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THE EFFECTS OF VOGLIBOSE AND GLIMEPIRIDE ON ADIPOSE TISSUE AND METABOLIC PARAMETERS IN PATIENTS WITH NEWLY DIAGNOSED TYPE 2 DIABETES MELLITUS

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Background: Alpha-glucosidase inhibitor, which antagonizes the disaccharide hydrolase involved in carbohydrate absorption, has been developed as an oral hypoglycemic agent. For people whose main meal consists of carbohydrates, as those living in Asian countries, alpha-glucosidase is seems to be a good choice of drug. In contrast to many anti-diabetic drugs, voglibose has a weight losing effect. We compared the effects of glimepiride and voglibose on body fat composition and metabolic parameters including plasma adiponectin level in Korean patients with type 2 diabetes.
Method: Forty obese, drug-naïve, newly diagnosed type 2 diabetes patients were randomized into voglibose (0.3 mg t.i.d.) and glimepiride group (1–2 mg q.d.). At baseline and after 12 weeks of medication, anthropometric measurement using a total-body dual-energy absorptiometry (DXA) and computerized tomography scan and various biochemical parameters including serum glucose, HbA1c, insulin, and lipid profiles and serum adiponectin level were measured.

Metabolic parameters before and after treatment

	Voglibose		Glimepiride	
	Before	After	Before	After
FPG (mg/dL)	148.2 ± 28.0	128.5 ± 25.9**	150.1 ± 21.9	113.4 ± 26.4**
Insulin (pmol/L)	8.39 ± 4.24	7.10 ± 4.14	8.62 ± 1.31	9.27 ± 2.76
C-peptide (nmol/L)	2.37 ± 0.72	2.43 ± 0.75	2.38 ± 2.5	2.96 ± 1.28
HOMA-IR	3.04 ± 1.29	2.23 ± 1.26**	3.23 ± 1.15	2.57 ± 1.88
HbA1c (%)	7.8 ± 0.6	6.9 ± 0.4**	7.7 ± 0.6	6.5 ± 0.5**
TC (mg/dL)	206.7 ± 30.2	185.2 ± 27.8**	203.6 ± 29.4	186.2 ± 24.3**
Triglyceride (mg/dL)	182.7 ± 86.3	137.3 ± 50.2**	188.1 ± 92.7	160.0 ± 73.6
HDL- C (mg/dL)	46.2 ± 11.9	47.8 ± 11.3	45.1 ± 16.2	44.0 ± 15.5
LDL- C (mg/dL)	128.3 ± 28.6	118.6 ± 25.8	124.6 ± 30.3	113.9 ± 28.4
Adiponectin (ug/mL)	5.02 ± 2.15	5.91 ± 1.49**	5.14 ± 3.29	5.22 ± 1.41

Data are means ± SD. Abbreviations: FPG, fasting plasma glucose; TC, total cholesterol; HDL-C, HDL-cholesterol, LDL-C, LDL-cholesterol.
* P < 0.05 before vs. after; ** P < 0.01 before vs. after; *** P < 0.05 before vs. after.

Result: There were no differences in baseline anthropometric and body composition between voglibose and glimepiride group. After 12 weeks of treatment, there was a significant decrease in body weight, fat mass, and body fat percent in voglibose group, but no differences were observed in glimepiride group. Also, changes in VAT, SAT, and VSR were significantly reduced in voglibose group. In both groups, there was a significant improvement in fasting plasma glucose level and HbA1c, and there was a greater reduction in HbA1c in glimepiride group compared to that of voglibose group. Plasma total cholesterol level was decreased in both groups, and there were no changes in LDL-cholesterol and HDL-cholesterol after 12 weeks in both groups. Triglyceride and HOMA-IR were significantly decreased only in voglibose group. And, plasma adiponectin level was increased significantly more in voglibose group compared to glimepiride group.
Conclusion: Voglibose had a favorable effect on body weight and visceral fat mass compared to glimepiride, and it was accompanied by an increase plasma adiponectin level. This finding suggests adiponectin to be one of the mediators of the favorable metabolic effects of voglibose in obese, type 2 diabetes patients.

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GLIPTIN THERAPY IMPROVE ADIPONECTIN LEVELS IN T2DM METS

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Background: Incretin released by cells in the small bowel in response to food intake, stimulate insulin release. The Incretin are significantly reduced in Type 2 Diabetes Mellitus (T2DM). This hormone have a variety of actions including the stimulation of insulin release from pancreatic beta cell. Some of the study models shows that incretin therapy are give a good improvement in increasing the adiponectin levels. This study is to identified the effect of incretin therapy to adiponectin levels.
Method: This is a pre-post study. We recruited 63 subjects with T2DM-MeTS patients from out patient clinic. We excluded subjects who were on the insulin therapy and we also exclude subject with thiazolidinediones *therapy. Most of the subject were refused to received insulin therapy and decided to continue oral anti Diabetik therapy. A* ll of the sample were treated with gliptin as an add-on therapy.
We collect the data of HbA1c level and Adiponectin on the first time they recruited as a trial sample. After they agree to involve in this trial, we add a gliptin as an add on therapy to their prior oral anti diabetec therapy. No spesific DPP-IV inhibitor use for this trial, we use sitagliptin, vildagliptin, saxagliptin and linagliptin on their therapeutic dose. We observed all of the subject in 24 weeks. No dose adjustment allowed during the observation, and not allowed to stop or added other Diabetic therapy during observation period.
At the end of the observation period, we examine the level of HbA1c and adiponectin.
We analyze the levels of adiponectin; A1C; body weight, and blood glucose levels during pre and post Gliptin therapy. We run this study for 6 months observation. We analyze the changes of adiponectin levels by using pair T-test.
Result: The mean of age was 58.98±12.28 years, average levels in A1C1 before therapy: 8.56±2.1% while after giving gliptin therapy is 7.47±1.4%. While for the average levels of adiponectin before given gliptin therapy are 6.07±2.61 and after therapy was 6.17±2.58. For the mean of body weight before gliptin therapy: 80.66±13.55 kg, and 79.66±13.61 kg after treated with gliptin. By using pair T-Test, the results showed the A1c improvement were significant ($r = 0.697$; $p < 0.001$), while the correlation of adiponectin before and after gliptin therapy shows significant results ($r = 0.998$; $p < 0.001$) this result also showed significant in decrease of bodyweight ($r = 0.997$, $p < 0.001$).
Conclusion: Decrease of body weight during gliptin therapy and reduce the visceral fat are the most possibel causes in the elevation of serum adiponectin level. Decrease of body weight should be a result of decrease in visceral fat which can influence in improving the adiponectin level. Study for

