

## Retraction

# Retracted: Preliminary Study on the Evaluation of Multimodal Effects of Type 2 Diabetic Nephropathy

### Scientific Programming

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

### References

- [1] H. Zhao, "Preliminary Study on the Evaluation of Multimodal Effects of Type 2 Diabetic Nephropathy," *Scientific Programming*, vol. 2021, Article ID 2563477, 5 pages, 2021.

## Research Article

# Preliminary Study on the Evaluation of Multimodal Effects of Type 2 Diabetic Nephropathy

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In order to explore the factors of patients with type 2 diabetic nephropathy (DN), in this paper, 257 patients with type 2 diabetic nephropathy in Zhejiang province were observed, with 156 males and 101 females. The age range was 53–69 years old. According to the ratio of urine albumin/creatinine, it was divided into two groups: the diabetic nephropathy group and the nondiabetic nephropathy group. Age, diabetic course, hypertension, body mass index, glycated hemoglobin, total gallbladder alcohol, high-density lipoprotein, and low-density lipoprotein were compared. The results showed that diabetic diseases, hypertension, HBA1C, and LDL-C were independent risk factors for diabetic nephropathy, and HDL-C was the independent protection factor of DKD ( $P < 0.05$ ). Therefore, malnutrition and microinflammatory state are the risk causes of the quality of life and survival rate of type 2 diabetic nephropathy MHD patients and actively improve nutritional status. Reducing the status of microinflammatory disease is especially important.

## 1. Introduction

As one of the three major noninfectious diseases, diabetes is seriously threatening to human health. With the improvement of global economic level, excess nutrition, changes in people's lifestyle, increased population aging, and the incidence of diabetes showed a rapid growth trend. Diabetes, a long-term metabolic disorder, can lead to serious chronic lesions such as tissue organs such as eyes, kidneys, and cerebrovascular and nervous organs, wherein diabetic nephropathy (DN) is one of the most important chronic complications. With the rapid development of the world economy and the improvement of scientific levels, people's living habits and diet structures have changed, and diabetes is rapidly growing in the crowd. In 2008, the prevalence of Chinese diabetes was 9.7%, and in 2010, China's disease prevention and control was introduced into a diagnostic standard for hemoglobin transmission, and the prevalence of diabetes mellitus was found. The prevalence rate is as high as 11.7%, the total number of people is about 113 million, and the total number of diabetic patients in China can be estimated to be the highest in the world. DN is

one of the whole body microvascular lesions caused by diabetes. It is difficult to cure, and the harm of patients is large. Research on many countries in foreign countries has shown that DN will eventually develop to end-stage renal disease (ESRD), which is one of its important causes. At present, in China, DN incidence has been rising, according to the official data provided in the blood purification of China Hospital Association in 2008. China's three major causes of ESRD accounted for 19%. From 2009 to 2012, the prevalence of DN in China's type 2 diabetes was 30%–50% in community patients, accounting for about 40% in hospital patients.

DN is a chronic progressive disease. Generally, the disease is hidden. In case of sustainable development, there may be a large number of urine protein, edema, high blood pressure, renal function, etc., which can also accompany the expression of retina and peripheral neuropathy. Once developed, a large amount of protein is rapidly progressed, and the speed of ESRD is 14 times that of other kidney lesions. Once it is developed to ESRD, whether it is dialysis or kidney transplantation, its long-term prognosis is much higher than the renal disease caused by other renal diseases [1].

The ancient literature has provided an important reference value for the records of diabetic nephropathy. Modern doctors have conducted in-depth research on early DN etiology and further improvement of traditional Chinese medicine on diabetic nephropathy. Mohamed et al. studied 1718 patients with type 2 diabetes, who presented with early and mid stage diabetic nephropathy, and blood stasis was always in the course of the disease [2]. Xi et al. found that CKD patients often combined with other common chronic diseases. There were complex interactions, and cognitive dysfunction was one of them [3]. Behera et al. believed that diabetic nephropathy occurs on the basis of diabetes, and the early gas yin is a major pathogen [4]. Ziablitsev et al. showed that “toxic” is the starting factor of DM transition to DN [5]. Experts have no uniform understanding of type 2 diabetic kidney disease, although most scholars believe that this virtual is qi and yin, mixed with blood, phlegm, wet fever, and other solid evils. These conclusions come from doctors’ experience or small sample, single-center research, and lack conclusions of evidence-based medical support. Mohamed followed 42,761 diabetic patients and found that percentage of patients with diabetic nephropathy has reached 30.6% [6]. The experimental results of this study were relatively close to the above surveys. Foreign scholars also reported the correlation between CKD and cognitive damage. Among the patients who maintain dialysis or severe chronic kidney disease, the incidence of cognitive damage was 16%–29%, three times the ordinary population. Similarly, in patients with light, moderate CKD, the risk of cognitive function damage is also more than a general population, 2013, Mondal, and other studies have found that patients in the CKD 3–5 phase are plural in patients with CKD3–5 compared to the health control group [7]. Once the CKD patients have a cognitive function, it has an impact on their self-care ability, and severe people can be prone to adverse clinical prognosis, causing increase of incidence rate, hospitalization costs, and detachment, and even lead to an increase in the risk of death. A large number of randomized controlled trials show that the combined Chinese medicine treatment of type 2 diabetic nephropathy is better than simple Western medicine on the basis of Western medicine treatment. Although Chinese and Western Medicine has a better effect in the treatment of type 2 diabetes kidney disease, there is no exact diagnosis and treatment plan for the efficacy of evidence-based medical support.

