WHIOCE PUBLISHING PTE. LTD.
PROVIDING FIRST-CLASS SCIENTIFIC INFORMATION FOR TOP SCHOLARS

2025 Volume 10, Issue 3
Journal of Medicines Development Sciences
ISSN: 2382-6371(Online) ISSN: 2382-6363(Print)

Effect Observation of Combination Therapy with Veglitin Tablets and Metformin Hydrochloride for Patients with Type 2 Diabetic Nephropathy

Yinyin Chen, Jiawei Zhang*
Department of Geratology and Special Hospital Ward, Affiliated Hospital of Hebei University, Baoding 071000, Hebei,China

***Corresponding author:** *Jiawei Zhang, 13315295181@163.com*

Abstract: This study analyzed the efficacy of the combination therapy of Veglitinide Tablets and Metformin Hydrochloride Tablets in treating type 2 diabetic nephropathy. A total of 80 patients admitted to our hospital between January 2024 and January 2025 were enrolled. Using a randomized block design, the patients were divided into two groups for prospective analysis. The control group received Metformin Hydrochloride Tablets, while the observation group received the combined therapy of Veglitinide Tablets and Metformin Hydrochloride Tablets. The improvements in blood glucose levels and renal function were compared between the groups. Post-treatment analysis showed that the observation group exhibited lower fasting blood glucose and 2-hour postprandial glucose levels ($P<0.05$), with significantly reduced serum creatinine and blood urea nitrogen levels ($P<0.05$). The combined therapy demonstrated significant therapeutic effects in type 2 diabetic nephropathy patients, effectively regulating both blood glucose and renal function.

Keywords: Veglitin tablets; Metformin hydrochloride tablets; Type 2 diabetic nephropathy

Online publication: September 26, 2025

1. Introduction

Diabetic nephropathy, a subtle-onset and slowly progressive microvascular complication of diabetes, is associated with impaired glucose metabolism. Metformin, the first-line antidiabetic medication in clinical practice, effectively improves blood glucose levels and insulin resistance[1]. Veglitinib enhances incretin action to stimulate insulin secretion from pancreatic β-cells, thereby achieving blood glucose regulation while potentially exerting renal protective effects[2]. This study aims to evaluate the combined therapeutic regimen of veglitinib and metformin on renal function indicators and metabolic parameters in diabetic nephropathy patients.

2. Data and methods

2.1. General information

This study enrolled 80 patients with type 2 diabetic nephropathy treated at our hospital, with admission dates from January 2024 to January 2025. Participants were randomly assigned into two groups using a randomized number table method, all voluntarily enrolled in the study for prospective analysis. The control group consisted of 40 patients (22 males, 18 females), aged 35-76 years with an average age of (49.88±3.22) years. The comparison between groups showed no significant difference in baseline data (P>0.05). The study was approved by the hospital's ethics committee.

Inclusion criteria: (1) the comprehensive clinical diagnosis of hematology and other clinical diagnosis is consistent with the diagnostic criteria of type 2 diabetic nephropathy in the Expert Consensus on Prevention and Treatment of Diabetic Nephropathy; (2) the treatment drugs involved in this study are tolerated; (3) complete clinical data.

Exclusion criteria: (1)patients with mental illness; (2)patients who have recently received glucocorticoid therapy; (3) patients with acute renal failure; (4) patients with acute metabolic complications.

2.2. Methodology

In the control group, metformin tablets (manufacturer: Shanghai Shangyao Xinyi Pharmaceutical Co., LTD. National Drug Approval No. H31021130, specification: 0.25g) were taken orally with meals once a day in the morning and evening, and each dose was 0.25g.

In the observation group, Veglitin tablets (manufacturer: Nanjing Youke Pharmaceutical Co., LTD., National Drug Approval No. H20203334, specification: 50mg) were added once in the morning and once in the evening on the basis of the control group treatment, with each dose of 50mg.

All patients received treatment for six months.

2.3. Observation indicators

The improvement of blood glucose (postprandial 2h blood glucose and fasting blood glucose) before and after treatment was compared between the two groups.

The improvement of renal function (blood creatinine and urea nitrogen) before and after treatment was compared between the two groups.

All patients were given 3mL venous blood in a fasting state before and after treatment. After centrifugation, the indexes were measured by an automatic biochemical analyzer[3].

2.4. Statistical processing

Statistical analysis was calculated by SPSS 27.0 software, with n (%) for count $\bar{x} \pm s$ data and ($\bar{x} \pm s$) for measurement data. The intergroups were respectively tested by (χ^2 test and t test, P<0.05 was statistically significant.

