THE EFFECT OF DIABETIS MELLITUS ON THE GANGLION CELL COMPLEX THICKNESS IN PATIENT WITH PRIMARY OPEN ANGLE GLUCOMA

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Introduction

primary Open-angle glaucomais the most common form of glaucoma which is a chronic, progressive optic neuropathy in adults in which there is a characteristic aquired atrophy of the optic nerve and loss of retinal ganglion cells and their axons. This condition is associated with an open anterior chamber angle by gonioscopy generally bilateral, but often asymmetric

Optical coherence tomography allows for noninvasive imaging of glaucomatous structural damage involving the optic nerve, peripapillary retinal nerve fiber layer and the macular region.

Diabetes mellitus has become one of the most significant public health problems in the last decades. As the prevalence of DM and life expectancy increase worldwide, diabetic complications also increase. Early detection of ocular complications of DM is important for the preservation of useful visual acuity.

The recent introduction of optical coherence tomography angiography has sparked interest in evaluating vascular alterations in the retina and optic nerve head for diagnosis staging, and monitoring in glaucoma and diabetis.

Aim of the work

The aim of this work was to study the effect of diabetes mellitus on the ganglion cell complex thickness in patients with primary open angle glaucoma.

Subjects and Methods

SUBJECTS:

The study will iinclude 40 eyes with primary open angle glaucoma (POAG) patients which will be stratified into 2 groups:

Group A: will include 20 eyes with POAG and diabetes mellitus (DM).

Group B: will include 20 eyes with POAG and without DM.

Inclusion criteria

•Diabetic patient not less than 10 years having diabetes.

•Cup/disc ratio not more than 0.8.

Exclusion criteria

•Hazy medium.

•Patient previously treated by intravitreal injection.

•Patient previously treated by laser photocoagulation.

•Patient with history of previous retinal surgery.

METHODS:

All study participants will be subjected to the same protocol including history taking, examination and investigations, as follows:

1.Thorough history taking including demographic data, general medical history (general diseases, e.g. DM, systemic arterial hypertension, etc), ophthalmic history (duration since glaucoma diagnosis, ocular comorbidities, etc), family history (of both DM and POAG as well as other relevant issues), drug history (including topical and systemic medications) and surgical history.

2.Full ophthalmic examination.

3.Investigations, including visual field testing, by Humphrey visual field analyser (HFA).

4.OCT: Zeiss Cirrus High Definition OCT a spectral domain OCT.

5.OCT angiography: Zeiss AngioPlex OCT Angiography (Cirrus HD-OCT, model 5000, Software version 8.1, Carl Zeiss Meditec.

Results

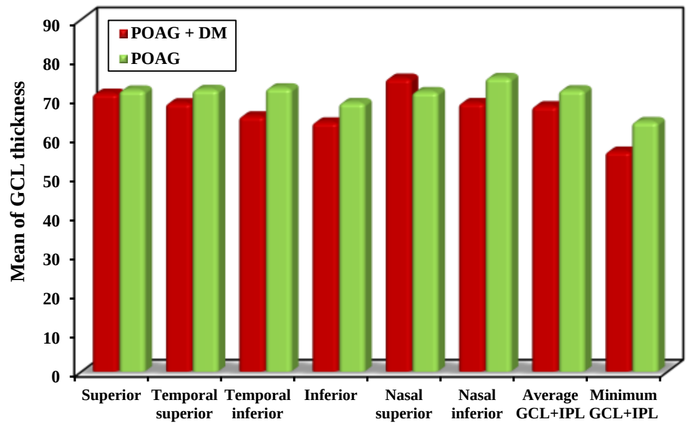

Figure: Comparison between the two studied groups according to GCL Thickness

Table (1): Correlation between Macula superficial capillary with OCT data in each group

Macula superficial capillary vs.	POAG + DM group (n = 20)				POAG group (n = 20)			
	Perfusion		Density		Perfusion		Density	
	R	p	r	P	r	P	r	p
GCL Thickness								
Superior	0.358	0.121	0.247	0.295	-0.002	0.993	0.087	0.715
Temporal superior	0.523	0.018*	0.434	0.056	-0.077	0.748	-0.040	0.868
Temporal inferior	0.402	0.079	0.301	0.197	-0.094	0.694	-0.087	0.714
Inferior	0.252	0.283	0.172	0.469	0.374	0.104	0.442	0.051
Nasal superior	0.184	0.438	0.042	0.861	0.252	0.284	0.296	0.205
Nasal inferior	0.475	0.034*	0.345	0.136	-0.265	0.259	-0.208	0.379
Average GCL+IPL	0.419	0.066	0.300	0.199	0.079	0.741	0.138	0.563
Minimum GCL+IPL	0.307	0.188	0.250	0.289	0.392	0.087	0.449	0.047*

r: Pearson coefficient

*: Statistically significant at $p \leq 0.05$

CONCLUSIONS AND RECOMMENDATIONS

- In conclusion DM has a variable effect on the OCTA parameters in POAG, no rigid rule.
- It is recommended to Increase sample size and age variations in further studies to confound more significant correlation between diabetis and ganglion cell complex in primary open angle glaucoma patients.