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Introduction

sites residing on beta-cells to stimulate insulin secretion in a glucose-dependent manner; furthermore, GLP-1 acts on alpha cells and inhibits the secretion of glucagon [7].

Analogs of GLP-l have been developed to mimic its insulinotropic e ect such as liraglutide and exenatide, which are resistant to degradation by the DPP-4 enzyme [8]. Another group of incretin enhancers acts as selective inhibitors of DPP-4. Vildagliptin is a potent and selective inhibitor of DPP-4 that increases the levels of active incretins and enhances pancreatic islet - and -cell responsiveness to glucose, thus improving insulin secretion and reducing inappropriate glucagon production, improving insulin sensitivity, improving postprandial lipid and lipoprotein metabolism, and reducing fasting and postprandial glucose and HbA1c [9]. Vildagliptin does not appear to increase the risk for hypoglycemia and the oral dosage form gives a distinct advantage over GLP-l agonists, which must be given parenterally [10].

Since DM is a progressive disease, the majority of patients will eventually require the addition of a second drug to achieve acceptable glycemic control. So, the present work was conducted to evaluate the

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Parameter		Control Group	Metformin Group		
			Pre-treatment	Post-treatment	% Change
FBG (mg/dL)	Range	70-118	160-390	90-140	;
	Mean ±SEM	100.47 ± 3.74	229.90 [a] ± 15.6	118.20 [a,b] ± 4.03	
Total Cholesterol (mg/dL)	Range	160-210	176-249	192-253	;
	Mean ±SEM	178.50 ± 5.44	204.80 [a] ± 5.15	201.8 [a] ± 4.52	
Triglycerides (mg/dL)	Range	62-100	66-150	80-135	
	Mean ±SEM	80.80 ± 3.64	110.07[a] ± 7.61	118.07 [a] ± 5.22	9
LDL-C (mg/dL)	Range	101-110	105-160	95-156	;
	Mean ±SEM	106.40 ± 0.79	124.93		

In the present study, obese T2DM patients were kept on vildagliptin and/or metformin for two months. e mean values of BMI and HOMA-IR of the T2DM patients enrolled in our study indicated that they were obese and having insulin resistance. e pretreatment levels of HbA1c % indicated that the patients had a bad glycemic control in the previous two to four months. Kelly [22] demonstrated that there is a likes between obesity and T2DM involving pro-in ammatory cytokines (tumor necrosis factor- and interleukin-6), insulin resistance, deranged fatty acid metabolism, and cellular processes such as mitochondrial dysfunction and endoplasmic reticulum stress. Hyperglycemia and hyperinsulinemia represent the whole mark of insulin resistance [23]

e hyperinsulinemia observed in T2DM patients at the start of study was reduced a er two months of treatment in all groups, with a parallel reduction in FBG and HOMA-IR. Glycated hemoglobin, although it was insigni cantly changed in T2DM patients administered di erent treatments, it tends to decrease, and the greatest reduction of HbA1c % was achieved with vildagliptin monotherapy. A signi cant positive correlation was found between HOMA-IR and each of FBG and HbA1c % in diabetic patients.

Discussion

Data from the Landmark UK Prospective Diabetes Study indicates that loss of beta-cell function is progressive and leads to the clinical impression of failure of therapy in T2DM patients. is is the main reason why many patients with T2DM are not within target ranges of glycemic control [21]. Only ~25% of adult diabetic patients achieve adequate glycemic control on monotherapy and the majority of patients will eventually require the addition of a second drug to achieve acceptable glycemic control [8].

who found that subcutaneous administration of DPP-4 inhibitor for 12 weeks improved insulin sensitivity in a diabetes model in rats. Moreover, Zander et al. [25] demonstrated that subcutaneous administration of GLP-1 for 6 weeks has been shown to enhance insulin sensitivity in subjects with T2DM, along with improved glucose metabolism. Lowering of blood glucose by vildagliptin is attributed to the potentiation of release of the incretin hormones, GLP-1 and GIP, from the small intestine into the vasculature. Vildagliptin acts as incretin enhancer by preventing the inactivation of endogenous incretin by DPP-4, thereby elevating active incretin levels, which then regulate insulin secretion in a glucose-dependent manner [26]. Vildagliptin has been shown to inhibit circulating DPP-4 activity by about 80% [27].

Measurement of GLP-1 in the current study provided an additional support, where GLP-1 showed low pretreatment levels in T2DM patients GIP6bn iueidei2n >[(in)8(s)5((>[(inotEMC /So)16(w)81(p)12(r)13(et) insulin On2145(o)12(f)15(G4526(1w6(o-(id)-9(en)4* [(in)4(cr)13de1<ehe412(r)13t)55(-6(i >in)4(cr)1in2145(12(n)-3(t)81(b)7es 145(o)12(f)