The changes of serum Glucagon-like peptide 1 level in type 2 diabetic patients

Background: Glucagon like peptide-1 (GLP-1), an incretin hormone, produced from intestinal L cells and regulates glucose metabolism by inducing beta cell mass, insulin secretion and suppressing glucagon secretion. How plasma GLP-1 level correlated to blood glucose and insulin and to prove that low GLP-1 levels was a risk factor T2DM in the Mongolian population.

Goal: The aim of the study is to assess the level of fasting and post-prandial GLP-1 levels to appear blood insulin and glucose levels in serum and their pathophysiological role for type 2 diabetes mellitus.

Methods: Serum total and active GLP-1, insulin and blood glucose level were measured on fasting and postprandial state at 15, 30, 60 and 120 minutes in 14 newly diagnosed T2DM and 28 subjects with normal glucose tolerance, were enrolled in the study as the control group. Statistical analyses were performed using the Student's T-test for comparison between two groups on measurements of insulin, Glucagon likepeptide 1 and glucose levels. P values below 0.05 were considered statistically significant.

Results: The post-prandial active GLP-1 levels were significantly decreased at 60-120 minutes in T2DM compare with control subjects. Postprandial blood glucose level was potently higher and the 1^{st} phase at glucose-induced insulin release significantly decreased in T2DM. Moreover fasting insulin significantly higher in T2DM groups.

Conclusion: The lower level of postprandial active GLP-1 potently correlated to impairment at glucose-induced insulin release and hyperglycemia in T2DM. This result indicate that impairment at postprandial GLP-1 secretion may have pathphysiological role to develop T2DM.