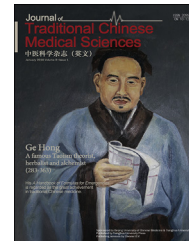


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Occurrence of spleen qi deficiency as defined by Chinese medicine in Parkinson disease

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Abstract *Objective:* To investigate the frequency of deficiency of spleen qi (DSQ) in persons with Parkinson disease (PD) as well as the correlation between DSQ and PD.

Methods: This study comprised three parts: determining the frequency of DSQ in participants with PD; comparing the frequency of DSQ in PD and non-PD participants; and monitoring DSQ in participants with PD for 24 weeks. Outcome measurements were a modified DSQ scale and the Chinese version of the Parkinson Disease Questionnaire 39 (C-PDQ39).

Results: A total of 187 participants with PD (mean ages 69.9 ± 9.6 years) completed the assessment in Part 1. Of these, 170 (90.9%) were diagnosed as having DSQ. Thirty non-PD participants (mean ages 66.6 ± 10.2 years) completed the assessment in Part 2. Of these 11 (36.7%) were diagnosed as having DSQ. Positive correlations between total DSQ score and Hoehn-and-Yahr (H&Y) stage (correlation 0.316; $P < .001$), as well as between DSQ and total C-PDQ39 score (correlation 0.572; $P < .001$), were observed. For Part 3, 47 participants from Part 1 were observed for 24 weeks. Variation in DSQ symptoms was noted, but all participants developed DSQ by the end of the study.

Conclusions: DSQ is 2.5 times higher in PD participants than in the non-PD participants. More PD participants had DSQ in the advanced H&Y stages. A larger study is needed to validate these results on the prevalence of DSQ in persons with PD.

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Introduction

Parkinson disease (PD) is one of the most common neurodegenerative diseases.¹ The incidence rate of PD is around 37.55 to 61.21 in people over 40.² It increases sharply with age.³ PD appears to be more common in men than in women at a 3:2 ratio.^{4,5}

In traditional Chinese medicine (TCM), although there is no word that precisely corresponds to the biomedical (Western) term of PD, there are references to a syndrome that is similar.⁶ PD-like signs and symptoms were first described in *Yellow Emperor's Internal Classic*, written during the later Han dynasty. In 1991, "senile shaking syndrome" was validated by "Senile Encephalopathy Seminar by China Association of Chinese Medicine" as the term to be used in TCM that corresponds to PD.⁷

In biomedicine (Western medicine), PD symptoms are of two types: motor (MS) and non-motor (NMS),⁸ and persons with PD are further divided into subtypes based on MS or NMS.⁹ In TCM, as found in our previous study, it is difficult to assign persons with PD to subtypes as it is a complex disease with a combination syndrome pattern of deficiency of origin and excess of superficiality.¹⁰ Nevertheless, the main constitution can still be classified based on the major signs and symptoms.^{11,12}

According to TCM theory, the symptoms of fatigue, constipation, and/or mood disorder correlate with the syndrome pattern of deficiency of spleen qi (DSQ). As most persons with PD have these symptoms,¹³ DSQ appears to be common in the PD population. DSQ is a pattern not restricted to PD and may represent the progression of disease. Hence, treating DSQ may be a potential research and therapeutic direction for PD both in TCM and biomedicine. In our pilot clinical trial, some NMS-type PD patients experienced symptom improvement by using a TCM herbal formula for DSQ.¹⁴

While DSQ is likely a major pattern in PD,¹⁴ there are currently no published research on PD-related DSQ.¹⁵ Therefore, in our study we analyzed the frequency of DSQ in persons with and without PD as the first step toward establishing a relationship between DSQ and PD.

Method

Study design

This study was divided into three parts:

Part 1) Confirming diagnosis of PD: Persons with parkinsonism were recruited, examined, and interviewed to validate their diagnosis of PD and presence of DSQ.

Part 2) Controlling: To control the possibility of DSQ being present simply due to aging, older adults without PD were interviewed to determine their prevalence of DSQ. This group served as the control group. Since PD seldom develops in people under the age of 50, only non-PD persons older than 50 were recruited.

Part 3) Monitoring: After confirmation of PD, persons who were willing to participate in further study underwent an additional 24 weeks' observation to monitor any changes in DSQ pattern. No additional active intervention was applied, but they were instructed to continue their routine medications.

Participants

General inclusion criteria were that participants agreed to be examined and interviewed. Specific criteria for Part 1: Adults who were older than 18; had been diagnosed with PD by a licensed biomedical physician; met the criteria of United Kingdom Parkinson's Disease Society Brain Bank clinical diagnostic criteria (UKPDBB);^{16,17} and met the Hoehn and Yahr (H&Y) criteria for stages 1 through 5. Specific criteria for Part 2: Adults who were 50 years or older without a diagnosis of PD. Specific criteria for Part 3: Adults who were older than 18 and had completed the assessment in Part 1.

General exclusion criteria were those who had other neurologic diseases, i.e., dementia; had another life-threatening disease(s), such as acute cardiovascular diseases, pneumonia, cancer; had non-chronic disease(s), such as acute respiratory infection, acute gastroenteritis, acute bone fracture; or had participated in an interventional clinical trial within 30 days of the assessment. Specific exclusion criteria for Part 1 were those who had a typical or drug-induced parkinsonism and who were pregnant or breastfeeding. For Part 2, the only specific exclusion criterion was a diagnosis of parkinsonism.

Settings and locations

Parts 1 and 3 were carried out at the Hong Kong Baptist University Chinese Medicine Specialty Centre, which is a Chinese medicine clinic managed by the School of Chinese Medicine of Hong Kong Baptist University. Part 2 was carried out at public parks in Hong Kong including Eastern district, Yau Tsim Mong District, and Sai Kung District.

Recruitment procedures

All participants in all three parts were assessed by the first author (KK Chua), a licensed Chinese medicine practitioner in Hong Kong. The objective, procedures, and nature of the study were explained to each participant. Verbal consent was obtained from each participant and caregiver (if applicable) before the assessment. They were informed that they could withdraw from the study freely at any time during the assessment.

For Part 1, two methods were used to recruit participants with PD: advertisements in local newspapers and referral from Chinese medicine clinics of Hong Kong Baptist University.

For Part 2, non-PD persons were recruited randomly in public parks.

For Part 3, participants who had completed the Part 1 assessment were invited to return for a 24-week observation period. Part 3 was started after the completion of Part 1.

Questionnaires

Criteria for diagnosing DSQ were extracted from *Guiding Principles for Clinical Research on New Drugs of Traditional Chinese Medicine*.¹⁸ It includes 4 primary symptoms and 13 secondary symptoms. Based on these criteria, the original

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