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Original article

Influence of traditional Chinese medicine syndrome groups on quality of life in women with metabolic syndrome

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ABSTRACT

Traditional Chinese medicine (TCM; 中醫 zhōng yī) syndrome groups are based on the symptoms of human diseases and guide the use of Chinese herbs. The aim of this study was to examine the effects of TCM syndrome groups on biochemical characteristics and quality of life (QOL) in women with metabolic syndrome (MS). Among the 1080 registered female patients screened at our outpatient clinic, a total of 322 women aged between 18 and 65 years and meeting the requirements of MS were enrolled. All the patients were asked to fill out a questionnaire on metabolic TCM syndrome groups and a questionnaire on the QOL, the Medical Outcomes Study (MOS) Short Form-12 (SF-12). Data of biochemical characteristics were collected at the same time. The present study showed MS women in TCM syndrome groups had significantly lower physical and mental component scores in SF-12 compared with those not in TCM syndrome groups. We also found MS patients in TCM syndrome groups, except Kidney Deficiency syndrome, showed higher body mass indexes, waist circumference, and hip circumference. However, there was almost no difference in most biochemical characteristics between TCM syndrome groups. The MS patients diagnosed as belonging to TCM syndrome groups had poor QOL.

1. Introduction

Metabolic syndrome (MS) represents a cluster of metabolic risk factors which can be defined when three or more metabolic disorders are present, namely, central obesity, hypertension and dyslipidemia, with either increased triglyceride levels or decreased high density lipoprotein cholesterol levels, and glucose intolerance.[1] Increasing obesity rates among adults are becoming more and more common. According to the Third National Health and Nutrition Examination Survey, the age-adjusted prevalence of MS among U.S. adults from 1999–2006 was 34.2%, which was a significant increase from 29.2% from 1988 to 1994. Further, the greatest increase in MS prevalence was observed in young women.[2]

Generally speaking, a person with MS is twice as likely to develop cardiovascular disease and five times as likely to develop diabetes compared to someone without MS.[3] In addition, MS has been linked to a growing list of other adverse events.[4,5] To improve the prognosis of MS, patients may seek traditional Chinese medicine (TCM; 中醫 zhōng yī) as an adjuvant treatment for controlling glucose and lipid metabolism.[6–8] According to TCM theory, physicians assess patients holistically; this consists of presenting the symptoms of illness as well as patients' emotional and psychological responses. Then, patients with different symptoms are classified into different syndrome groups. Differentiation of TCM syndrome groups is the key principle guiding the prescription of Chinese herbal formulae and is beneficial to the promotion of patient care. In the past studies, we developed a self-reported questionnaire on symptoms to facilitate classification of TCM syndrome groups and the six most common TCM syndrome groups of MS were defined.[9–11]

Some risk components of MS such as obesity, hypertension, and diabetes have been associated with impaired quality of life (QOL).[12–14] Many studies have shown that people with MS experience reduced QOL, and women with MS show even worse

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QOL.[15,16] However, few studies have addressed the association between TCM syndrome groups and QOL in MS. In our previous study, we developed a self-reported questionnaire of symptoms to facilitate the classification of different syndrome groups for different disease.[9–11] In this study, we examine the effects of TCM syndrome groups on biochemical characteristics and QOL in women with MS.

2. Methods

2.1. Study design and participants

This was a cross-sectional study conducted from January 2014 to December 2014 in Taipei City Hospital, Taiwan. We sent out invitation letters to 1696 female outpatients who were selected by a computerized simple-random sampling method. At first, 1080 females were willing to participate in this study after consulting and explanation of the program. Among the 1080 registered patients screened at our outpatient clinic, a total of 322 were enrolled. The inclusion criteria and exclusion criteria are shown in Table 1. In this study, MS was defined according to American Heart Association and the National Heart, Lung, and Blood Institute recommendations[5] and the National Cholesterol Education Program's Adult Treatment Panel III guidelines with the modification of waist circumference cutoff points for Asians.[17] The protocol was approved by the Human Ethics Committee of the Taipei City Hospital. Informed consent was obtained from all the enrolled patients.

