Eye structure and Biological Risk factors in Diabetic Retinopathy

Ke Zhang[1], Qi Guo[2], Weimin Wang[1], Jiang Li[3], QipingLi[3]

[1]Third Affiliated Hospital of Xinxiang Medical College, Xinxiang, Henan 453003, China
[2]Third Affiliated Hospital of Xinxiang Medical College, Operating room, Xinxiang, Henan 453003, China
[3]Yellow River Technical College Affiliated Hospital of Zhengzhou, Zhengzhou, Henan 450063, China
Email: zhangkedafu@163.com

Abstract: Objective To investigate the occurrence of biological structure change of the eye and its risk factors diabetic retinopathy. **Methods** In our hospital in January 2009 to December 2012, 100 cases were treated of diabetic patients with retinopathy study group, and at the same period 100 cases of diabetic retinopathy in patients were selected with non-control group. The two groups of patients with clinical data were analyzed retrospectively. **Results** Both corneal diameter and corneal curvature was not statistically significant (P>0.05); axial length and anterior chamber depth comparison with a significant difference (P<0.05). Diabetic retinopathy through single factor Logistic regression analysis, axial length, anterior chamber depth, duration of time are risk factors for diabetic retinopathy, (OR = 12.241,8.213,9.631, P<0.05). After other factors Logistic regression analysis was not statistically significant (P> 0.05). **Conclusions** Patients with diabetic retinopathy single course of time the main factors and C-reactive protein, glycated hemoglobin, and axial length and anterior chamber depth, and axial length, anterior chamber depth, duration of time are risk factors for diabetic retinopathy. Diabetic retinopathy has a variety of factors, clinical should be taken seriously enough, as soon as the intervention of the relevant factors, thereby reducing diabetic retinopathy happen.

[Ke Zhang, Qi Guo, Weimin Wang, Jiang Li, QipingLi. **Eye structure and Biological Risk factors in Diabetic Retinopathy.** *Life Sci J* 2013; 10(3): 748-750]. (ISSN: 1097-8135). http://www.lifesciencesite.com 110

Key words: diabetic, retinopathy, biological structures, risk factors

1. Introduction

Diabetes is a common clinical diseases, mostly occurs in older patients, the majority of patients with retinopathy occurs, thus seriously affecting the patient's health. For clinical pathogenesis of diabetic retinopathy has not yet entirely clear that the basic conditions for the patient, and other factors have close ties [1]. Therefore, this study in our hospital in January 2009 to December 2012 were treated 100 cases of diabetic patients with retinopathy, retinopathy of the eye to its structural features and biological risk factors were analyzed.

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2. Materials and Methods

2.1 Clinical data of this study in our hospital in January 2009 to December 2012 were treated 100 cases of diabetic patients with retinopathy study group, and select the same period 100 cases of diabetic retinopathy in patients with non-control group, the control group of male patients 50 cases, 50 cases of female patients, aged 58 to 78 years, mean (67.3±2.5) years of age. Study Group 48 males and 52 females. Aged 56 to 79 years, mean (66.3±2.8) years of age. Basic information on two groups of patients showed no significant difference (P>0.05), comparable.

2.2 Diagnosis and exclusion criteria All patients were diagnosed with diabetes in line with WHO classification criteria, and random blood glucose ≥ 11.1 mmol/L, or fasting glucose ≥ 7.0 mmol/L. Study group of patients with retinopathy, and no other complications. For eye injuries and eye surgery and uveitis in patients with a history of elevated IOP excluded. The control group patients with no history of diabetes, and preoperative fasting blood glucose in 7.0 mmol/L or less, while excluding patients with a history of eye surgery [2].

2.3 Inspection method object of this study examines two main aspects: basic checks and eye examination.

2.3.1 Basic basic checks include checking the patient's gender, age, duration of disease, body mass index, systolic and diastolic blood pressure, the patient's fasting blood glucose, postprandial 2h plasma glucose, C-reactive protein, glycated hemoglobin and total cholesterol and triglycerides .

2.3.2 Eye examination eye exams include the patient's axial length, anterior chamber depth and corneal diameter and corneal curvature.

2.4 Statistical analysis of this study to take SPSS19.0 statistical software, measurement data taken as mean ± standard deviation (±s) that two independent samples taken t test, count data taken X2 test, multivariate Logistic regression analysis taking , P <0.05 was considered statistically significant.

3. Results

2.1 The two eye examination data comparing two groups of corneal diameter and corneal curvature was not statistically significant (P>0.05); two axial length and anterior chamber depth comparison with a significant difference (P<0.05). Illustrated as in Table1.

