centers, the patients get registered and are regularly followed-up. The information was collected by filling a pre-tested standardized proforma. Diagnosed diabetes was identified after asking of sample question: have you ever been told by your doctor that you have diabetes? Weight was measured using a wall mounted stadiometer. Body Mass Index (BMI) was calculated and divided into three categories: BMI< 23 normal, 23-26.99 over weight and ≥ 27 obese.

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The patients were from various ethnic, linguistic, religious and socio-economic groups. The study was conducted after the administrative approval of Al-Ibrahim Eye Hospital. A verbal consent was taken from the study participants. The subjects who consented to participate were included in the study, and those who did not agree were excluded. The data of 15,059 patients were collected during the period from January 2nd 2007 to January 15th 2008. The results were analyzed using SPSS version 15.

RESULTS:

The total number of the patients, who attended three PECs of Gadap Town, Karachi, during a period of more than two years, was 15059. Their distribution at Memon Goth, Manghopir and Kathore PECs was 8326 (55.3%), 3642 (24.2%) and 3091(20.5%) respectively. Male to female ratio was 4196:10863 (28:72%). These persons were from all the age groups of 1 to 100 years; with mean, median, mode and standard deviation of 40, 35, 30 and 13 respectively. The occupation of the study participants is shown in Table 1.

The reasons for attending the clinics were ocular problems 92.9% (n=13999), referred 0.6% (n=83) and diabetes 6.5% (n=977).

The study subjects who were of 20 years and above were 14425 (95.7%). As for the knowledge of these people regarding diabetic status is concerned, 1760 (12.2%) were known diabetic, 12247 (84.9%) were non-diabetic and 418 (2.9%) were unaware of having diabetes.

The Body Mass Index of the study participant (sex-wise) is shown in table 2, and BMI as compared with the occupation is shown in table 3.

Table 1: Occupation of the Study Participants

	Frequency	Percent
Labourers	1952	13.0
Farmers	432	2.9
Government Service	584	3.9
Self Employed	602	4.0
Housewives	9651	64.1
Others	1838	12.2
Total	15045	100.0

Table 2: Body Mass Index Compared with Sex

		Sex		
		Male	Female	Total
Body Mass Index	Normal	2318 (55.2%)	5881 (54.1%)	8199 (54.4%)
	Over Weight	1224 (29.2%)	2708 (24.9%)	3932 (26.1%)
	Obese	654 (15.6%)	2274 (20.9%)	2928 (19.4%)
	Total	4196 (100%)	10863 (100%)	15059 (100%)

Table 3: Comparison of Body Mass Index with Occupation

		Occupation						
		Labourers	Farmers	Govt. Servant	Self Employed	Housewives	Others	Total
Body Mass Index	Normal	1131 (57.9%)	240 (55.6%)	266 (45.5%)	277 (46.0%)	5199 (53.9%)	1087 (59.1%)	8200 (54.4%)
	Over Weight	535 (27.4%)	132 (30.6%)	185 (31.7%)	208 (34.6%)	2364 (24.5%)	507 (27.7%)	3931 (26.1%)
	Obese	286 (14.7%)	60 (13.9%)	133 (22.8%)	117 (19.4%)	2088 (21.6%)	244 (13.2%)	2928 (19.4%)
	Total	1952 (100%)	432 (100%)	584 (100%)	602 (100%)	9651 (100%)	1838 (100%)	15059 (100%)

DISCUSSION:

The study participants were from Gadap Town of Karachi, Pakistan representing various socio-economic strata. Females were 72%; and 64.1% of the total study population were housewives. This suggests health seeking behavior of female population. Most of the patients were in 30s age group. This shows that young are also being affected from the diseases. Though a large proportion of the people were suffering from diabetes, yet many did not take it seriously, as 12.2% of the study subjects who were of 20 years and above were diabetics; and 2.9% of them had no idea whether they were suffering from diabetes. Among them those who are suffering from diabetes, might develop irreversible complications before being diagnosed.

There was a higher prevalence in comparison to another study in which the estimated prevalence of diagnosed diabetes among adults was 6.5% in patients of self reported age related eye disease.[13] However longitudinal prevalence of major eye diseases showed the prevalence of diabetes mellitus increased form 14.5% in 1991 to 25.6% in 1999 in representative cohort of elderly subjects.[14] Another study in Pakistan shows 17.5% of the subjects had diabetes in patients attending the eye camps.[15] These results show that prevalence of diabetes increases in patients with eye disorders. The self reported 12.2% rate of diabetes in our study population is nearly identical to the rates reported in previous studies.

A little less than half of both the genders were over weight or obese. Among them house wives were 46%, and even labourers and farmers included 42% and 44% respectively. Government servants seem to be living more sedentary lives as 54% were either over weight or obese. The research shows that BMI is positively associated with retinopathy in individuals with diabetes.[16] Our results also correlate with the other study in which reported prevalence of obesity and overweight in general Pakistani population was 25.0%[17].

CONCLUSIONS:

There was a high prevalence of diabetes among patients mainly coming for their eye diseases. There was a lack of information regarding diabetes, and also people did not pay serious attention towards diabetes.

There is a need of mass awareness regarding prevention and control of diabetes.

Limitations of the study:

A total of 2.9% of the patients did not have knowledge of their diabetes status. The data were based on self reports, and the self reported diabetes data were not validated against physician confirmed diagnosis.

Acknowledgments:

The authors humbly acknowledge the assistance of Professor M Saleh Memon, Dr Rashid Shaikh and Dr Zahid; whose sincere co-operation made this study possible.

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