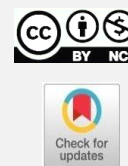




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REVIEW ARTICLE

TRADITIONAL CHINESE MEDICINE ENDOTHERAPY OF DIABETIC WOUNDS: A SCOPING REVIEW

Liyang Huang , Lisha Yi * , Muhammad Shahzad Aslam

School of Traditional Chinese Medicine, Xiamen University Malaysia, Jalan Sunsuria, Bandar Sunsuria, 43900 Sepang, Selangor, Malaysia.

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*Address for Correspondence:

Lisha Yi, School of Traditional Chinese Medicine, Xiamen University Malaysia, Jalan Sunsuria, Bandar Sunsuria, 43900 Sepang, Selangor, Malaysia.
 E-mail: TCM1709025@xmu.edu.my

Abstract

In recent years, the incidence of diabetes has been increasing, and the diabetic foot is a complication of diabetes, which seriously affects the life and health of patients. The effect of Chinese medicine in the treatment of diabetes is more and more recognized.

To search for the treatment of diabetic foot using Traditional Chinese medicine - Just to collect research literature on TCM treatment of diabetes in order to summarize the common syndrome types and medication rules in recent years, and to provide a new treatment. Common syndrome has syndrome of the dual deficiency of qi and yin, syndrome of dual deficiency of qi and yin, syndrome of meridian stasis-heat, syndrome of meridian stasis-heat and so on. Common endotherapy medicine is clear heat medicinal, tonify qi medicine, activate blood and resolve stasis and so on. Traditional Chinese medicine has certain advantages and effects in the treatment of diabetes, but there is still no uniform standard

Keywords: Diabetic wounds, endotherapy, traditional Chinese medicine.

INTRODUCTION

Diabetic foot secondary to the diabetic peripheral vascular disease and peripheral neuropathy caused by foot infection, ulcers or deep tissue destruction, is one of the more common serious complications in patients with diabetes. With the incidence rate of 6% - 20%, about 15% of diabetic foot patients will have foot ulcers or gangrene, which is an important cause of disability and death of patients with diabetes¹.

With the aging of the population, the rising incidence of diabetes and the prolongation of the existing patients with type 2 diabetes, the incidence of diabetic lower extremity vascular disease is significantly increased. Diabetic foot treatment is difficult, with a high disability rate, and serious patients even need Amputation. According to the dialectical classification of TCM, the diabetic foot can be divided into main symptoms of blood stasis obstructing the vessel, lower energizer dampness-heat, blood stagnation due to the cold congealing. Traditional Chinese medicine has unique curative effects for different types of syndromes^{2,3}. In recent years, research on the treatment of diabetic foot by Chinese medicine has gradually increased, but there are few studies on common types and common medications. In this paper, the scoping

review method is used to screen, evaluate and summarize the research on Traditional Chinese Medicine internal treatment of diabetic foot, in order to further explore the common syndrome types and medication rules of Traditional Chinese Medicine treatment of diabetes, and provide new ideas for clinical.

METHODOLOGY

The methodology for this scoping review was based on the framework outlined by Arksey and O'Malley (2005) and ensuing recommendations made in a previous study⁴. This review is to collect research literature on TCM treatment of diabetes in order to summarize the common syndrome types and medication rules in January, 2015-November, 2019. The purpose of this study is to collect different methods of Traditional Chinese Medicine treatment of diabetic foot. This study focused on the analysis of common types and common medications used by Chinese medicine to treat diabetic foot. The study also collected the number of articles published in a specific time period (Figure 2). This article also conducts frequent statistics on the use of prescriptions and Traditional Chinese Medicine syndromes.

Search Strategy:

A systematic literature review was performed according to the PRISMA Statement⁵. CNKI (China National Knowledge Infrastructure) was this study's

search engine, using the (allintitle: Diabetic foot AND Chinese medicine). The duration of the studies included was between 1 January 2015 till 1 November 2019.

