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Assessment of awareness of diabetic retinopathy and utilization of eye care services among Turkish diabetic patients[☆]

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ABSTRACT

Aims: Raising awareness of diabetic retinopathy (DR) was shown to be a key element for early diagnosis and treatment of this blinding disease. There is very limited data about the knowledge level, attitude, and behavior of diabetic patients regarding DR in Turkey. This study was planned to assess the awareness of DR and the utilization of eye care services among Turkish diabetic patients.

Methods: Diabetic patients who were under the care of ophthalmologists, endocrinologists, and/or primary care physicians were administered a questionnaire in order to assess their awareness of diabetes and its ocular complications.

Results: A total of 437 patients (51.8% female and 48.2% male) with a mean age of 55.2 ± 11.9 were included in the study. Of the 437 patients, 31.8% had not been educated about diabetes, 88.1% were aware that diabetes can affect the eyes, and 39.8% thought that diabetics with good glycaemic control might suffer from DR. While 86.7% thought that early diagnosis was possible in DR, 77.3% previously had eye examinations, and 41.9% stated that annual eye examinations were necessary for diabetics. An educational level of middle school or higher, duration of DM longer than 5 years, previous DM education, and recruitment from the university (ophthalmology department and endocrinology department) were associated with better awareness of DR. The independent factors associated with visiting an ophthalmologist on a regular basis were DM education, DM duration, and site of recruitment.

Conclusion: Although most of the patients know that DM affects the eye, there is a lack of appropriate knowledge and behavior about the management of DR. The importance of better control of DM and regular eye examination in the prevention of DR should be emphasized.

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1. Introduction

Due to population growth, aging, physical inactivity, and obesity, the number of diabetic people worldwide is increasing. Indeed, it has been predicted that the total number of people around the world with diabetes mellitus (DM) will be 366 million by the year 2030 [1]. This, coupled with the fact that diabetic retinopathy (DR) is a leading cause of vision loss worldwide, makes it imperative that measures be taken to reduce the incidence of DR-related blindness. It is recommended that patients have an eye examination within 5 years of DM diagnosis and annually thereafter for type 1 DM, and upon DM diagnosis and annually thereafter for type 2 DM for early diagnosis and treatment of DR [2]. It has been reported that severe, vision-threatening DR is most commonly observed in instances where there was a delay in the patient's referral to an ophthalmologist [3]. It has been proposed that this delay is often due to a lack of awareness about both DR and the importance of regular eye examinations in general [4-6].

In Turkey, the prevalence of DM was reported as 7.2%, and it was documented that 32% of diabetic patients did not know that they had diabetes [7]. Legal blindness secondary to diabetic eye disease was reported as 1.7% (Idil et al., unpublished data). The prevalence of DR was reported as 30.5%, and it was shown that 9.8% of patients had DR at the time of DM diagnosis, which indicates the importance of eye examination at the time of presentation [8].

Currently, there are no established national health care programme referral guidelines regarding DM management for primary care in Turkey. There is very limited data about the knowledge, attitude, and behavior of diabetic patients regarding their disease. Therefore, our aim in this study was to assess the awareness of DR and utilization of eye care services among diabetic patients, as these factors might have an effect on early diagnosis and management of DR.

2. Methods

Patients who were being followed for DM at the Departments of Ophthalmology and Endocrinology in a university setting, the Department of Endocrinology at the State Hospital, the Diabetes Association, and the offices of primary care physicians between January and June of 2010 were enrolled in the study. All adult diabetic patients (older than 18 years) were invited to join the study.

In order to learn the socio-demographic characteristics of the patients and to assess their awareness of DM and its ocular complications, each of the patients was administered a questionnaire. The questionnaires were divided into three parts, and the first part of the questionnaire included questions about the socio-demographic characteristics of the patients, such as their gender, age, educational level, working status, and family history. The second part of the questionnaire contained questions to assess their knowledge of DM and how this knowledge affected aspects of their behavior, while the third part consisted of questions about their knowledge and related behavior regarding DR (for example: (1) Which one of the following can be damaged secondary to diabetes? a: Vision,

Table 1 – Data regarding the socio-educational status of the patients and the sites from which the patients were recruited.

	n = 437	%
Gender		
Female	226	51.8
Male	211	48.2
Educational level		
Illiterate	37	8.5
Literate	14	3.2
Elementary school	196	44.8
Middle school	37	8.5
High school	76	17.4
University	77	17.7
Work status		
Working	46	10.5
Not working		
• House wife	157	35.9
• Not working due to disability	12	2.7
• Unemployed	18	4.1
• Retired	176	40.2
• Other	28	6.4
Sites of recruitment		
Department of endocrinology, PAU ^a	120	27.5
Department of ophthalmology, PAU ^a	109	24.9
Department of endocrinology, DSH ^b	100	22.9
The Denizli Diabetes Association	19	4.3
The offices of primary care physicians	89	20.4

^a PAU, Pamukkale University.

^b DSH, Denizli State Hospital.

b: Hearing, c: Taste, d: Smell; (2) Do you think that a diabetic patient should have regular eye examination (yes or no)? If you answered 'yes', how frequently should a diabetic patient have an eye examination? a: If experiencing trouble with their vision, b: In case of unregulated blood glucose, c: Every year, d: Every two years, e: Other, f: More than one of the above; (3) Have you ever had your eyes examined because of having diabetes (yes or no)?). If the patient could not answer a basic knowledge question regarding diabetes' affect on eyes or vision, his or her answers to specific questions about cataract, intraocular hemorrhage, etc. were not taken into consideration. The questionnaire was self-administered, and at each of the study sites a member of the nursing staff was on hand to assist the patients with the questionnaire. Furthermore, all of the participants were made fully aware of the study, including its aims and procedures, before giving their consent to join. The study was conducted after review board approval was obtained. Statistical analysis was performed using SPSS version 11.

3. Results

A total of 514 diabetic patients were invited to participate in the study and 437 (85.0%) patients agreed to participate. Of 437 patients, 211 were male and 226 were female. The mean age was 55.2 ± 11.9 (35-78). The mean time since the patients were diagnosed with DM was 9.4 ± 7.7 years. Socio-educational data is shown in Table 1.

In terms of DM education, 31.8% of the patients responded that they had not previously been educated about DM. When

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