

Traditional Chinese Medicine symptom pattern analysis for Parkinson's disease

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Abstract

OBJECTIVE: To use the theory of Traditional Chinese Medicine to identify the major symptom patterns of Parkinson's disease.

METHODS: Journal databases were searched for relevant articles in the last 30 years. Articles were re-

viewed for symptom patterns of Parkinson's disease and analyzed using frequency analysis, cluster analysis, and other methods of data extraction.

RESULTS: The analyses indicated that the most frequent symptom patterns of Parkinson's disease are *Yin* deficiency of kidney and liver, deficiency of *Qi* and blood, phlegm heat and wind stirring, blood stasis and wind stirring, and deficiency of *Yin* and *Yang*.

CONCLUSION: Taken together, the analyses identified the primary symptom patterns of Parkinson's disease as *Yin* deficiency of kidney and liver, deficiency of *Qi* and blood, phlegm heat and wind stirring, and blood stasis and wind stirring.

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Keywords: Parkinson disease; Symptom complex; Cluster analysis; Data extraction

INTRODUCTION

Parkinson's disease (PD) is a degenerative disorder of the central nervous system characterized by shaking, rigidity, slowness of movement, and gait disturbance. PD mainly affects middle-aged and elderly individuals. As the population ages, PD incidence is increasing and it is the major cause of impairment in middle-aged and elderly people. Patients with PD can experience substantial suffering and deterioration in quality of life. Traditional Chinese Medicine (TCM) treats PD according to symptom patterns, using TCM theory to identify patterns and relieve symptoms, interfere with disease development, counteract the side effects of chemical drugs, and improve patient quality of life.¹ Many researchers have investigated PD symptom patterns theoretically, experimentally, and clinically. By

collecting, standardizing, and summarizing ancient and modern literature, researchers can examine the trends and directions of PD research and provide a firm basis for further clinical and experimental study.

This study aimed to use TCM theory to identify the major symptom patterns of PD to provide better guidance for PD treatment in TCM practice.

METHODS

Diagnostic standards

We followed the standards for PD diagnosis of the National Extrapyrimal Diseases Symposium,^{2,3} the Chinese Society of Neurology, and the Chinese Medical Association.

Inclusion criteria

We included articles with definite PD pattern classifications, whether or not they mentioned symptoms/signs, treatments, and medicines.

Exclusion criteria

We excluded (a) single case reports, (b) literature reviews, (c) re-published research papers and re-cited literature and (d) other studies that failed to meet the inclusion criteria.

Literature retrieval

Articles were obtained from China Knowledge Resource Integrated Database (CNKI), China Science and Technology Journal Database (VIP) Journal Integration Platform (VJIP), and China Biology Medicine disc (CBMdisc).

We used computer-aided and manual retrieval. The Retrieval formats were as follow: (a) Format of CNKI (keywords): Parkinson's disease (paralysis agitans) and pattern (pattern, pattern differentiation); duration: 1911-1979, 1980-2012. This produced 816 papers. (b) Format of VJIP (keywords): Parkinson's disease (paralysis agitans)* pattern (pattern, pattern differentiation); duration: 1989-2011. This produced 131 papers. (c) Format of CBMdisc (keywords): Parkinson's disease (paralysis agitans) * pattern (pattern, pattern differentiation); duration: 1978-2012. This produced 285 papers. In total, we retrieved 1232 papers.

Evaluating and screening

The title, author, journal name/year/issue of the retrieved papers were imported into Excel software (Microsoft Corp., Redmond, WA, USA) to determine the relevant papers. When there were several similar research papers, only one paper was included. The title and abstract of each paper were read to exclude non-relevant papers, based on the inclusion and exclusion criteria. There were 129, 14, and 14 relevant research papers from the CNKI, VJIP, and CBMdisc databases, respectively (total = 157). After the preliminary screening, the full text of each paper was read. Non-full text papers in paper version were retrieved in the library

and were read for further screening. There were 67, 6, and 5 relevant research papers from the CNKI, VJIP, and CBMdisc databases, respectively (total = 78).

Data standardization

Standardization of patterns terms was based on TCM Terms.⁴ Terms not in TCM Terms were classified according to the Standard of TCM Pattern⁵ and TCM Diagnosis.⁶ For example, deficiency of liver and kidney, insufficiency of liver and kidney, asthenia of liver and kidney, and *Yin* deficiency of liver and kidney were all standardized as *Yin* deficiency of liver and kidney. There was one term that we were unable to classify and this term was reserved.

Standardization of symptom terms was based on TCM Terms⁴ and TCM Diagnosis.⁶ Some symptoms were separated before classification; for example, circumgyration was separated into vertigo and dizziness; tongue coating and pulse were further divided into the smallest units (e.g., yellow and greasy tongue coating was divided into yellow tongue coating and greasy tongue coating, and thin and rapid pulse was divided into thin pulse and rapid pulse). Symptoms with similar meanings were combined into one classification (e.g., poor sleep, disturbed sleep, and bad sleep were all standardized as insomnia).

Statistical analysis

SPSS 17.0 software, version 17.0 (SPSS Inc. Chicago, IL, USA) was used to conduct frequency and descriptive statistical analyses on the symptom and diagnoses data. Data for the four diagnostic information were processed for cluster analysis and based on TCM knowledge to summarize the diagnostic protocol of common patterns in PD patients.

RESULTS

TCM symptom patterns in PD patients

The 78 research papers contained 293 records of patterns; there were 185 original patterns and 79 standardized patterns (with additional accompanying patterns). Thirty-six patterns were selected more than twice, and the accompanying patterns were divided into 29 standardized patterns. The total number of patterns was 277; Table 1 shows the six patterns with the highest frequency.

Data analysis of symptoms

The 78 research papers contained 50 papers and 193 records involving TCM symptoms. After analysis of the symptoms, there were 147 symptoms and 2652 pieces of information on the four diagnoses. There were 61 symptoms and 2306 pieces of information that occurred more than 10 times (Table 2).

There were 86 symptoms that occurred less than 10 times, including *Qi* deficiency, tiredness of speech, mouth bitterness, sluggish speech, night sweats, and

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