

# Exploring the Application of Traditional Chinese Medicine Therapies in Diabetes Based on the Huangdi Neijing

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**Abstract:** *Diabetes is one of the metabolic disorders and a common chronic disease, primarily characterized by hyperglycemia. Its typical clinical manifestations are known as the “three polys and one low” (polyuria, polydipsia, polyphagia, and weight loss). Western medicine commonly treats diabetes by controlling blood glucose levels, preventing acute and chronic complications, and improving patients’ quality of life. Traditional Chinese medicine (TCM) has a long and profound history in understanding the condition of “Xiaoke” (diabetes), with its theoretical foundation rooted in the Huangdi Neijing (The Yellow Emperor’s Inner Canon). The Neijing, a comprehensive compilation of ancient medical knowledge, provides extensive discussions on the etiology, pathogenesis, symptoms, prognosis, prevention, and management of this disease. A review of the literature reveals that various TCM practitioners have offered valuable insights into the clinical diagnosis and treatment of Xiaoke, with diverse therapeutic approaches. This paper aims to elaborate on these perspectives.*

**Keywords:** Diabetes mellitus, Thirst-quenching disease, Nei Jing, Chinese medicine treatment, Review.

## 1. Introduction

In recent years, the living standards of the people have significantly improved. However, with the continuous aggravation of population aging in China, the prevalence of diabetes among the elderly has been increasing year by year. Diabetes has become one of the major diseases threatening human life and health. With the emergence of new research, technologies, and drugs aimed at improving the clinical manifestations and health status of diabetic patients, the field of diabetes diagnosis, treatment, and prevention is undergoing rapid changes. However, considering the unique characteristics of elderly patients—such as multiple underlying diseases, relatively poor self-management abilities, and low treatment adherence—they often face clinical risks such as persistently high blood sugar, a high risk of hypoglycemia, and numerous acute and chronic complications, making it difficult to generalize their conditions. In the history of world medicine, traditional Chinese medicine (TCM) was the first to recognize this disease, naming it “Xiaoke” based on its primary symptoms. The high incidence, long course, and poor prognosis of this disease often lead to multi-organ damage throughout the body, severely affecting patients’ physical and mental health. Compared to modern medicine, TCM’s clinical diagnosis and treatment of Xiaoke disease offer a series of advantages, including individualized treatment, syndrome differentiation and treatment, holistic concepts, and preventive care, often achieving remarkable therapeutic effects.

## 2. Discussions on Xiaoke Disease in The Yellow Emperor’s Inner Canon

The Yellow Emperor’s Inner Canon is the cornerstone of TCM development. Its core concepts summarize the thinking patterns for understanding life and analyzing diseases [1], and applying these core concepts to disease analysis highlights the holistic and continuous nature of illnesses [2]. In Plain Questions: Treatise on Extraordinary Diseases

(Suwen·Qibing Lun), it is recorded: “There is a disease characterized by dry mouth. What is its name?” Qibo replied: “This is an overflow of the five qi, called ‘spleen heat’. When the five flavors enter the mouth, they are stored in the stomach, and the spleen circulates their essence and qi. When fluids accumulate in the spleen, it causes sweetness in the mouth. This condition arises from excessive consumption of rich and sweet foods. Rich foods generate internal heat, while sweet foods cause fullness in the middle burner, leading to qi rising and transforming into Xiaoke.” [3] Additionally, Plain Questions: Treatise on Qi Reversal (Suwen·Qinei Lun) states: “When the heart transfers cold to the lungs, it causes ‘lung consumption’, where drinking one cup leads to urinating two cups—a fatal condition.” It also says: “When the heart transfers heat to the lungs, it leads to ‘diaphragm consumption’.” In Plain Questions: Essentials of Pulse Diagnosis (Suwen·Mai Yao Jing Wei Lun), it is noted: “When heat-toxin develops, it transforms into ‘middle consumption’.” In Spiritual Pivot: Five Variations (Ling Shu·Wu Bian), it is written: “Those with all five organs being weak are prone to Xiaoke.” In Spiritual Pivot: The Viscera (Ling Shu·Ben Zang), it states: “A fragile spleen predisposes one to Xiaoke, which is easily exacerbated.” The Spiritual Pivot also points out that individuals with fragile hearts, lungs, livers, spleens, or kidneys are all “prone to Xiaoke and easily afflicted.” The Inner Canon offers unique insights into Xiaoke disease, laying a theoretical foundation for later generations, which modern physicians have further developed by drawing on its strengths.

