ABSTRACT

Control of Acute Postprandial Hyperglycemia in Order to Prevent The Progession of Insulin Resistance in Persons with Impaired Glucose Tolerance.

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Acute postprandial hyperglycemia (APH) is a terminology used for rapidly increasing of blood glucose level after meal that can be found in diabetes mellitus (DM) or impaired glucose tolerance (IGT). Pathophysiologically, APH is caused, at first, bya the impaired first phase of insulin secretion. Insulin resistance is the first cause of APH, stimulated by meal as "enviromental factor", and the genetical disorders, may lead to "glucose toxicity", a situation that can cause the decrease of insulin sensitivity can be prevented by control of APH buy using the pharmacological intervention in persons with IGT. The secondary aim is to investigate that the improvement of data around some atherogenic factors in blood, according to the improvement of insulin sensitivity.

This is an experimental, double blind prospective study with "pretest – postest control group design". Statistical analysis was performed by using SPSS program in which Kolmogorov – Smirnov is used for normality test, "t-test for hormogenity test, "pearsons correlation", and "anova" for test of hypothese.

The subjects were offsprings of type 2 diabetes mellitus (T2DM) patients with IGT. Obese and hypertensive patients were excluded. All of them (65 subjects) was divided into 2 groups : intervention group (35) and placebo group (32). Randomized sampling technique was used for determining the group of subjects. In this study, repaglinide, a derivation of Carbamoyl Methyl Benzoic Acid (CMBA), was used as Prandial Glucose Regulator (PGR), and each subjects in the intervention group, got a dosage of 0.5 mg repaglinide in a capsule that similar in appearance to what the placebo group got for 12 weeks. Control or placebo group was in aequal amount of IGT subjects who was matched in age and sex. The sample of glucose and insulin serum at 0 (fasting), 30 and 120 minute in "oral glucose tolerance test" (OGTT) were examined as 'pre test". The serum levels of ICAM-I, PAI-I, LDL cholesterol, HDL cholesterol, and triglyceride were also determined at the beginning of the study. The similar examination was performed at the end of the study ("posttest"). The sensitivity of insulin is determined by using the formula of index of insulin sensitivity as proposed by Matsuda and De Fronzo.

At the end of the study, there was a significant decrease of index of insulin sensitivity in placebo group compared with repaglinide group ($p = 0.04$), since in repaglinide group, there was a trend of an increase in index of insulin sensitivity ($p = 0.31$). It seems that the decrease of insulin sensitivity in placebo group is followed by an increase of the artherogenic factors.

Keywords : IGT, Acute Postprandial Hyperglycemia, Insulin Sensitivity Index