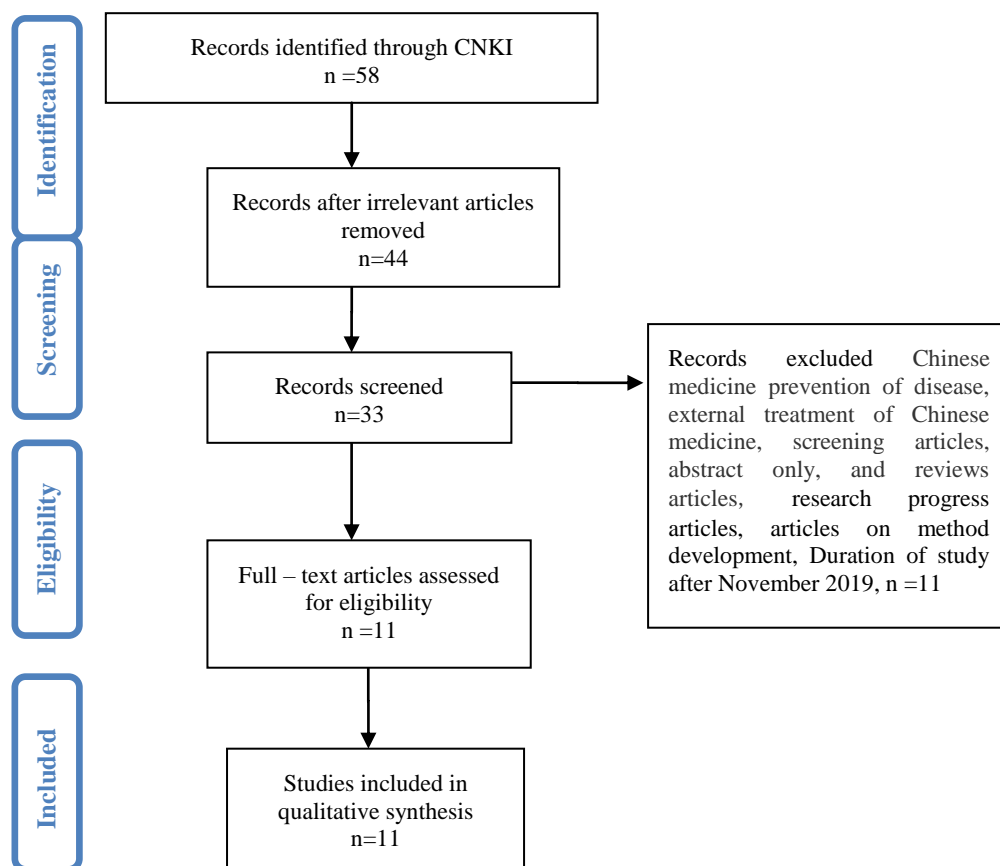


Figure 1: PRISMA 2009 Flow Diagram.

Data Extraction:

Using the CNKI search engine, the record was identified (n=58). Irrelevant articles (n=44) were removed. The records screened (n=33) because of some articles like Chinese medicine prevention of disease, external treatment of Chinese medicine, screening articles, abstract only, reviews articles, research progress articles, articles on method development, duration of study after November 2019 is out of bounds. Then led to the investigation of eleven (n=11) articles for the qualitative synthesis. The results have been shown in a Prisma flow diagram (Figure1).

RESULTS AND DISCUSSION

Diabetic peripheral neuropathy (DPN) is one of the common chronic complications of diabetes, and lower limbs are more serious than upper limbs, which are closely related to diabetic foot ulcers. The pathogenesis is complicated, and it is not clear at present. There is no specific treatment in western medicine. Western medicine has not only unsatisfactory efficacy, but also limited clinical application due to its high cost and side effects. In clinical studies, the dialectical treatment of this disease with traditional Chinese medicine (TCM) classification has achieved a good therapeutic effect and the side effects of traditional Chinese medicine

treatment are small. Compared with western medicine, traditional Chinese medicine has the advantage of comprehensive regulation in the treatment of diabetic peripheral neuropathy^{6,7}.

Table 1: Frequency of TCM Syndrome type.

TCM Syndrome type	Frequency	Rate %
Syndrome of dual deficiency of qi and yin	7	22.58
Syndrome of yin deficiency with congealing phlegm	5	16.13
Syndrome of dampness-heat obstructing	3	9.68
Syndrome of qi deficiency with blood stasis	3	9.68
Syndrome of meridian stasis-heat	3	9.68

In this paper, the classification and frequency statistics of TCM syndromes and drug use rules of 11 included literatures were conducted using tables.

TCM Syndrome type

Among the 11 literatures, 10 mentioned the syndrome types of diabetic foot, with a total of 13 syndromes, with a cumulative frequency of 31⁸. The top five with high frequency are:

- Syndrome of the dual deficiency of qi and yin,
- Syndrome of yin deficiency with congealing phlegm.
- Syndrome of dampness-heat obstruct.
- Syndrome of qi deficiency with blood stasis.
- Syndrome of meridian stasis-heat.