## 3. Perspectives of Renowned TCM Masters on Xiaoke Disease

### 3.1 Master Zhuzhenyu Pioneered the Use of Blood-Activating and Stasis-Resolving Methods in Treating Diabetes

Master Zhuzhenyu (hereafter respectfully referred to as “Master Zhu”) conducted systematic observations and

treatments for various types of diabetic patients. He found that while congenital factors such as yin deficiency and constitutional insufficiency contribute to the disease, the causative factors are mostly comprehensive, including excessive consumption of rich and greasy foods, overdrinking, and excessive mental stress. The pathological changes involve multiple aspects, including qi, blood, yin, yang, and the five viscera, with qi-yin deficiency and kidney deficiency as the root causes, while dryness-heat and stasis as the manifestations. He formulated a “blood-sugar-regulating herbal pair” to nourish yin, clear heat, generate fluids, relieve thirst, remove stasis, and promote renewal. Moreover, Master Zhu advocated for the integration of TCM and Western medicine, drawing on diverse prescriptions. Clinical studies revealed that diabetic patients exhibit significantly higher rates of coronary heart disease, hypertension, and hyperlipidemia compared to the general population. For such patients, he developed a “blood-sugar-regulating pulse-invigorating formula,” with modifications based on symptoms: For angina pectoris, add Yujin, Changpu, and Qianghuo. For hypertension, add Xiakucuo, Niuxi, and Huangqin. For hyperlipidemia, add Zhimadou, Danshen, and Caojueming. Historically, no records of blood-activating and stasis-resolving methods for treating Xiaoke disease existed. Master Zhu observed that in advanced stages of diabetes, especially when complications such as peripheral vascular disease, neuropathy, retinopathy, and macro/microvascular lesions occur, patients often present with limb numbness and pain, purplish skin, precordial pain, dull complexion, and dark purple tongue. He was the first to propose the innovative concept of using blood-activating and stasis-resolving methods to treat diabetes, providing new insights for future generations. In syndrome differentiation, traditional TCM typically follows the “three-consumption” classification: Upper consumption: Excessive thirst and drinking, attributed to lung dryness, treated by moistening the lungs. Middle consumption: Excessive hunger despite eating, attributed to stomach heat, treated by clearing the stomach. Lower consumption: Excessive urination with turbid urine, attributed to kidney deficiency, treated by nourishing the kidneys. However, based on extensive clinical experience, Master Zhu argued that the traditional “three-consumption” classification no longer applies to modern diabetes. Instead, he proposed a

five-type classification for syndrome differentiation and treatment: Qi-yin deficiency type, Yin deficiency with excessive fire type, Dryness-heat invading blood type, Stasis obstructing collaterals type, Yin-yang deficiency type. In clinical practice, most middle-aged and elderly diabetic patients exhibit distinct clinical features: Qi-yin deficiency type: Common in early stages, with symptoms such as dry mouth and thirst, chest tightness, spontaneous sweating, fatigue, weak resistance, pale-dark tongue, and thin-weak pulse. Treatment focuses on tonifying qi and nourishing yin, supplemented by blood activation, using the “blood-sugar-regulating herbal pair” with modifications. Yin deficiency with excessive fire type: Caused by yin fluid deficiency and excessive virtual fire, leading to yang hyperactivity and heat transformation. Symptoms include dry mouth and tongue, five-center heat, insomnia, palpitations, nocturnal emissions, tinnitus, constipation, red tongue with little coating, and thin-rapid pulse. Treatment emphasizes nourishing yin, generating fluids, clearing heat, and reducing fire, using Yiguanjian with modifications. Dryness-heat invading blood type: Results from prolonged illness with heat entering the blood collaterals, presenting as dry mouth with minimal drinking, gum abscesses and pain, constipation, dark red tongue, and strong rapid pulse. Treatment involves clearing heat, cooling blood, nourishing yin, detoxifying, and supplementing qi and yin, using Wenqingyin combined with the “blood-sugar-regulating herbal pair” with modifications. Stasis obstructing collaterals type: Caused by multiple pathogenic factors leading to blood stasis and poor circulation, often accompanied by facial purpura, limb stabbing pain or numbness, hemiplegia, delayed menstruation in women, dark purple tongue with stasis spots or sublingual collateral veins, and a choppy pulse. Treatment focuses on blood activation, nourishing yin and qi, using the “blood-sugar-regulating and blood-activating formula” with modifications. Yin-yang deficiency type: Common in late-stage type 2 diabetes in middle-aged and elderly patients, where the “three excesses” (polydipsia, polyphagia, polyuria) are less pronounced. Symptoms include dry mouth, dull complexion, cold limbs, edema, oliguria, pale-swollen tongue, and deep-weak pulse. Treatment aims to warm yang, nourish yin, tonify qi, and generate fluids, using Guifu Dihuang Tang with modifications. The summary is presented in Table 1.

