

Clinical Research Progress of Acupuncture in the Treatment of Non-motor Symptoms of Parkinson's Disease

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Abstract: *In recent years, the incidence of Parkinson's disease has increased year by year, because its motor symptoms have a clear diagnostic value has been valued, with the deepening of research, non-motor symptoms gradually into the field of vision of researchers. The onset of non-motor symptoms usually precedes motor symptoms, runs through the entire process of Parkinson's disease, and even promotes the progression of Parkinson's disease. In the treatment of non-motor symptoms of Parkinson's disease, the improvement effect of Western medicine treatment is not obvious. A number of studies have shown that acupuncture has a positive effect on slowing down the progression of Parkinson's disease, and the literature research at home and abroad in recent years has been sorted out as follows.*

Keywords: Parkinson's disease, Acupuncture, Non-motor symptoms, Review.

1. Introduction

Parkinson's disease (PD) is a clinically common neurodegenerative disease, with the death of dopaminergic neurodegeneration in the substantia nigra of the midbrain as a typical pathological change, thereby causing a significant decrease in dopamine content in the striatum, and the clinical manifestations are mainly resting tremor, increased muscle tone, bradycardia, postural balance disorder motor symptoms, and sleep disorders, constipation, olfactory disorders, depression, pain, urination disorders and other non-motor symptoms [1]. According to reports, there are more than 6 million Parkinson's disease patients in the world, and it is expected that China's Parkinson's disease patients will reach half of the world's patients in the next 10 years [2]. Patients diagnosed with PD for the first time usually require long-term medical treatment and care, which brings a heavy financial and psychological burden to the patient's family. Current PD treatment is mainly dopamine-targeted drug therapy, but drug treatment is accompanied by adverse reactions such as fluctuating symptoms and dyskinesia, which prompt clinicians to seek more treatments. In recent years, with the intervention of traditional medicine such as acupuncture, clinicians have found that acupuncture has a unique effect on the treatment of Parkinson's. A clinical observation on acupuncture in the treatment of Parkinson's disease dyskinesia found that acupuncture can improve the efficacy of Western medicine in the treatment of primary Parkinson's disease dyskinesia while reducing the use of dopamines [3]. In recent years, with the deepening of research on non-motor symptoms of Parkinson's disease, it has been found that acupuncture also has obvious efficacy in the treatment of non-motor symptoms of Parkinson's disease. The reports of recent years are compiled below.

2. PD with Sleep Disturbance

Sleep disturbance is one of the most common non-motor symptoms in patients with PD and is often the first symptom of PD [4]. PD sleep disorders often present with difficulty

falling asleep, excessive daytime sleep, fragmented sleep, rapid eye movement sleep behavior disorder, and sleep apnea [5]. A clinical effect of acupuncture method of regulating mind and vital energy on Parkinson's sleep disorders, sixty patients with Parkinson's disease were collected and randomly divided into two groups: regulating mind and vital energy acupuncture and conventional acupuncture, the acupoint prescription of regulating mind and vital energy acupuncture group is Shenting, Baihui, Ren-zhong, Sishencong, Shangxing, Taichong, Xuanzhong, Sanyinjiao, Zhaohai, NEiguan, Shenmen, S-henmai. The prescription of acupuncture points in the conventional acupuncture group is Zhaohai, Anmian, Baihui, Sanyinjiao, Shenmen, Shenmai, Quchi, Yanglingquan, Hegu, Fengchi. After 4 weeks of treatment, the results showed that the total effective rate of the regulating mind and vital energy acupuncture group was significantly higher than that of the conventional acupuncture group [6]. In the clinical study of acupuncture combined with eszopiclone in the treatment of Parkinson's insomnia, 60 subjects were included and randomly divided into treatment group and control group. Both groups were on the basis of taking anti-PD drugs (Madopar), the control group was treated with eszopiclone, and the treatment group was treated with acupuncture on the basis of the control group, acupuncture points: Fengchi, Baihui, Taichong, Hegu, Neiguan, Shenmen, Sishencong, Sanyinjiao, Yin Tang. After 2 weeks of treatment, the results showed that acupuncture combined with eszopiclone was more effective in treating insomnia than eszopiclone alone [7]. In the clinical observation of warm acupuncture combined with western medicine in the treatment of Parkinson's sleep disorder, 70 patients with Parkinson's with sleep disorders were included and randomly divided into treatment and control groups, the control group was treated with Medocarb and quetiapine, while the treatment group was treated with bilateral warm acupuncture of Kidney Yu, Liver Yu, Sanyinjiao and Taixi and head acupuncture of Sishencong, Baihui and choreographic tremor control area on top of the control group. After 12 weeks of treatment, the results showed that warm acupuncture combined with Medobar and quetiapine was more effective than oral Medobar and quetiapine alone in

treating sleep disorders, and that warm acupuncture corrected the disturbed sleep structure of Parkinson's disease patients and significantly improved the sleep-wake mechanism such as excessive daytime sleepiness in Parkinson's patients with sleep disorders [8].