3. Results

3.1. Comparison of blood glucose level differences between the two groups

Before treatment, the values of fasting blood glucose and 2h postprandial blood glucose in the two groups were compared (P>0.05); after treatment, the values of fasting blood glucose and 2h postprandial blood glucose in the two groups were compared, and the values of the observation group were lower (P<0.05). Details are shown in **Table 1**.

Table 1. Comparison of blood glucose level difference between the two groups (mmol/L)

group	fasting blood-glucose		H2GPA	
	pretherapy	post-treatment	pretherapy	post-treatment
Control group (n = 40)	9.62±0.72	8.79±0.55	13.66±1.68	11.83±1.55
Observation group (n = 40)	9.66±0.75	7.31±0.36	13.72±1.71	10.24±0.88
t	0.243	14.240	0.158	5.642
P	0.808	0.000	0.875	0.000

3.2. Comparison of renal function levels between the two groups

Before treatment, the values of serum creatinine and urea nitrogen in the two groups were compared (P>0.05); after treatment, the values of serum creatinine and urea nitrogen in the two groups were compared, and the observed group was lower (P<0.05). Details are shown in **Table 2**.

Table 2. compares the differences in kidney function between two groups.(mean ± standard deviation)

group	Blood creatinine (umol/L)		Nitrogen in urine (mmol/L)	
	pretherapy	post-treatment	pretherapy	post-treatment
Control group (n = 40)	99.54±6.56	88.43±4.92	7.93±0.54	5.82±0.43
Observation group (n = 40)	99.59±6.61	71.94±3.43	7.96±0.57	4.11±0.28
t	0.034	17.389	0.242	21.077
P	0.973	0.000	0.810	0.000

4. Discussion

The treatment of diabetic nephropathy focuses on blood glucose and blood pressure management, reduction of proteinuria, delay of renal deterioration, and provision of necessary nutritional support[4].

This study demonstrated that after treatment, the fasting blood glucose and 2-hour postprandial glucose levels in the observation group were significantly lower than those in the control group (P<0.05). Similarly, the observation group showed lower serum creatinine and blood urea nitrogen levels compared to the control group (P<0.05). These findings indicate that the combination therapy effectively controlled blood glucose and renal function in patients with the disease. Analysis revealed that metformin exerts its hypoglycemic effects through two synergistic mechanisms: 1) At the hepatic level: By inhibiting gluconeokinase activity and reducing expression of key gluconeogenesis enzymes, it decreases hepatic glucose output[5]; 2) At the peripheral tissue level: Through activation of the AMPK signaling pathway and enhancement of insulin receptor substrate phosphorylation, significantly improving glucose transport capacity in muscles and other tissues[6]. As a DPP-4 inhibitor, vildagliptin's renal protective effects may involve anti-inflammatory mechanisms (e.g., reducing inflammatory factor levels) and anti-fibrotic pathways (e.g., regulating TGF-β signaling). Clinical applications have shown potential value in improving renal function. The combination therapy significantly enhances therapeutic efficacy.

In conclusion, the combined treatment of viglitin tablets and metformin hydrochloride tablets can effectively improve the blood glucose and renal function of patients with type 2 diabetic nephropathy.

Funding

This study is supported by S&T Program of Baoding (Project No.: 2441ZF277).

Disclosure statement

The author declares no conflict of interest.

References

[1] Deng L P, Wu H M, Yuan W W, 2022, Efficacy and safety of Viglitinide and Metformin combination with Daglirenet in treating newly diagnosed type 2 diabetes mellitus patients. Chinese Journal of Diabetes, 30(2):116-119.

[2] Zhou B, Li J, Fang C Y, 2023, Comparison of clinical efficacy of Metformin/Weiglitin and Liraglutide in obese patients with type 2 diabetes mellitus. Journal of Southern Medical University, 43(3):436-442.

[3] Zhang X J, Zhang J, Lou P P, 2022, Efficacy of Veglitinib combined with Metformin in the Treatment of First-Visit Patients with Type 2 Diabetes Mellitus and Abdominal Obesity and Its Effects on Serum Kisspeptin. Drug Evaluation Research, 45(7):1355-1360.

[4] Cui X Y, 2022, Observation on the efficacy of dapagliflozin combined with metformin in treating type 2 diabetic nephropathy. Journal of Xinxiang Medical University, 39(4):362-366.

[5] Cao Y J, Zhang Z, Li X F, 2022, The effect of Veglitinide-assisted metformin treatment on glucose control and pancreatic β-cell function in newly diagnosed type 2 diabetes patients. Right River Medical Journal, 50(1):62-66.

[6] Zhang T R, You X H, Pan J G, 2021, Clinical effects of Veglitinib combined with metformin in the treatment of type 2 diabetes mellitus and analysis of its effects on FPG, INS, and 2hPG levels. Chinese Community Physician, 37(9):77-78.