

Research Article

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Quantitative and Qualitative Investigation of Traditional Chinese Medicine Nursing Protocols for Type 2 Diabetes Mellitus

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Abstract

Objective: To analyze the implementation status of traditional Chinese medicine (TCM) nursing protocols for type 2 diabetes mellitus.

Methods: Totally 420 hospitalized patients with type 2 diabetes mellitus were given TCM nursing protocols by syndrome differentiation. A quantitative and qualitative investigation was conducted to patients who received TCM nursing and nurses who performed TCM nursing techniques.

Results: According to the self-evaluation outcomes of patients, TCM nursing protocols were effective to relieve polydipsia, polyuria, fatigue and other symptoms. Patients exhibited a high level of compliance with nursing techniques such as auricular point pressing, acupoint massage, Chinese herbal foot-bath and moxibustion. The interview showed that patients could benefit from the TCM nursing protocols, and nurses considered that application of TCM nursing protocols could enhance their awareness of TCM knowledge and practice skills.

Conclusion: The application of TCM nursing protocols is effective to relieve clinical symptoms of type 2 diabetes mellitus. It can also improve the knowledge level and practice skills of nurses in TCM hospitals.

Key words: Type 2 diabetes mellitus; Traditional Chinese medicine nursing; Auricular point pressing, Acupoint massage; Chinese herbal foot bath; Syndrome differentiation

Introduction

In recent years, as the government has been paying great attention to the work of traditional Chinese medicine (TCM), the national investment in the development of TCM is more and more increasing, and the government emphasizes the characteristics of TCM in the development of TCM. Taking the construction of key special clinics

as breakthrough point, the State Traditional Chinese Medicine Administration (STCMA) has been looking for a way to maintain the characteristics and advantages of TCM^[1]. Based on the analysis, validation and optimization of effective TCM nursing protocols, which have been conducted by the national cooperative research groups of TCM key special clinics nursing organized by STCMA, the regulation of TCM Nursing Protocols for 13 Diseases (Trial Edition)^[2] has been promulgated and tried out. In order to improve the regimen and clinical applicability

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of TCM nursing protocols for type 2 diabetes mellitus, this study investigated the effectiveness of TCM nursing protocols for type 2 diabetes mellitus by the combination of quantitative investigation and qualitative interview. The main results of this study were described as follows.

Materials and Methods

General Data

Totally 420 patients with type 2 diabetes mellitus who were hospitalized during the period of June to December 2017 were included. Inclusion criteria: (1) according to *Guidelines for Prevention and Treatment of Diabetes Mellitus in TCM* (ZYYXH/T3.1-3.15-2007) issued by China Association of Chinese Medicine, main evidences for the diagnosis of diabetes mellitus including polydipsia, polyphagia, polyuria, emaciation or elevated urine sugar level, some patients having no obvious typical symptoms of diabetes mellitus, main evidences for the diagnosis of suspected diabetes mellitus including middle age, obesity due to high-fat diet, complications of phthisis, edema, dizziness, chest pain, stroke, night blindness and carbuncles; (2) western medicine diagnostic criteria: according to *Guidelines for Prevention and Treatment of Type 2 Diabetes Mellitus* (2010) issued by Chinese Diabetes Society^[3], fasting plasma glucose (FPG) ≥ 7.0 mmol/L (126 mg/dL), or 2-hour postprandial blood glucose (2hPBG) in oral glucose tolerance test (OGTT) ≥ 11.1 mmol/L (200 mg/dL), or random blood glucose ≥ 11.1 mmol/L (200 mg/dL). Exclusion criteria: diabetes mellitus of other types, co-existence of diabetic ketosis, hyperosmotic state or other severe stress conditions, co-existence of severe chronic diabetic complications (cardiac insufficiency, diabetic nephropathy with albuminuria, four-stage diabetic retinopathy), co-existence of severe depression, schizophrenia and other mental disorders.