**Table 1:** List of evidence-based treatment rules and prescriptions

Pattern of syndrome	Treatment principles	Medicinal formula
Simultaneous deficiency of Qi and Yin	Nourish qi and yin, with the addition of promoting blood circulation.	Adjustments to the paired herbal prescription for blood sugar reduction
Yin deficiency with excessive fire	Nourish yin and promote fluid production, clear heat and reduce fire	Modified Yi Guan Jian
Dry heat entering the blood	Clear heat and cool the blood, nourish yin and detoxify, while also tonifying qi and nourishing yin.	Wenqing Decoction combined with Hypoglycemic Herbal Pair Formula, modified
Stasis of Blood Blocking the Collaterals	Promote blood circulation to remove stasis, and replenish qi and nourish yin	Modified Hypoglycemic and Blood-Activating Formula
Deficiency of both yin and yang	Warm Yang to Nurture Yin, Tonify Qi to Generate Body Fluids	Modified Guifu Dihuang Decoction

### 3.2 National TCM Master Lü Renhe Advocates Distinguishing Between Common and Variant Symptoms

National TCM Master Professor Lü Renhe has dedicated over 60 years to clinical practice, teaching, and research in internal medicine of traditional Chinese medicine (TCM), accumulating rich experience in treating diabetes, particularly diabetic kidney disease (DKD). He has summarized a “three-treasure” approach for managing diabetes and its

complications, namely the “2-5-8” protocol, the “six paired treatment methods,” and the “three self-satisfaction charts,” which have demonstrated remarkable clinical efficacy [4]. The principle of “treating both the root and manifestation when the condition is mild, and focusing on the root when the condition is severe” originates from Suwen·Biao Ben Bing Chuan Lun (Plain Questions: On the Transmission of Pathogenic Factors in Disease Manifestations). It suggests that for patients with complex yet relatively mild conditions,

both the root cause and symptomatic manifestations should be addressed through comprehensive regulation. In contrast, for patients with acute and severe conditions, treatment should prioritize the root cause to achieve precision and effectiveness [5]. In diagnosing and treating DKD, a variant symptom of diabetes, Professor Lü advocates integrating the theories of Huangdi Neijing (Yellow Emperor's Inner Canon) with clinical needs. He proposes that the pathogenesis of DKD involves prolonged diabetes leading to heat damaging qi and yin, resulting in the accumulation of phlegm, heat, stagnation, and stasis in the renal collaterals, forming "microscopic masses" (wei xing zheng jia), which damage the kidney structure and impair its function [6]. Clinical studies reveal that a significant proportion of DKD patients have a family history of diabetes, likely due to congenital insufficiency, making them predisposed to the disease. The kidney, as the "congenital foundation," stores essence and qi, while the spleen, as the "acquired foundation," governs the transformation and transportation of qi and blood. The two interact, with the acquired foundation nourishing the congenital one. Over time, according to the theory of generation, restriction, and transformation, unresolved spleen