Diabetes is the metabolic abnormal syndrome of sugar metabolism as the main manifestation by the common effects of genetic and environmental factors. Diabetes nephropathy is one of the most important chronic complications of diabetes, seriously threatening the health of humans. In Western countries, diabetic nephropathy is the first cause of end-stage nephropathy, and diabetic nephropathy in the US hemodialysis accounts 43%. Diabetes nephropathy has also occupied the second position (11.9%) in China. A study made by China’s 2-type diabetic patients in Beijing has found that type 2 diabetes mellitus combined with diabetic nephropathy is 35.7%. In 2012,

China conducted another survey which showed that the prevalence of diabetic nephropathy was 30%–50% in the community, and hospitalized patients had about 40%. A global survey of 32 countries, a multiracial survey, showed that diabetic nephropathy generally existed in type 2 diabetes patients, and the prevalence rate reached 50%. In 2012, UK forward-looking diabetes studies were conducted for 15 years among diabetic patients. In 2012, early patients with diabetic nephropathy reached 45%, 20% of patients entered the clinical kidney disease period, with the pathogenesis and diabetic nephropathy. The rate continues to add. These research data show that the prevalence rate of type 2 diabetes mellitus complicated with diabetic nephropathy is 30.9%, and the group is 50.6%. The experimental results of this study were all relatively close to the domestic and foreign survey results.

## 2. Materials and Methods

*2.1. Research Object.* 257 patients with type 2 diabetes from January 2015 to August 2016 in the Department of Diabetes, Zhejiang Province were chosen. Exclusion criteria were as follows: (1) diabetes, gestational diabetes, special types of diabetes, and typical diabetic patients; (2) have acute complications with diabetes; (3) recent acute cardiovascular and cerebrovascular disease, trauma, surgery, infection, etc. (4) Primary glomerular disease, acute renal injury, obstructive nephropathy, urinary tract infection, and other causes causing proteinuria or kidney damage; (5) there is a drug history using nephrotoxicity or affecting urinary protein excretion.

*2.2. Related Definitions and Group Standards.* This study was strictly in accordance with the principle of inclusion and exclude standards, complying with voluntary and confidentiality, through the reporting of the superior leadership, and all the research objects signed an informed consent book. The cognitive function assessment is made by the researcher himself in accordance with unified standard guidance completed in a quiet and comfortable environment. Type 2 diabetes diagnosis criteria: refer to the current international general WHO (1999) standard. According to urinary albumin/creatinine ratio (UACR), they were divided into non-DKD group (UACR <30mg/g) and DKD group (UACR ≥30mg/g).

*2.3. Research Methods.* The patient’s age, gender, diabetic course, and whether or not to combine hypertension are collected. Diabetic course refers to the time from diabetes to the hospital. Hypertensive diagnostic criteria refer to 2010 version of China’s high blood pressure prevention and control guide. Measure body weight, height, body mass index (BMI,  $\text{BMI (kg/m}^2\text{)} = \text{weight (kg)/}(\text{height (m)})^2$ ), take a rest for 5 minutes, be in sitting position, measure blood pressure 3 times, and take average.

For the first time in the morning, use the Olympus Au640 fully automated biochemical analyzer produced by the US Becton and use immunoturbidity to urinate

the urinary albumin/creatinine ratio (UCR). Fasting 8–10 h, extorted elbow venous blood next morning, use the US Bole D-10 saccharified hemoglobin instrument and high-efficiency liquid chromatography to detect glycosylated hemoglobin, HBA1C); use Siemens Advia 2400 biochemical analyzer to detect triglycerides (Tg), total cholesterol (Tc), low density lipoprotein cholesterol (LDL-C), high density lipoprotein cholesterol (HDL-C); empty state fasting plasma glucose (FBG) was used to detect Tg and Tc; direct method was used to detect LDL-C and HDL-C; and hexokinase method was used to detect FBG. 2 hours after dietary intake, 2HGP (2 hours postprandial blood glucose, 2HPG) was measured by the Siemens ADVIA 2400 biochemical analyzer. Carotid artery and double lower extremity artery ultrasound examination was done using Philips HD11 color ultrasound diagnostics [8].

