10th International conference on

Ophthalmology and Optometry

August 10-11, 2017 Beijing, China

Amplitude of accommodation is reduced in diabetic patients

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Background: The prevalence of diabetes mellitus is increasing exponentially due to changing lifestyle with increasing obesity and reduced physical activity levels. Diabetes mellitus is characterized by chronic hyperglycemia associated with long-term damage of different organs, especially the eyes, kidneys and nerves. Little is known on how diabetes affects the optics and biometry of the eye.

Purpose: To determine the effect of diabetes on the amplitude of accommodation of the eye. We obtained direct subjective amplitude of accommodation and the duration of diabetes mellitus to better understand the loss of accommodation accompanying diabetes.

Methods: The study comprised of subjects less than 40 years of age. There were 84 (36 ± 2.5 years) subjects with diabetes and 81 (35 ± 2.7 years) age-matched controls. Exclusion criteria included all forms of ocular disease. Amplitude of accommodation was measured using the RAF ruler push-up method and was measured monocularly while subjects wore their habitual distance refractive corrections with the target (N5) placed at 40 cm and brought closer to the subject until the first sustained blur was reported.

Results: The mean amplitude of accommodation for diabetes was 6.34 ± 1.4 D while that for control subjects was 8.60 ± 2.00 D. Both type-1 and type-2 diabetes had similar reduced amplitude of accommodation. We did not find any correlation between amplitude of accommodation and the duration of diabetes.

Conclusion: We found reduced amplitude of accommodation in people with diabetes when compared with age-matched controls. The results suggest that people with diabetes will experience presbyopia earlier than people without diabetes and blurring of vision can be the first of the presence of diabetes.

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