pathology can impair the kidney. When the kidney is affected by spleen pathology, kidney qi is easily damaged, creating a continuous cycle that cannot be explained by a single factor. Therefore, Professor Lü emphasizes a dual approach: "treating the disease directly" and "syndrome differentiation-based treatment for the disease." "Treating the disease directly" refers to targeting the etiology or core pathogenesis of the disease, while "syndrome differentiation-based treatment for the disease" involves classifying the disease into syndromes before treatment [7]. Based on his extensive clinical experience and academic insights, including diabetes staging syndrome differentiation and the "six paired treatment methods," Professor Lü has developed several effective herb pairs with unique therapeutic effects, such as fermented soybean (dan dou chi) and raw licorice (sheng gan cao), immature bitter orange (zhi shi) and bitter orange (zhi ke), cardamom (sha ren) and chicken gizzard lining (ji nei jin), and costus root (mu xiang) and coptis root (huang lian). Their functions and dosages are summarized in Table 2 for the reference of fellow practitioners.

**Table 2:** Commonly Used Herbal Pairs - Efficacy and Dosage

Drug Pair	Efficacy	Dosage
Light fermented soybean (Dan Dou Chi), raw licorice root (Sheng Gan Cao)	Promote the Upper, Smooth the Middle, Relieve Depression, and Clear Heat	Light fermented soybean (30–40 g), raw licorice root (6–10 g)
Immature Bitter Orange (Fructus Aurantii Immaturus), Bitter Orange (Fructus Aurantii)	Harmonizing the Chest and Abdomen, Regulating Qi and Relieving Stagnation	All range from 10 to 15 grams
Amomum villosum, Endothelium Corneum Gigeriae Galli	Strengthen the spleen to promote digestion, resolve dampness and eliminate food stagnation	All are 10 grams
Costus root, Coptis root	Pungent to open and bitter to descend, clear heat and dry dampness.	All are 10 grams

### 3.3 Academic Thought of Academician Tong Xiaolin from the Chinese Academy of Sciences on the Treatment of Diabetes and Its Complications

Although diabetes is a chronic disease, it has now become a major health concern for the elderly. Without proper attention, it often leads to disability or even death. Chronic complications such as diabetic retinopathy or diabetic foot frequently manifest as decreased vision, blurred vision, retinal congestion, orbital edema, and even retinal detachment as shown by B-ultrasound. Patients may also experience reduced sensitivity to touch, sensation, and temperature in the limbs, as well as infections, ulcers, and joint pain, causing significant suffering and inconvenience to both patients and their families. Acute complications, such as diabetic ketoacidosis or hyperosmolar hyperglycemic state, can lead to severe conditions like loss of consciousness and dehydration, accompanied by neurological damage symptoms. Academician Tong Xiaolin from Guang'anmen Hospital of the China Academy of Chinese Medical Sciences has dedicated over three decades to researching the diagnosis and treatment of diabetes and its complications. With profound knowledge of both ancient and modern medicine and an integrative approach combining traditional Chinese and Western medicine, he has gradually developed a comprehensive diabetes and complications management system centered on "treating blood sugar, treating collateral vessels, and treating miscellaneous conditions, with each aspect receiving focused attention" [8]. He divides the disease progression of diabetic patients into four stages: "stagnation, heat, deficiency, and damage" [9], while categorizing the

disease into a pure diabetes stage and a complications stage based on the presence or absence of complications. The diabetes stage includes syndromes such as phlegm (dampness)-heat intermingling, excessive heat injuring body fluids, and qi-yin deficiency. The complications stage encompasses syndromes like liver-kidney yin deficiency and yin-yang dual deficiency, along with concurrent conditions such as phlegm turbidity and blood stasis [10]. In clinical practice, he often prescribes classical formulas with few but precisely selected herbs, achieving highly targeted and potent effects. For example, Xiao Xian Xiong Tang (Minor Sinking Chest Decoction), originating from Treatise on Cold Damage Disorders, states: "For minor sinking chest syndrome, where the pain is localized below the heart and pressing exacerbates it, with a floating and slippery pulse, Xiao Xian Xiong Tang is indicated." This formula has been widely used by physicians to treat conditions such as phlegm-heat intermingling type coronary atherosclerotic heart disease, reflux esophagitis, stomach pain, and cough with wheezing. Based on the TCM principle of "treating different diseases with the same method," Professor Tong applies this formula to type 2 diabetes patients diagnosed with phlegm-heat intermingling syndrome. In addition to typical symptoms like elevated blood sugar, dry mouth, and polyuria, these patients may also exhibit obesity, chest tightness and epigastric distension, heaviness and dizziness in the head, yellow greasy tongue coating, and a wiry slippery pulse [11]. Similarly, classical formulas such as Gan Jiang Huang Lian Huang Qin Ren Shen Tang (Dried Ginger-Coptis-Scutellaria-Ginseng Decoction), Di Dang Tang (Obstruction-Resolving Decoction), and Ge Gen Qin Lian Tang (Pueraria-Scutellaria-Coptis Decoction), though