gliptin as a combine therapy, showed a significant results in reducing total body weight, body mass index (BMI), fat mass, and tissue fat percentage and also the waist circumference (WC), and ended with the elevation of adiponectin level.
It still need further clinical research on a larger scale and also long-term gliptin treatment to determine the exact mechanism and the beneficial effects of gliptin on serum adiponectin.
In our clinical trial, there were significant improvement on the level of adiponectin after giving a gliptin as an add-on therapy for 6 months to prior diabetes management to the T2DM MetS subjects and also for the decrease of bodyweight.

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CHANGE IN BODYWEIGHT AND IMPROVING ADIPONECTIN LEVEL DURING GLIPTIN THERAPY IN T2DM-METS

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Background: Present study showed that despite the significant relationship of adiponectin with fasting triglyceride level and abdominal obesity in T2DM-MetS. In such patients, successful weight loss can improve glycemic control, as well as reduce concomitant cardiovascular risk factors,like hypertension and dyslipidemia. Large fat cells resist insulin-mediated lipolysis suppression, resulting in excess release of free fatty acid (FFA). Gliptin inhibits fat extraction from the gut, although it is in lesser degree compare with a lipase inhibitor agent such orlistat, this could be the one benefit of the Gliptin therapy. Adiponectin is synthesized at the adipocytes tissue and delivered into the bloodstream. High levels of adiponectin give benefits as anti-diabetic and anti-atherosclerotic effects. Weight loss during Gliptin therapy, probably caused by a reduction in visceral fat, and consequently there will be an increased in levels of adiponectin. This study aimed to see the correlation between the change of bodyweight and adiponectin improvement during gliptin therapy in T2DM-MetS patients.
Method: This is a retrospective study. We select 300 medical records from private out patient diabetes and endocrine clinic patients. And 60 patients were eligble to involve in our study. We select patient who received oral diabetic agent, subject with insulin, Thiazolidinediones and cacium channel blocker were elimanate from this trial. During the observation for 24 weeks, 10 subjects were eliminated because of dose adjusment on their oral anti diabetics agent, and addition of other anti diabetic agent. We collect the data such as bodyweight, age, HbA1c, and adiponectin level from the beginning and at the end of observation period. We calculate the change of body weight, HbA1c level, and Adiponectin. we analyzed the relationship between changes in body weight and levels of adiponectin using spearman test.
Result: The subjects mean of age were: 58.98±10.03 years, average levels in A1C before therapy: 8.72±2.08 while after giving gliptin therapy is 7.51±1.911. While for the average levels of adiponectin before given gliptin therapy are 5.77±2.49 and after therapy was 5.87±2.46. For the mean of body weight before gliptin therapy: 82.22±14.54 kg, and after gliptin therapy was 81.22±14.15. And the mean of adiponectin level was 5.77±2.49, and after gliptin therapy: 5.87±2.46. there was significant in decrease of bodyweight ($r = -0.997$; $p < 0.001$); significant improvement in adiponectin level ($r = -0.998$; $p < 0.001$). Statistical analysis between two variables show no significant correlation between bodyweight change and adiponectin improvement ($r = 0.697$; $p < 0.001$).
Conclusion: Decrease of bodyweight in this study doesn't have significant correlation with Improvement of adiponectin levels. The adiponectin improvement probably through the other pathomechanism. Reactive Oksigen spesies and other pro-oksidan which are altering the adiponectin level, could be the explainable cause for these results.

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ALTERNATE-DAY DOSING OF LOW DOSE (7.5MG/DAY) PIOGLITAZONE EFFECTIVE IN INDIAN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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Background: In spite of substantial evidence of the beneficial effects of pioglitazone, clinicians are hesitant to use pioglitazone because of certain concerns and controversies. Low dose pioglitazone (7.5 mg) has been proved safe and effective in prior studies with few studies showing comparable effects as that of standard dose (15 mg) pioglitazone. The purpose of our study was to prospectively evaluate the effectiveness of alternate day dosing of low dose pioglitazone (group 1) compared to standard everyday dosing of low dose pioglitazone (group 2) on metabolic control and the incidence of adverse effects.
Method: The study population consisted of male and female patients aged 34–75years with an established diagnosis of type 2 diabetes, and previously treated with anti-diabetic medications other than pioglitazone. A total of forty patients were randomly assigned to either of the treatment groups. Only those patients whose anti-diabetic medications had remained unchanged during the preceding three months