Of 420 patients, there were 218 males and 202 females, and there were 189 (45.00%) patients of 60-80 years old, 147 (35.00%) patients of 40-60 years old and 84 (20.00%) patients of 20-40 years old. Among these patients, the number of patients who had the symptoms listed in TCM Diagnosis and Treatment Regimen of 95 Diseases of 22 Special Clinics was 232 (55.24%), the number of patients

who had the supplementary symptoms was 188 (44.76%), the number of patients who had polyuria was 112 (26.67%), the number of patients who had polydipsia was 334 (79.52%), the number of patients who had polyphagia was 68 (16.19%), the number of patients who suffered from fatigue and weakness was 147 (35.00%), the number of patients who suffered from limb numbness and pain was 114 (27.14%), the number of patients who suffered from blurred vision was 134 (31.90%), the number of patients who suffered from itchy skin was 8 (1.90%), the number of patients who suffered from low back soreness was 18 (4.29%), and more than half of patients suffered from 2 or more than 2 of symptoms mentioned above.

Methods

Quantitative investigation: Questionnaires designed by the departments were adopted for the evaluation involving the following 3 aspects: nursing effectiveness, primary nurse evaluation on TCM nursing protocols, and patient compliance to the implementation of TCM nursing techniques. (1) The nursing effectiveness was evaluated by patients themselves under the guide of primary nurses, based on the improvement (much better, better, no change and worse) of symptoms including polyuria, polydipsia, polyphagia, fatigue and weakness, limb numbness and pain, blurred vision, itchy skin and low back soreness. (2) The TCM nursing protocols was evaluated by primary nurses, based on the practicability (very good, good, general and poor) of TCM nursing protocols. (3) The patient compliance to the implementation of TCM nursing techniques was evaluated by primary nurses, based on the degree of patient compliance (complete, partial and no) to TCM nursing techniques, including auricular point pressing, acupoint massage, Chinese herbal foot bath and moxibustion.

Qualitative interviews: (1) Patient interviews: based on the diagnosis of typical symptoms, patients who received TCM nursing protocols were randomly selected to tell: (a) the reason why they did not comply to TCM nursing techniques, (b) the experience in the nursing process conducted by nurses who carried out TCM nursing protocols, and (c) which TCM nursing techniques can be conducted by patients themselves in home and why.

(2) Nurse interviews: among nurses who carried out TCM nursing protocols for type 2 diabetes mellitus, 8 nurses were selected to tell: (a) what they learned in the implementation of TCM nursing protocols, (b) if they had a sense of achievement in the implementation of TCM nursing protocols, (c) the problems they had to overcome in the implementation of TCM nursing protocols, (d) which kind of help was needed for the implementation of TCM nursing protocols, and (e) the suggestion on improving the practicability of TCM nursing protocols.

Results

Results of nursing effectiveness evaluation

The results of nursing effectiveness evaluation indicated that the implementation of TCM nursing protocols was highly effective (much better and better) in improving itchy skin (100.00%), followed by low back soreness (94.44%), blurred vision (82.09%), polydipsia (81.14%), polyuria (79.46%), fatigue and weakness (78.91%), limb numbness and pain (78.07%) and polyphagia (77.94%), as summarized in Table 1.

Results of evaluating TCM nursing protocols by primary nurses

The results of evaluating TCM nursing protocols by primary nurses indicated that, the implementation of TCM nursing protocols was highly practicable in 98 (23.33%)

patients, practicable in 276 (65.71%) patients, slightly practicable in 43 (10.24%) patients, and impracticable in 3 (0.71%) patients.

Results of evaluating patient compliance to implementation of TCM nursing techniques

The patient compliance to auricular point pressing, acupoint massage, Chinese herbal foot bath and moxibustion was high, as summarized in Table 2.