2.2. TCM syndrome groups in MS

The enrolled patients were examined by TCM practitioners, and diagnoses were made on the basis of the examination; symptoms reported by the patients and according to the practitioner's experience. Based on TCM concepts, our clinical experience and related studies,[9–11] we designed a self-reported questionnaire on patient symptoms as a diagnostic tool and the six most common TCM syndrome groups of MS were defined. These groups were respectively characterized by "Stomach Heat syndrome (胃熱 wèi rè, SHS)", "Yin Deficiency syndrome (陰虛 yīn xū, YDS)", "Qi Deficiency syndrome (氣虛 qì xū, QDS)", "Kidney Deficiency syndrome (腎虛 shèn xū, KDS)", "Qi Stagnation syndrome (氣滯 qì zhì, QSS)", and "Spleen Deficiency syndrome (脾虛 pí xū, SDS)". Nine TCM physicians with clinical experience discussed and proposed three yes–no questions under each syndrome group for classification of MS patients. The questionnaire is shown in Table 2. MS patients were classified into a particular TCM syndrome group if they had more than two symptoms corresponding to each TCM syndrome in the questionnaire. Validation test results showed an alpha coefficient of 0.85 and a Cronbach's alpha coefficient of 0.78, which indicate the questionnaire has good reliability.

Table 1
Inclusion and exclusion criteria.

Inclusion criteria
Female
Aged between 18–65 years old
Meeting the requirements of metabolic syndrome (having at least 3 out of 5 of the following):
1. Systolic blood pressure ≥130 mmHg and/or diastolic blood pressure ≥85 mmHg or taking antihypertensive medication
2. Fasting blood glucose ≥100 mg/dL or taking antihyperglycemic medication
3. Triglyceride ≥150 mg/dL
4. High Density Lipoprotein <50 mg/dL
5. Waist circumference ≥80 cm
Willing to participate in this study
Exclusion criteria
Abnormal liver function (Glutamate Pyruvate Transaminase >80 U/L)
Abnormal kidney function (serum creatinine >2.5 mg/dL)
Prolactin or pregnancy women and planned-to-pregnant women
Heart failure, acute myocardial infarction, stroke, and heavy injuries in 6 months
Any other conditions not suitable for trial as evaluated by the physician

Table 2
Classification Criteria for the diagnosis of TCM syndrome groups.

In the past week, did you often have the following symptoms?
(Often means more than 8 h per day and more than four days per week)
Stomach heat syndrome (胃熱 wèi rè)
Sore gums or Bad breath.
Swift digestion with frequent hunger.
Like to drink cold beverages.
Yin deficiency syndrome (陰虛 yīn xū)
Dry throat or mouth.
Night sweats.
Palm or face flushing sensation.
Qi deficiency syndrome (氣虛 qì xū)
Felt exhausted or lack of energy.
Did not feel like talking or talked in a low and weak voice.
Did not feel like moving about or did not have the strength to walk
Kidney deficiency syndrome (腎虛 shèn xū)
Felt backache easily.
Tinnitus and hard of hearing.
Frequent urination (more than 2 times in the night).
Qi stagnation syndrome (氣滯 qì zhì)
Chest tightness.
Palpitation.
Agitation and irritability.
Spleen deficiency syndrome (脾虛 pí xū)
Leg pitting edema.
Felt thirsty and like to drink water easily.
Anorexia.

Definition: Patients who have 2 of 3 or more of the criteria in the Stomach Heat, Yin Deficiency, Qi Deficiency, Kidney Deficiency, Qi Stagnation, Spleen Deficiency syndrome groups are compatible with that TCM syndrome; TCM, traditional Chinese medicine.

2.3. Quality of life

To measure QOL, we used the self-administered questionnaire of a medical outcomes study (MOS) Short Form-12 (SF-12) with 12 items. These 12 items estimate eight concepts: general health, physical functioning, role limitation due to physical problems, role limitation due to emotional problems, bodily pain, vitality, mental health, and social functioning. The responses of the questions were calculated and converted respectively into two scores, physical and mental component summaries (PCS-12 and MCS-12). The general population usually has a mean of 50 and a standard deviation of 10 in SF-12 MCS and PCS measure scores. Higher scores indicate a better health condition.[18]

2.4. Outcome measurements

The major outcome measurement was the difference in QOL scores between different TCM syndrome groups of women with MS. Other measurements included body mass index (BMI), waist circumference, hip circumference, blood pressure, insulin, and biochemical characteristics in the six TCM syndrome groups. Biochemical characteristics were composed of fasting blood sugar, triglyceride, total cholesterol, creatinine, and glutamate pyruvate transaminase (GPT).

Insulin and biochemical characteristics were measured in the morning after 8–9 h of fasting. The entire blood sample was drawn and centrifuged at 4 °C, with 1 ml of the was sample rapidly frozen at −80 °C for the subsequent radioimmunoassay concentration analysis. BioSource INS-IRMA Kits (BioSource Europe S.A., Nivelles, Belgium) were used to determine the level of insulin in the serum as previously reported.[19,20] Sampling was reported if a difference

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