



Demographic Characteristics and Awareness of Diabetic Retinopathy among Diabetic Patients Visiting a Tertiary Referral Eye Hospital in Eritrea

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Abstract

Background: Diabetic retinopathy (DR) is one of the preventable causes of visual impairment and blindness in the world. In resource limiting country, treatment of diabetic retinopathy is very challenging. So, early diagnosis and appropriate preventive approach should be a mainstay of strategy. It is of utmost important issue to explore the status of awareness of diabetic patients about diabetic retinopathy in Eritrea.

Objective: To study the demographic and general characteristics of diabetic patients and their awareness about diabetic retinopathy.

Methods: A hospital-based cross-sectional study was carried out at Berhan Ayini Hospital (BAH) in Eritrea from January 2014 to August 2014. The study included all consecutive diabetic patients visiting the retina clinic. The study variables were demographic characteristics and awareness of diabetic patients on diabetic retinopathy.

Result: The mean age of new diabetic patients visiting the clinic was 58.81 (12.97) years. For every three males attending the retina clinic, there were two females. Twenty-two % of the patients were illiterate. Awareness about diabetic eye diseases was found in 89.3% of patients.

Conclusion: A high rate of awareness among patients about diabetic eye complications is encouraging. Less service utilization by female patients raises the questions of possible gender inequity in Eritrea. Diabetic retinopathy screening program should be conducted to increase attendance of diabetic patients before retinopathy develops in Eritrea.

Keywords: Awareness; Diabetic Retinopathy; Demography; Eritrea

Abbreviations: DR: Diabetic Retinopathy; BAH: Berhan Ayini Hospital; DM: Diabetes Mellitus; SPSS: Statistical Package for Social Studies; SD: Standard Deviation; HbA1C: Glycated Hemoglobin; ERF: Eritrean Research Fund.

Background

The number of people with diabetes mellitus (DM) is projected to increase from 19.8million in 2013 to 41.4 million in 2035 in Sub-Saharan Africa. The public health strategies for

managing the diabetes epidemic are not adequate in this part of world. This epidemic poses significant public health and socioeconomic challenges through diabetic complications. Diabetic retinopathy (DR) is the most common complication of diabetes eye disease and the cause of blindness among people with productive age group [1]. Screening and prompt treatment of diabetic retinopathy are not given priority in many regions of the world, as the prevalence of other causes of preventable blindness remains a problem [2]. Diabetes prevalence in the people of 20 to 79 years of age in Eritrea is estimated to be 3.8 %. Mean diabetes-related expenditure per person with diabetes in Eritrea is 147.8 USD [3].

Poor awareness of DR was linked with a high proportion of diabetic patients already at a sight-threatening stage of retinopathy at their first presentation. This finding reflects the need for improved awareness programs to reduce the burden of blindness from diabetic retinopathy [4]. Variable levels of awareness of DR among patients with diabetes have been reported from different countries around the world. For example, in Australia, it was found that only 37% of the patients with diabetes were aware of the ocular complications of DM, and an even lower level of awareness (27%) was found among patients with diabetes on diabetic retinopathy in India [5]. We conducted a study to assess the level of awareness of diabetic patients on DR and its associated factors, in lieu of the poor resource setting of the treatment facility of DR in Eritrea.

Methods

Health research proposal and an ethical review committee of the Ministry of Health, Eritrea approved the ethical clearance to conduct the study. We followed the tenet of the Helsinki declaration. The study enrolled all new consecutive diabetic patients attending to retina clinic at Berhan Aini Hospital (BAH), Eritrea from January 2014 to August 2014. The study variables explored were demographic details and the level of awareness of diabetic patients about diabetic retinopathy. The collected data were checked, coded manually and entered into the Microsoft excel and then into Statistical package for social studies (SPSS) 16 program. Descriptive statistical measures such as mean, standard deviation (SD), and range were computed to summarize the continuous covariates. The percentages were reported for categorical variables. Binomial multivariate regression tests were used as a tool of statistical analysis while studying risk factors and awareness about diabetic retinopathy. $P < 0.05$ was defined as statistically significant.

Results

Table 1 shows the demographic profiles of diabetic patients. Mean age of diabetic patients presenting for retinal

examination was 58.81 years and ranged from 14 to 90 years. The number of female patients was only one-third of diabetic patients. More than three-fifths of patients were from Zoba Maekel where the hospital was located. Almost 80% of patients were literate. More than 50% of patients were office workers and housewives.

Average age in Years (SD)		58.81 (12.57)
Age in Years (Range)		14 to 90
Sex	Male	169 (66.79)
No (%)	Female	84 (33.21)
Address	Zoba Makael	158 (62.45)
No (%)	Others	95 (37.55)
Occupation	Office workers	88 (34.87)
No (%)	House wives	54 (21.34)
	Business	53 (20.94)
	Farmers	19 (7.50)
	Others	39 (15.81)
Education	Illiterate	56 (22.1)
No (%)	Literate	50 (77.9)

Table 1: Demographic Characteristics.

