INTRAOCULAR PRESSURE CHANGE DURING ORAL GLUCOSE TOLERANCE TEST IN NON-DIABETIC INDIVIDUALS

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Objectives:

Hyperglycemia in diabetic patients may lead to elevated intraocular pressure. Different reasons related to the rising intraocular pressure in studies are discussed. The purpose of the present study was to investigate the change in intraocular pressure during oral glucose tolerance test in non-diabetic subjects.

Methods:

Fifty-one individuals fulfilling the inclusion criteria of the study and scheduled for oral glucose tolerance test according to the World Health Organization (WHO) underwent clinical examination. Biochemical parameters associated with metabolic syndrome, insulin resistance (HOMA-IR) and systolic and diastolic pressure were also measured. Complete ophthalmologic examination was performed before the test. The inclusion criteria were having a normal intraocular pressure (<21 mm Hg), and having no eye disease, no ophthalmic surgery or no glaucomatous optic nerve appearance. During the test, intraocular pressure was measured by using rebound tonometry (ICARE) two times at the fasting state and at-first and second hour after oral glucose administration.

Results:

The mean age of the patients was 46.24± 11.31 years. The mean body mass index was 29.63±5.25 kg/m2. The median fasting glucose and intraocular pressure for right was 100 mg/dl (91.250- 105.750) and 17 mmHg(14-20). The median glucose and intraocular pressure level for right eye in the first hour in OGTT were 153 mg/dl (123.5- 190.5) and 18 mm Hg (14-22). The median glucose and intra ocular pressure for right eye in the second hour in OGTT were 117 mg/dl (92.25-140) and 18 mm Hg (14- 20.75). The intraocular pressure right eye were significantly higher in the first hour compared to the fasting values ($p<0.05$).

Conclusions:

The relation between diabetes mellitus and glaucoma has been addressed in many studies with no clear underlying mechanisms. In our study on healthy non-diabetic individuals, hyperglycemia has found to have a positive relationship with intraocular pressure, suggesting that hyperglycemia may represent a possible mechanism.

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