Table 2: Frequency of Applied Chinese medicine.

Name of drug	Frequency	Rate (%)
<i>Salvia miltiorrhiza</i>	5	3.57
<i>Astragalus</i>	5	3.57
<i>Angelica</i>	5	3.57
Prepared rehmannia root	4	2.86
Safflower	4	2.86
<i>Ligusticum striatum</i>	4	2.86

Table 1 shows that the syndromes of diabetic foot are heterogeneous and variable and they are always sign of deficiency. This deficiency mainly includes deficiency of qi and blood and a deficiency of qi and Yin. Standards include blood stasis, heat, and phlegm and so on. At the beginning of the main virtual; In the middle stage, due to the invasion of external evil and internal evil, the righteous spirit still exists, and the righteous and evil are competing with each other. Due to the long course of the disease, consumption injury qi will convert to virtual at last⁹.

Table 3: Frequency of Traditional Chinese medicine efficacy.

Name of drug	Frequency	Rate (%)
Medicine of clear heat	19	22.62
Medicine of tonify qi	16	19.05
Medicine of activate blood and resolve stasis	14	16.67
Medicine of tonify yin	10	11.90
Medicine of regulate qi	8	9.52

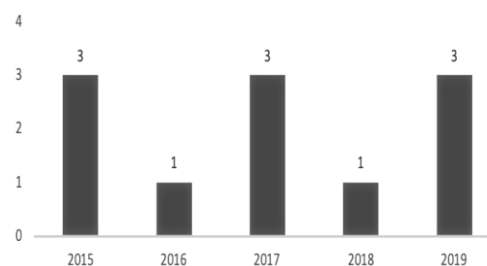
Drug of TCM

Applied Chinese medicines

Among the 11 selected literatures, a total of 84 TCM varieties were used for TCM syndrome differentiation treatment, with a cumulative frequency of 140. The results showed that the top 6 TCM medicines were respectively: *Salvia miltiorrhiza* (5/140), *Astragalus* (5/140), *Angelica* (5/140), prepared rehmannia root (4/140), Safflower (4/140), *Ligusticum striatum* (4/140). Their application rate is 3.57%, 3.57%, 3.57% and 2.86% respectively (Table 2).

Traditional Chinese medicine efficacy

According to the statistics of The Times of using traditional Chinese medicine with different efficacy in the treatment of diabetes in 11 literatures, the results showed that The Times of using traditional Chinese medicine ranked the top five respectively: medicinal of clear heat (19/84), medicinal of tonify qi (16/84), medicinal of activate blood and resolve stasis (14/84), medicinal of tonify yin (10/84), medicinal of regulate qi (8/84). Their application rate is 22.62%, 19.05%, 16.67%, 11.90%, 9.52% respectively (Table 3)¹⁰.

**Figure 2: Number of Articles in the Study That Were Published Between January 2015-November 2019.**

CONCLUSIONS

The treatment of clinical diabetes mainly includes Western medicine treatment and Traditional Chinese medicine treatment. Western medicine takes effect quickly but need to take hypoglycemic drugs for a long time. The illness will come back easily and it has relatively large side effects, such as dizziness, cough and so on^{11,12}. According to TCM theory, diabetic foot ulcer is caused by deficiency of qi and Yin, and the main syndrome is the deficiency of qi and blood stasis, which is marked by excess of dampness and heat. Therefore, the treatment and nursing of diabetic foot ulcer should adopt the treatment methods of activating blood circulation and removing blood stasis, clearing heat and detoxification and the nursing methods of internal and external conditioning of Traditional Chinese medicine, pay attention to the local nursing of affected foot, so as to make the skin of foot turn red, reduce pain and promote ulcer healing. However, we still need to develop a more scientific classification method for TCM syndromes of diabetic foot¹³. In conclusion, active TCM syndrome differentiation treatment for diabetic foot ulcer patients can effectively control the clinical symptoms of patients, improve the treatment effect and improve the prognosis of patients, which are worthy of clinical application and promotion.

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AUTHOR'S CONTRIBUTION

Huang L: writing original draft, methodology. **Yi L:** investigation, formal analysis, conceptualization. **Aslam MS:** supervision, editing.

DATA AVAILABILITY

The datasets generated during this study are available from the corresponding author upon reasonable request.

CONFLICT OF INTEREST

No conflict of interest associated with this work.

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