Table 1. The study group and the control group comparative analysis of eye examination data

Index	Control group	Research Group	t value	P
Corneal diameter (mm)	11.62 ±0.45	11.58 ±0.47	0.231	>0.05
Curvature of the cornea (D)	44.41 ±1.67	45.21 ±1.27	0.414	>0.05
Axial length (mm)	3.12 ±0.36	2.57 ±0.31	9.341	<0.05
Anterior chamber depth (mm)	24.12 ±1.27	23.12 ±1.17	11.214	<0.05

Over 2.2 Logistic regression analysis of factors will affect the diabetic retinopathy single factor Logistic regression analysis, and model selection criteria was 0.05, which is 0.1 Exclusion criteria. Diabetic retinopathy through single factor Logistic regression analysis, axial length, anterior chamber depth, duration of time are risk factors for diabetic retinopathy, (OR=12.241,8.213,9.631, P<0.05). After other factors Logistic regression analysis was not statistically significant (P>0.05), statistically meaningless. As illustrated in table 2.

Table 2 diabetic retinopathy affecting Univariate Logistic Regression Analysis

Factor	Duration	C reactive protein	Glycosylated hemoglobin	Axial length	Anterior chamber depth
OR	9.631	4.241	5.211	12.241	8.213
95.0%CI	1.121-11.231	0.231-3.462	2.133-4.893	1.112-13.538	2.184-9.402
P	<0.05	>0.05	>0.05	<0.05	<0.05

4. Discussion

Diabetes is a common disease in clinical, disease mostly occurs in older patients, patients with severe impact on the health and quality of life [3]. Most of the patients in the clinical treatment process is often associated with retinal lesions occur, thereby increasing the patient's condition. Clinical diabetic retinopathy for the occurrence mechanism is not entirely clear, most scholars believe that with the patient's own conditions and other factors are closely linked [4].

Clinically relevant information, the patient's age and diabetes duration, and blood pressure and blood glucose, glycosylated hemoglobin and other factors and retinal lesions with a certain degree of relationship [5]. Wherein in diabetic patients the clinical course of disease is an important factor in the affirmative. And with the time course of the disease in patients with increased risk of retinopathy of its occurrence is higher.

Through this analysis of clinical studies, patients were corneal diameter and corneal curvature was not statistically significant (P>0.05); two axial length and anterior chamber depth comparison with a significant difference (P<0.05). This analysis, diabetic retinopathy and anterior chamber depth and axial length has close ties, and their independent factor. Further analysis of their diabetic retinopathy eye biological structures will also change, especially in axial length and anterior chamber depth compared to non-diabetic retinopathy in patients with axial length and anterior chamber depth significantly reduced. Diabetic retinopathy in patients with axial length and anterior chamber depth will appear reduced, clinical should attract attention.

In addition, diabetic retinopathy and Univariate Logistic Regression Analysis, axial length, anterior chamber depth, duration of time are the risk factors for diabetic retinopathy, (OR= 12.241, 8.213, 9.631, P<0.05). After other factors Logistic regression analysis was not statistically significant (P>0.05). This analysis, axial length, anterior chamber depth, duration of time are the risk factors for diabetic retinopathy, and all the time with the duration of diabetes increases, the probability of occurrence of retinopathy will increase [6]. Meanwhile, the axial length is shorter and shallower anterior chamber depth with diabetes are more likely to occur in clinical retinopathy.

In summary, in the clinical treatment of

patients with diabetes are prone process of retinopathy, and thereby increase the patient's condition. Diabetic retinopathy in patients whose eye biological structures will also change, especially in axial length and anterior chamber depth compared to non-diabetic retinopathy in patients with axial length and anterior chamber depth significantly reduced. Clinical effect in patients with diabetic retinopathy single course of time the main factors and C-reactive protein, glycated hemoglobin, and axial length and anterior chamber depth, and axial length, anterior chamber depth, duration of time are risk factors for diabetic retinopathy. Therefore, diabetic retinopathy in patients with a variety of factors, clinical practice should be taken seriously enough, as soon as the intervention of the relevant factors, thereby reducing diabetic retinopathy to happen.

References:

[1] Zhang a position paper issued Quebec, Jia Jing, such as type 2 diabetic retinopathy risk factors [J]. Chinese Community Doctors (medical profession), 2011, 21 (35):463-464.

[2] Yinzhao Dong retinopathy risk factors analysis [J]. Chinese Health Industry, 2013, 11(01):123-124.

[3] Hanshu Xia, Zhengyue Zhong Diabetic retinopathy case-control analysis of risk factors [J]. Chinese Journal of Practical Ophthalmology, 2006, 23(10):573-574.

[4] Hao Linna, Li Yibin, XIAO Yuan-yuan, etc. Non-proliferative diabetic retinopathy, blood glucose non-related risk factors for disease analysis [J]. Ophthalmology, 2011, 16 (03):144-145.

[5] Wang Congmin. Elderly patients with type 2 diabetes risk factors for diabetic retinopathy analysis [J]. Journal of Chinese medicine science, 2012, 22 (17): 472-473.

[6] Zhao YongLi, He Chunling Chen Yueping, etc. In patients with type 2 diabetes risk factors for diabetic retinopathy analysis [J]. Journal of anhui medicine, 2009, (03): 744-745.

7/9/2013