PREVALANCE OF DIABETIC RETINOPATHY AMONG DIABETIC PATIENTS WITH VARIABLE GLYCOSYLATED HEMOGLOBIN VALUES

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INTRODUCTION

Diabetes mellitus (DM) is a growing global health issue and the most common endocrine disorder where the body does not either produce enough insulin or has an insulin resistance. Diabetic retinopathy (DR), which is a common complication in type 1 and type 2 diabetes, remains as a leading cause of preventable sight loss. The most relevant risk factors are the duration of diabetes, poor glycaemic control (high HbA1c) and hypertension.

Classification and grading of DR depends on signs of increasing severity that can be visualized by ophthalmoscope, ranked into a scale from no retinopathy to different stages of non-proliferative disease then advanced PDR.

Determination of the stage of DR severity is essential for assessment of progression risk, treatment modalities, and approving suitable follow up interval. Fundus photography, with or without pupillary dilation, is a technique for detecting documenting the severity of the diabetes.

Glycated hemoglobin (HbA1c) is a clinical test for mean blood glucose estimation. It is widely used to diagnose diabetes and for treatment efficacy monitoring.

AIM OF THE WORK

The aim of this study was to correlate the relationship between glycosylated hemoglobin levels in blood and prevalence of diabetic retinopathy among diabetic patients.

SUBJECTS AND METHODS

The study was conducted on 350 diabetic patients (both type 1 DM & type 2 DM) in Alexandria Main University Hospital.

After full medical and ophthalmological history and demographic data collection from the subjects, fundus photos were taken using a non-mydriatic fundus camera (Optomed Aurora IQ Handheld Fundus Camera (retinal set)). The grading scheme of Scottish Diabetic Retinopathy Screening Collaboration was applied by assessors as a scoring system to grade the captured photos. Glycosylated hemoglobin (HBA1C) was measured using a technology based on dual assay immunoturbidimetry and Nephelometry.

RESULTS

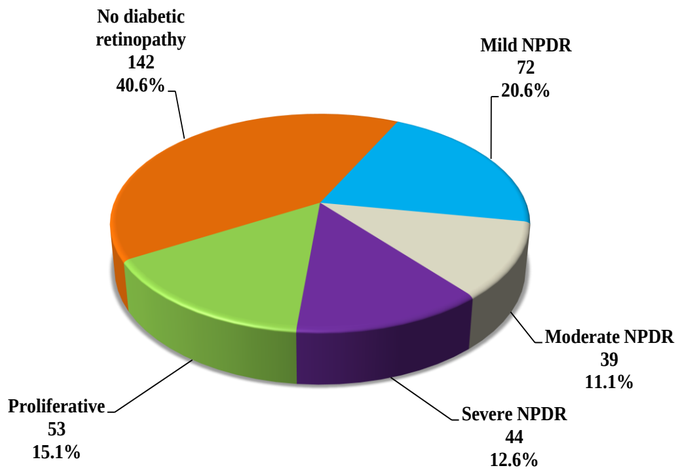

Figure: Distribution of the studied cases according to grading.

Table 1: Relation between HBA1C and grading (n=350)

Grading	N	HBA1C			p
		Min. – Max.	Mean ± SD.	Median	
No diabetic retinopathy	142	5.10 – 14.30	8.30 ± 2.22	7.60	<0.001*
Diabetic retinopathy	208	5.40 – 15.0	9.31 ± 2.31	9.0	

SD: Standard deviation
p: p value for comparing between the two studied categories
*: Statistically significant at p ≤ 0.05

163 patients (46.6 %) with type 1 DM and 187 patients (53.4 %) with type 2 DM were included in the study. Duration of diabetes varied from 1 to 41 years with a mean of 14.45 ± 8.36. HBA1C levels varied between 5.10 and 15.0, with a mean level of 8.90 ± 2.34.

In a sample of 163 patients with type 1 DM, no significant association was noted between variable HBA1C levels and presence of diabetic retinopathy. In contrast to Type 1 DM and for a sample of 187 patients with type 2 DM, significant association has been reported between variable HBA1C levels and presence of diabetic retinopathy.

Additionally, Significant association was detected between duration of DM with a mean of 17.74 ± 7.39 years and presence of DR.

CONCLUSION

Our study reported a significant association between higher levels of HBA1C with a mean of 9.31 ± 2.31 and presence of DR in the whole sample .