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# The role of diabetes duration and glycosylated hemoglobin in retinal nerve fiber layer changes in type 2 diabetes without retinopathy: Defining the association

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**Purpose:** The decrease in retinal nerve fiber layer thickness (RNFLT) is previously reported to be associated with longer diabetes duration (dd) and higher glycosylated hemoglobin (HbA1c) in type 2 diabetics without retinopathy. The expression needs to be defined of how long the dd is and how high is the HbA1c for a decrease in RNFLT to appear in this diabetic group. Therefore, the purpose is to define how early this association does begin in a sample of type 2 diabetics without retinopathy with well controlled glucose level.

**Methods:** A cross-sectional study included 27 healthy subjects and 30 type 2 diabetes without retinopathy, with age and sex matched. RNFLT was acquired using the 200x200 optic disc cube scanning protocol in HD-spectral domain optical coherence tomography. The average of three consecutive measurements was calculated for each subject following the manufacturer's recommendations for the scan signal strength ( $\geq 6$ ). The RNFLT difference between the two groups was calculated using the independent t-test. RNFLT was then analyzed in reference to the dd and HbA1c. Significance level used was  $p < 0.05$ .

**Results:** There were no significant differences in the RNFLT between the two groups, although there was a tendency of decreased thickness in the diabetic group compared to the healthy group. The RNFLT did not show any significant association between the dd and the HbA1c.

**Conclusion:** In reference to the present results and the review of the literature, the RNFLT in type 2 diabetes without retinopathy seems to associate with longer dd of  $\geq 10$  years and HbA1c  $\geq 7\%$ . This association was not apparent in the present study due to the shorter mean dd (8 years) and lower HbA1c ( $< 7\%$ ). Further longitudinal studies are needed to draw a pattern of such an association and detect any individual differences between subjects with type 2 diabetes without retinopathy.

## Biography

Shroug M Aldaham has completed her PhD in Optics, Optometry and Vision at Complutense University of Madrid (UCM), Spain in 2017; BSc (Hons) in Optometry at King Saud University (KSU), Riyadh, Saudi Arabia, and a Master of Science in Vision Science at the University of Waterloo, Ontario, Canada. She has joined the Optometry Department at KSU as a Demonstrator (an academic position that prepares for professorship) before joining the Master program in Canada. After her master's she returned to Riyadh and later joined the PhD program at UCM. Both her master's and PhD studies were Saudi government-funded research grants. She has a research experience in pediatric vision screening and visual function testing in diabetics and has published in international optometric and vision research meetings. Her research interests are pediatric and diabetic visual function.

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