originally indicated for conditions unrelated to diabetes, have been ingeniously repurposed by Academician Tong under the academic principle of “treating different diseases with the same method,” yielding remarkable therapeutic effects. Furthermore, Professor Tong excels in prescribing herb pairs and determining appropriate dosages based on a holistic understanding of the patient’s condition, often achieving extraordinary results. Tables 3 and 4 below summarize his commonly used classical formulas and herb pairs.

Table 3: A List of Commonly Used Classical Prescriptions

Classical Prescriptions	Pathogenesis	Efficacy
Minor Chest Congestion Decoction	Phlegm-heat intermingling	Clear heat and resolve phlegm
Dry Ginger, Coptis, Scutellaria, and Ginseng Decoction	Spleen deficiency and stomach heat	Clear heat and harmonize the stomach, strengthen the spleen and aid digestion
Dangdang Decoction	Stasis of Blood Blocking the Collaterals	Activate blood circulation and unblock meridians
Gegen Qinlian Decoction	Damp-heat accumulating in the spleen	Clear heat and dry dampness

Table 4: List of Commonly Used Herbal Pairs

Herbal pair	effectiveness	dosage
Magnolia bark, Aurantium fruit, and raw rhubarb	Promote qi flow to relieve distension and eliminate food stagnation	Magnolia Bark (Hou Po) 9–30 g, Immature Bitter Orange (Zhi Shi) 10–15 g, Rhubarb (Da Huang) 1.5–15 g
Pueraria root, Coptis root, Scutellaria root	Clear heat, purge fire, and eliminate dampness	Pueraria root (Gegen) 9–30 g, Scutellaria root (Huangqin) 9–15 g, Coptis rhizome (Huanglian) 9–30 g.
Sophora flavescens (Kushen), Dictamnus dasycarpus (Baixianpi), Kochia scoparia (Difuzi)	Clear heat and remove dampness, dispel wind and relieve itching	Sophora flavescens 6–15 g, Dictamnus dasycarpus 9–30 g, Kochia scoparia 15–30 g
Mulberry leaves, mulberry twigs, and mulberry bark	Unblock Meridians and Lower Blood Sugar	Mulberry leaves 15–60 g, mulberry twigs 15–30 g, mulberry bark 15–30 g

4. Application of “Preventing Disease Before It Occurs” in the Treatment of Diabetes (Xiaoke)

The theory of “preventing disease before it occurs” originates from the Inner Canon of Huangdi (Huangdi Neijing) and encompasses three key principles: Preventing disease before its onset—intervening before the disease develops. Preventing progression after onset—treating the disease at its early stages to prevent worsening. Preventing recurrence after recovery—ensuring long-term remission after healing. As a fundamental guiding principle in Traditional Chinese Medicine (TCM), this concept has been widely applied to various systemic diseases, such as rhinitis, hypertension, rheumatism, chest bi-syndrome, and diabetes, providing both theoretical and practical foundations for later generations. By studying ancient medical texts and previous literature, it is evident that the onset of diabetes (Xiaoke) is often influenced by both congenital and acquired factors. In clinical research, a significant proportion of patients show no discomfort and maintain normal blood glucose levels before the disease manifests. However, due to congenital insufficiency and genetic predisposition, if left uncontrolled, this stage can easily progress to prediabetes. In clinical practice, such high-risk populations should be identified early, with emphasis placed on the importance of seasonal health preservation, adapting to natural rhythms, and dietary moderation. Therefore, in daily life, patients can be advised to: Consume appropriate amounts of cool, moistening, spleen-strengthening, dampness-draining, or heat-clearing foods based on their constitution. Emphasize the importance of physical activity, as exercise is the simplest and most economical method for blood glucose control. Suitable activities include jogging, brisk walking, swimming, traditional Baduanjin (Eight-Section Brocade), Tai Chi, and Wuqinxi (Five-Animal Exercises). During the early stages of diabetes, as blood glucose levels rise and clinical symptoms emerge, treatment should focus on both lowering blood sugar and preventing disease progression to avoid acute or chronic