Results of interviews

Patient interviews: (1) Reasons for not complying with nursing techniques: “being allergic to rubber plasters for auricular point pressing and intolerance to pain caused by auricular point pressing, failing to continue the treatment because of no change from short-term treatment, being unable to breathe due to the offensiveness smell during moxibustion, being afraid of burning injury”. (2) Experiences in TCM nursing techniques: “Diet adjustment through TCM improved my life style and physical condition, and I could select foods proper for myself according to TCM syndrome differentiation”. “I learned of the locations of many acupoints, were capable of massaging those acupoints by myself, and benefited a lot from acupoint massage”. (3) Application of TCM techniques in healthcare management in home: “Acupoint massage, Chinese herbal foot bath and moxibustion in home can be widely applied because of being

Table 1 Results of evaluating nursing effectiveness [n(%)]

Symptoms	Much better	Better	No change	Worse
Polyuria (n=112)	50(44.64)	39(34.82)	23(20.54)	0
Polydipsia (n=334)	93(27.85)	178(53.29)	62(18.56)	1(0.30)
Polyphagia (n=68)	20(29.41)	33(48.53)	14(20.59)	1(1.47)
Fatigue and weakness (n=147)	55(37.41)	61(41.50)	29(19.73)	2(1.36)
Limb numbness and pain (n=114)	36(31.58)	53(46.49)	25(21.93)	0
Blurred vision (n=134)	39(29.10)	71(52.99)	21(15.67)	3(2.24)
Itchy skin (n=8)	4(50.00)	4(50.00)	0	0
Low back soreness (n=18)	10(55.56)	7(38.89)	1(5.56)	0

Table 2 Patient compliance to implementation of TCM nursing techniques [n(%)]

TCM nursing techniques	Complete compliance	Partial compliance	No compliance
Auricular point pressing (n=347)	340(97.98)	4(1.15)	3(0.86)
Acupoint massage (n=114)	114(100.00)	0	0
Chinese herbal foot bath (n=22)	22(100.00)	0	0
Moxibustion (n=24)	22(91.67)	0	2(8.33)

convenient and painless and helpful for home healthcare management.” “Acupoint massage can be widely applied anytime anywhere without the aid of tools, but cupping therapy is not appropriate to operate by patients themselves in home because of the risk of burning injury.”

Nurse interviews: (1) Benefiting from the implementation of TCM nursing protocols: improving TCM practice skills and providing better TCM nursing services to patients through the implementation of TCM nursing protocols. (2) Achievements resulting from the implementation of TCM nursing protocols: grasping techniques and knowledge of TCM nursing for type 2 diabetes mellitus (taking auricular point pressing as an example, telling patients to press 15-20 times on each acupoint with appropriate pressing force after applying auricular point pressing, 2-3 times every day, and to stop pressing after washing face or having a bath to prevent falling or displacing), great progress of TCM nursing techniques through the practice in diabetes patients with abnormal feeling of lower limbs who needed protecting against being scalded by hot water during Chinese herbal foot bath and not taking foot bath for a long time. (3) Difficulties in the process of implementing TCM nursing protocols: difficulty in training TCM nursing protocols among patients who had complicated syndromes and did not meet the diagnosis criteria. (4) Requirements for the implementation of TCM nursing protocols: requirement of intensive training on related contents around TCM nursing protocols for nurses to have insight into TCM culture and knowledge. (4) Suggestions on the application of TCM nursing protocols: suggestion of optimizing individual applicability of TCM nursing protocols to meet patients' needs while considering general applicability because

of high proportion of syndromes beyond TCM nursing protocols, suggestion of developing objective evaluation criteria including factors affecting patient evaluation.

Discussion

Type 2 diabetes mellitus is a frequently encountered disease associated with significantly increased morbidity and mortality, and needs lifelong medication and nursing care^[5-7]. TCM nursing care has a positive effect on symptom improvement, disease control and life quality improvement in patients with type 2 diabetes mellitus, including effective nursing intervention, personalized dietary guidance based on syndrome differentiation in TCM, application of emotional nursing and nursing techniques based on syndrome differentiation in TCM, medication nursing of Chinese herbs, living and diet nursing, and physical exercises^[8-9].