**2.4. Statistical Treatment.** According to SPSS 24.0 software, statistical analysis is performed. The normal distribution metrology data was expressed by  $\bar{x} \pm s$ , and the inter-independent sample *T* test is compared; the metrology data of the nonnormal distribution is indicated by the median (quadrant range), and group nonparameter rank sum inspection is compared. The count data are described in the frequency description, and the intergroup comparison uses a card square inspection or Fisher's precise test. DKD is due to variables, and the demographic data and biochemical indicators are used as arguments and multifactors logistic regression analysis, and the influencing factors of DKD in type 2 diabetes patients were analyzed.  $P < 0.05$  (double side) is statistically significant.

### 3. Results

**3.1. General Clinical Data.** 157 out of 257 patients (60.7%), 101 females (39.3%), aged 62 (53–69), 8 patients with diabetic disease (4–125), 125 cases of high blood pressure (48.64%), and 132 cases of no hypotension (51.36%) were diagnosed with HBA1C, 8.40% (6.90–10.15); HDL-C, 1.08 mmol/L (0.92–1.30); and LDL-C, 2.71 mmol/L (2.12–3.20) (see Table 1).

**3.2. Comparison of Non-DKD Group and DKD Group Patients' General Data.** The data consisted of the non-DKD group consisting of 189 patients (73.5%), 109 males and 80 females, and 68 cases of the DKD group (26.5%), 47 males and 21 females. Diabetic disease, BMI, HBA1C, Tc, and LDL-C mediation were significantly higher than those of the non-DKD group, and the difference was statistically significant ( $P < 0.05$ ). The median number of HDL-C was lower than the non-DKD group, and the difference has statistical significance ( $P < 0.05$ ); DKD combination and hypertension ratio is higher than the DKD group, and the difference has statistical significance ( $P < 0.05$ ); there was no significant difference in gender, FBG, 2HPG, Tg, and anterior porridge between the two groups ( $P > 0.05$ ) (see Table 1).

**3.3. Analysis of the Influencing Factors of DKD in Patients with Type 2 Diabetes.** With DKD as variables, other variables are self-variables for single-factor logistic regression analysis, showing age, diabetic disease, hypertension, body mass index (BMI), glycated hemoglobin (HBA1C), total cholesterol alcohol (Tc), high density lipoprotein (HDL-C), low-density lipoprotein (LDL-C) are factors in DKD ( $P < 0.05$ ) (see Table 2) [9, 10].

With DKD as variables, the age, diabetic course, high blood pressure, body mass index, glycated hemoglobin, total cholesterol, high-density lipoprotein, and low-density lipoprotein is gradually based on single-factor logistic regression analysis. Multifactor logistic regression analysis show diabetic course, high blood pressure, HBA1C, and LDL-C are DKD-independent risk factors, while HDL-C is DKD-independent protection factor ( $P < 0.05$ ) (see Table 3).

### 4. Discussion

DKD is a kidney damage caused by chronic hyperglycemia, a lesion that is tired and tired of total kidney (including glomerulus and kidney), clinically declined with sustained albuminuria, Au, and/or the glomerular filtration rate (GFR) which is an important feature that can be developed into ESRD. At present, the pathogenesis of DKD has not fully clarified that it may be related to abnormal glucose metabolism, renal blood flow mechanical changes, oxidative stress, cytokine, and genetic factors. This study uses retrospective cross-sectional study to explore the risk factors of DKD in patients with type 2 diabetes, showing the diabetic course, hypertension, HBA1C, low HDL-C, and LDL-C are independent risk factors in DKD.

Domestic previous survey studies show that the development of DKD has a significant correlation with the sugar metabolism. The results of UKPDS and DCCT also suggest that strict control of blood sugar can significantly reduce the risk of diabetic microvascular lesions. HBA1C is an independent risk factor of renal function in patients with diabetes and type 2 diabetes. The decrease in HBA1C can significantly reduce the risk of neuropathy and microvascular lesions in diabetic patients. HBA1C reduced to 9% to reduce the risk of complications. The effect was higher than that of HBA1C which dropped from 7% to 6%. This study suggested that diabetic diseases, HBA1C, is a DKD-independent factor, consistent with GUO et al.'s study. However, FBG and 2HPG are the influencing factors of DKD. Consideration may not reflect blood sugar control because FBG and 2HPG are in hospitalization. Hypertension is a recognized risk factor of DKD in diabetic patients. In diabetic patients with a pressure of  $< 140$  mmHg, the annual renal function decreased by 1%, while shrinking pressure is  $> 140$  mmHg, and the annual renal function decreased the speed of 13.5%; a large number of clinical studies have shown that strict control of high blood pressure can significantly delay the development of DKD. In this study, DKD combines high blood pressure ratio than non-DKD group, and multifactor logistic regression analysis showed OR values of 2.250, also

TABLE 1: General clinical data of patients in non-DKD group and DKD group.