complications. The disease progression follows a pattern from superficial to deep, mild to severe, and simple to complex. Thus, early intervention can effectively control blood glucose and delay complications. For patients with long-standing diabetes or poor glycemic control, complications are more likely to occur. In such cases, clinical treatment often combines blood sugar reduction with symptomatic management, yielding variable outcomes and significantly impacting patients’ quality of life—a major challenge in modern clinical medicine. In TCM, a “multi-target” regulatory approach can be employed to prevent complications before they arise. For example, in patients at risk of diabetic peripheral neuropathy, in addition to routine sensory threshold testing, acupuncture at points such as Weizhong (BL40), Yongquan (KI1), and Jiquan (HT1) can aid in early diagnosis and treatment.

5. Clinical Case Study

Patient: Male, 61 years old, from Zhang County. First visit: April 22, 2024. Chief complaint: Polydipsia, polyuria, and thirst for over three years, worsened with dizziness and headache for one week. Present illness: The patient is overweight, with a history of excessive thirst, dry throat, frequent urination, heat intolerance, and excessive sweating. One week prior to the visit, he developed dizziness, headache, fatigue, shortness of breath, intolerance to exertion, blurred vision, abdominal pain and distension, mild bilateral lower limb edema, constipation, and poor sleep. His tongue was red at the edges and tip, with a thin yellow coating, and his pulse was fine and rapid. Pre-admission fasting blood glucose: 17.6 mmol/L. Blood pressure: Normal. Western diagnosis: Type 2 diabetes. TCM diagnosis: Xiaoke (diabetes), with a pattern of Qi-Yin deficiency. Treatment principle: Tonify Qi and nourish Yin. Prescription (modified Jiangtang Duoyao Fang): Raw Astragalus (Huangqi) 30 g, Raw Rehmannia (Shengdihuang) 30 g, Fried Atractylodes (Cangzhu) 15 g, Scrophularia (Xuanshen) 30 g, Pueraria (Gegen) 15 g, Salvia (Danshen) 30 g, Trichosanthes (Tianhuafen) 15 g, Poria (Fuling) 12 g, Aucklandia (Muxiang) 12 g, Amomum (Sharen)

9 g, Course: 5 doses, one dose per day, decocted in water and taken twice daily. Follow-up: Fasting blood glucose (d1–d5): 17.6, 16.4, 12.5, 11.1, 10.8 mmol/L. Symptoms: Significant relief of dry mouth, thirst, dry throat, abdominal pain, and distension; reduced nocturia. Discharged with outpatient follow-up, receiving modified treatment for over two months. Blood glucose gradually normalized, with no other significant discomfort. Analysis: At the initial visit, the patient's Qi-Yin deficiency pattern was prominent. The prescription, based on Master Zhu's Jiangtang Duoyao Fang, included: Raw Astragalus and Rehmannia to lower urine sugar. Fried Atractylodes and Scrophularia to reduce blood glucose. Pueraria and Salvia to promote fluid production, relieve thirst, and activate blood circulation. Trichosanthes to relieve irritability and thirst. Poria to drain dampness and strengthen the spleen. Aucklandia and Amomum to regulate Qi, relieve pain, and harmonize the middle burner.

## 6. Conclusion

TCM is a treasured heritage of the Chinese nation, with a long history and a unique theoretical and practical system. Its advantages in the prevention and treatment of diabetes are evident [12]. The Inner Canon laid the theoretical foundation for understanding Xiaoke, and subsequent generations of physicians have refined it through continuous exploration. As a chronic disease, diabetes significantly impacts patients' lives, and complications further reduce their quality of life. While conventional Western treatments for blood sugar control and complication prevention yield variable results and high costs, the integration of TCM offers a promising alternative. In today's era of rapid medical advancements, while embracing new knowledge, we must also study and apply classical TCM principles, incorporating them into clinical practice to achieve better therapeutic outcomes.

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