TCM nursing protocols adopted in this study included auricular point pressing (suitable for patients with polyuria, polydipsia and polyphagia, applied to auricular positive points of the endocrine system, spleen, pancreas and triple energizer), acupoint massage (suitable for patients with blurred vision, applied to acupoints of Jingming point, Sibai point and Sikong point), Chinese herbal foot bath (suitable for patients with limb numbness and pain and itchy skin), and moxibustion (suitable for patients with fatigue and weakness and lower back soreness, applied to acupoints of Zusanli point, Shenshu point, Guanyuan point, Qihai point and Sanyinjiao point). The auricular point pressing therapy is an effective health-care practice derived from ear acupuncture therapy^[10]. Acupoint massage, along with the advantages of safety,

low cost and effectiveness, has effects of keeping the balance of yin and yang, stimulating the menstrual flow, activating qi-blood circulations and soothing joints through massaging human body surface, and achieves the purposes of preventing diseases and strengthening the constitution through stimulating acupoints and dredging channels and collaterals^[11]. The periocular massage may have the effects of dredging channels and collaterals, keeping yin-yang in balance, maintaining ying-qi and wei-qi harmony and preventing abnormal qi-blood flows^[12]. When patients with diabetic peripheral neuropathy take Chinese herbal foot bath, under the thermodynamic effect of herbal liquids, the blood circulation of patient's feet is greatly promoted to improve the nutritional status of local nerve tissues. In addition, the pores and microcapillaries of local skin are completely dilated and the effective components of herbal liquids directly penetrate the skin to take the pharmacological effects of promoting blood circulation and dredging channels and collaterals. As a result, the microcirculation of local affected skin is greatly improved, and the tissue physiological metabolism is promoted, thereby greatly improving the symptoms and signs related to diabetic peripheral neuropathy^[13]. During the process of moxibustion, moxa floss is burned to release heat and effective components which have the effects of keeping the body warm to promote qi-blood flow and strengthening body resistance to eliminate pathogenic factors through the application and stimulation onto acupoints^[14]. The investigation of effect of TCM nursing techniques used alone or in combination on symptom improvement of type 2 diabetes mellitus showed that the effect of TCM nursing protocols in improving itchy skin was best, followed by lower back soreness, blurred vision, polydipsia, polyuria, fatigue and weakness, limb numbness and pain, and polyphagia.

Five measures of diabetes control and management include dietary therapy, exercise therapy, drug therapy, self-monitoring and nutritional education, in which nutritional education plays a significant role. Most patients are prone to poor compliance because of long disease duration, while the results of this study showed that patients appeared high compliance to auricular point pressing, acupoint massage, Chinese herbal foot-

bath and moxibustion. This is probably because hospital nursing management and healthcare education make the implementation of TCM nursing protocols successful. According to the nurse interviews in this study, it is found that nurses might follow TCM nursing protocols during healthcare education in diabetes patients, which is helpful for standardizing the practice procedures. In addition, patients realize to correct unhealthy lifestyle according to TCM nursing protocols during hospitalization, thereby greatly improving patient compliance. Further, nurses could grasp TCM nursing knowledge and practice by learning and applying TCM nursing protocols. By virtue of TCM healthcare education and nursing technique services, the advantage of TCM community healthcare is maximized to emphasize TCM treatment and healthcare education in communities^[15], and the reasonable and standard rehabilitation and healthcare education are applied in patients with type 2 diabetes mellitus to improve the understanding of diabetes disease and compliance as well.

Nursing care plays an important role in TCM, and the concept "better nursing care than treatment" fully explains the truth that nursing care is significant in disease treatment and health care. Nursing care, as a necessary part of TCM, has developed unique techniques and practice procedures under the guidance of TCM theory. TCM nursing care is practicable and effective, however, nurses in TCM hospitals lack knowledge or skills in both theory and practice. With the guidance of TCM Nursing Protocols for 13 Diseases issued by STCMA, nurses in TCM hospitals could follow the regulation in nursing practice, which is significant for improving knowledge and skills of TCM nursing techniques. Diabetes patients may benefit from the implementation of TCM nursing protocols for type 2 diabetes mellitus. However, considering the complicated syndromes beyond the TCM nursing protocols, the study on practice and application in patients with supplementary syndromes needs to be further conducted in future to revise and optimize the protocols.

Declaration

The authors of this article declare no conflict of interest.

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