Project	DKD group ( $n = 68$ )	Non-DKD group ( $n = 189$ )	Statistic	$P$ value
Age (years)	63.5	62	-1.72	0.08
Gender (male/female, $N$ )	47/21	109/80	2.74	0.09
Course of the disease (year)	10	7	-2.59	0.01
Hypertension (yes/no, $n$ )	43/25	82/107	7.88	0.00
BMI ( $\text{kg}/\text{m}^2$ )	24.85	23.9	-2.08	0.03
FBG (mmol/L)	7.76	6.86	-0.94	0.34
2HPG (mmol/L)	13.7	12.9	-1.33	0.18
HBA1C (%)	10	7.7	-6.54	<0.00
Tc (mmol/L)	5.11	4.43	-3.71	<0.00
Tg (mmol/L)	1.42	1.45	-0.39	0.69
HDL-C (mmol/L)	0.99	1.09	-2.22	0.02
LDL-C (mmol/L)	3.19	2.46	-5.97	<0.00
Atherosclerosis (yes/no, $n$ )	58/7	157/27	0.62	0.43

TABLE 2: Univariate logistic regression analysis of influencing factors of DKD in type 2 diabetes patients.

Variable	$\beta$ value	OR value	95% CI	$P$ value
Age	0.02	1.02	1.00-1.05	0.03
Gender	0.49	0.64	0.91-2.96	0.09
Course of the disease	0.04	1.04	1.00-1.08	0.03
Hypertension	0.80	2.24	1.26-3.97	0.00
BMI	0.08	1.08	1.00-1.175	0.04
FBG	0.06	1.06	0.98-1.15	0.13
2HPG	0.02	1.02	0.97-1.08	0.36
HBA1C	0.37	1.46	1.27-1.67	<0.00
Tc	0.55	1.74	1.33-2.28	<0.00
Tg	0.02	1.02	0.83-1.26	0.82
HDL-C	-1.17	0.31	0.11-0.82	0.02
LDL-C	1.00	3.00	2.080-4.32	<0.00
Atherosclerosis	0.35	1.42	0.58-3.45	0.43

TABLE 3: Multivariate logistic regression analysis of DD influencing factors of DKD diabetes patients.

Variable	$\beta$ value	OR value	95% CI	$P$ value
Course of the disease	0.06	1.06	1.01-1.12	0.01
Hypertension	0.81	2.25	1.08-4.68	0.03
HBA1C	0.37	1.45	1.24-1.70	<0.00
HDL-C	-1.55	0.21	0.05-0.74	0.01
LDL-C	1.05	2.87	1.83-4.50	<0.00

supporting high blood pressure is an independent risk factor in DKD [11, 12].

Blood lipid disorders can act on low-density lipoprotein receptors on glomerular membrane cells, resulting in injury of foot cells and membrane cells, promoting proteinuria, glomerular, and renal tubular fibrosis. Sacks and other studies have found TG and HDL-C and diabetic microvascular diseases, especially with DKDs have significant independent correlation. Chen et al. also confirmed that HDL-C can reduce the risk of DKD in type 1 diabetes. The study of Guo found TG and LDL-C independently correlated with DKD. The results of this study show that LDL-C is a risk factor of DKD, and HDL-C is a protective factor in DKD. However, this research has not found that Tg is the influencing factor of DKD, and the results of the research may not be related to the differences among the crowd.

## 5. Conclusions

Through retrospective research, the clinical data of 257-bit type 2 diabetic patients in Zhejiang Provincial People's Hospital were analyzed, and patients were divided into diabetic nephropathy groups and nondiabetic nephropathy groups. Multiple risk factors on diabetic nephropathy were analyzed, resulting in the following main conclusion:

- (1) Type 2 diabetes patients have high probability of diabetic nephropathy, have seriously affecting the quality of life, and strengthen the prevention and treatment of diabetic nephropathy
- (2) By analyzing the variation of multimodal imaging symbols and parameter value of diabetic nephropathy, the degree of renal dysfunction in patients with diabetic nephropathy can be objectively reflecting diabetic nephropathy, and there is a great value for early detection of diabetic nephropathy and renal function monitoring
- (3) Nutritional and microinflammatory conditions will also affect the risk reasons for the quality of life and survival rate of patients with type 2 diabetic nephropathy, which should actively improve the nutrient status of patients

## Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

## Conflicts of Interest

The author declares no conflicts of interest.

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