Table 2 shows the basic characteristics of diabetic patients. Type II DM comprised 84.1% and 24.5 % of patients reported family history of diabetes. Mean duration of DM in years was 15.7(7.93). An uncontrolled Glycated hemoglobin (HbA1C) ≥ 7 % was present in 71.7 % of patients.

Type of DM	Type I	40 (15.8)
No (%)	Type II	213 (84.2)
Duration of DM in years (SD)		15.7 (7.93)
Family history	Yes	62 (24.5)
No (%)	No	177 (70)
	Don't know	14 (5.5)
HbA1C % (SD)		7.82(1.44)
HbA1C	< 7 %	45 (28.30)
No (%)	≥ 7 %	114 (71.70)
Diabetic Retinopathy	Yes	208(82.21)
No (%)	No	45(17.79)

Table 2: Basic characteristics of diabetic patients.

According to (Table 3), awareness about diabetic eye diseases was found in 89.3% of patients and they responded source of awareness were mostly from the health workers.

Parameters		Frequency	Percentage
Awareness about diabetic eye diseases	Yes	226	89.3
	No	27	10.7
Source of awareness	Health workers	190	75.09
	Friends	14	5.53
	Family	13	5.13
	Newspaper	19	7.5
	Radio/ Television	17	6.71
	Internet	2	0.79

Table 3: Awareness about diabetic eye disease and source of awareness.

The Table 4 clearly states that literacy was the main factor contributing the good awareness about the diabetic eye disease.

Factors		Multivariate Odds Ratio (Confidential interval, 95 %)	P value
Gender	Male versus Female	0.70 (0.21-1.41)	0.2
Education	Literate versus Illiterate	0.36 (0.16-0.83)	0.014
Diabetic retinopathy	Yes versus No	0.47 (0.19-1.14)	0.09
Hypertension	Yes versus No	0.92 (0.41-2.01)	0.83
Address	Maekel versus non Maekel	1.38 (0.62-3.09)	0.43

Table 4: Factors affecting awareness of diabetic retinopathy.

Discussion

The mean age of new diabetic patients visiting retina clinic at BAH was 58.81 (12.97) years. This was almost close to the mean age of diabetic patients in Jordan (54.5 years) and in Nigeria (57.6 years) [5,6]. The presenting age at retina clinic in this study was relatively older unlike in most of the developing countries. This could be due to the tendency of late presentation of diabetic patients to the retina clinic only when they had visual problems [7].

Females patients presented less than males counterparts by 2:3 in this study, which was similar to other studies [8,9], however, female predominance was found in many studies [7,10]. This could be due to a recent trend of increased diabetic prevalence in males and easier access to the hospital because males were more mobile and literate than females in Eritrea.

Most diabetic patients reported were from Zoba Maekel. This is clear because of easy access to health care in Zoba Maekel. The occupation of diabetic patients in our study included mostly the office workers and housewives. The tendency of diabetes in these occupations could be due to lack of physical activity and sedentary lifestyle among them and most of them are from capital in Zoba Maekel. Less

diabetic affection among farmers may be due to increased physical activity, less access to medical care, poor awareness, and consumption of a diet containing less refined foods as compared to those residing in urban areas [10].

Type II diabetes patients comprised of 84.1%. Type 2 DM was 88 % in the neighboring country, Ethiopia [11]. Family history of DM was positive in 24.5 % in this study and 5.5 % of patients do not know about the family history of DM. The higher rate of diabetes in the family could be due to genetic predisposition and common environmental factors such as food habits and lifestyle.

Awareness about diabetic eye disease in Eritrea was quite high (89.3%). There was a general awareness of diabetic retinopathy amongst a majority of patients (88.2-88.9%) in Jordan and Ethiopia which is close to our figure [5,11]. The frequency of subjects who were aware of diabetic ocular complications was comparable among diabetic patients to studies from other countries [12,13]. The source of awareness was from health workers (75.9%) followed by Newspaper and Radio/ Television. The media (magazines and radio) also played an important role in disseminating information in this study group, similar to the study by Saikumar SJ, et al. [12]. Almost 80 % of patients were literates in our study. Awareness of diabetic retinopathy was significantly higher

among the literate patients, similar to study in Nepal [4].

Although knowledge of diabetic eye complications was quite impressive, it is meaningless unless patients adopt in practice. Aggressive and comprehensive awareness is warranted to educate diabetic patients on diabetic retinopathy related blindness [14]. The high frequency of DR in this observation meant that probably the patients presented to eye examination after they had visual symptoms or in the late stage of retinopathy.

Conclusion

Awareness of diabetic retinopathy was significantly higher among the literate patients. Although 89.3 % of patients were aware of diabetic eye complications, a high proportion of diabetic retinopathy among them indicates that screening diabetic patients for retinopathy seems to be considerable challenges in Eritrea. We recommend diabetic retinopathy screening training programs to physicians and even to the eye health workers.

Declaration

Ethics approval and consent to participate: Health research proposal and an ethical review committee of the Ministry of Health, Eritrea approved the ethical clearance to conduct the study. We followed the tenet of the Helsinki declaration. Informed consent was taken for all participants and written informed consent was taken from parents if the patient was child below 15 years.

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