3. PD with Constipation

Constipation is a manifestation of gastrointestinal dysfunction in about 80% of people with Parkinson's disease [9]. Constipation is one of the most common non-motor symptoms of Parkinson's disease. Constipation accompanies almost all stages of Parkinson's disease progression and may be involved in advancing the course of Parkinson's disease [10]. In the clinical efficacy of acupuncture in the treatment of functional constipation in Parkinson's disease, 66 cases of Parkinson's disease with constipation were collected and randomly divided into a treatment group and a control group, with the control group being given the appropriate amount of Medobar and other conventional Western medical treatments according to the international "Guidelines for the Treatment of Parkinson's Disease". After 20 days of treatment, the results showed that acupuncture significantly improved the symptoms of constipation and the quality of life of patients with Parkinson's disease with constipation, and the efficacy of acupuncture was better than that of levodopa alone [11]. The clinical efficacy of burying acupuncture points of the treatment of Parkinson's disease with constipation was observed, 80 patients with Parkinson's disease with constipation were randomly divided into a treatment group and a control group, and the treatment group was treated with buried acupuncture points, taking Tianshu, Zusanli and Dachangshu, while the control group was treated with sham stimulation, taking the same acupuncture points as the treatment group, both groups were treated once every 2 weeks. After 6 treatments the results showed that the overall efficiency of the treatment group was 77.5%, which was significantly higher than the 30% of the control group. Burying acupuncture points is an effective treatment for Parkinson's disease with constipation, significantly improving symptoms such as infrequent bowel movements and straining during defecation, and improving the quality of life associated with constipation [12]. In the study on the effect of electroacupuncture bilateral Tianshu points on anorectal dynamics and UPDRS scores in patients with Parkinson's disease with constipation, by collecting 93 patients with Parkinson's disease with constipation, randomly divided into 47 in the acupuncture group and 46 in the control group, the acupuncture group was treated with acupuncture bilateral Tianshu and electroacupuncture sparse wave, while the control group was treated with oral polyethylene glycol. The treatment results showed that acupuncture not only improved the patients' constipation symptoms, but also their mental state [13].

4. PD with Olfactory Disorders

As non-motor symptoms of Parkinson's disease have been explored in recent years, it has been discovered that hyposmia can occur years before the onset of motor symptoms in Parkinson's disease, and some physicians are using hyposmia as a sensitive marker for Parkinson's disease. As the disease progresses, about 90% of people with Parkinson's disease will eventually develop an impairment in the sense of smell [14].

The effect of "olfactory three-needle" intervention on the ultrastructure and expression of glial fibrillary acidic protein in the olfactory bulb of mice with Parkinson's disease model, Forty mice were randomly divided into blank group, model group, electro-acupuncture group and drug group, 10 mice in each group. The electro-acupuncture group was subjected to electro-acupuncture intervention on bilateral Yingxiang and Yintang, the drug group was injected with levodopa injection intraperitoneally, the blank group and model group were not subjected to intervention. Ultramicroscopic observation of the olfactory bulb in mice after 4 sessions of experiments, The results showed that the olfactory mucosa cells in the electroacupuncture group were more neatly arranged than those in the control group, and the expression of TH in the substantia nigra was significantly higher, indicating that early acupuncture intervention could better protect the olfactory mucosa and have a certain preventive effect on the improvement of early Parkinson's disease symptoms [15]. In the clinical observation of the therapeutic effect of Du meridian warm acupuncture on olfactory disorder in patients with Parkinson's disease, 92 patients with Parkinson's disease and olfactory disorder were collected and randomly divided into control group and study group. The control group was treated with conventional drugs, and the study group was treated with Du meridian warm acupuncture on the basis of the control group, the acupoints are: Fengfu, Baihui, Xuanshu, Jizhong, Yaoyangguan, in addition, the patient's dancing tremor area was acupunctured and connected with electroacupuncture. After 2 months of treatment, the results showed that the olfactory disorder score of the study group was significantly lower than that of the control group. The curative effect of warm acupuncture combined with drug treatment on olfactory disorder was significantly higher than that of pure drug treatment [16].

5. PD with Depression

Depression is a relatively common non-motor symptom in people with Parkinson's disease, and the prevalence of depression in people with Parkinson's disease is reported to be around 40% in the literature [17]. In the early stage of Parkinson's disease, depression will peak. The clinical manifestations are low mood, difficulty in concentration, and decreased interest in work and life. Long-term depression may even aggravate the motor symptoms of Parkinson's disease and seriously affect the quality of life of patients. The pathogenesis of depression in Parkinson's disease is not yet fully understood, "Brain-gut axis" is helpful for the relief of depressive symptoms in Parkinson's disease. Regulating gastrointestinal function and mental state by acupuncture to achieve brain-gut co-treatment, improve the physical function of patients, early prevention, delay the progression of Parkinson's disease [18]. An experimental study of acupuncture on Parkinson's depression model rats, 75 rats were randomly divided into normal group, sham operation group, model group, control group, acupuncture group. The acupuncture group was treated with acupuncture at Baihui through Taiyang and Zhongwan for 28 consecutive days. The experimental results showed that acupuncture had a contribution to the improvement of Parkinson's behavior with depression in rats, and could increase the expression level of BDNF in brain tissue and serum, so as to play a therapeutic role [19]. There is a clinical observation on the effect of

“Tongdu” acupuncture combined with paroxetine on depression in Parkinson 's disease. 63 patients with Parkinson 's depression were randomly divided into control group (31 cases) and treatment group (32 cases). Both groups received basic treatment of Parkinson 's disease. On this basis, the control group was given paroxetine orally, The treatment group was treated with “Tongdu” acupuncture on the basis of the control group. The acupoints are: Baihui, Sishencong, Shenting, Yintang, cervical Jiaji, Dazhui, Renzhong, Taichong. After 8 weeks of treatment, the two groups of patients were scored. The results showed that Tongdu Tiaoshen acupuncture combined with paroxetine had a clear effect on Parkinson 's disease with depression, which could clearly improve the depressive symptoms and motor symptoms of patients [20].

6. PD with Pain

In the development of Parkinson 's disease, the incidence of pain is usually 30 % ~ 95 %. Pain is one of the early symptoms of Parkinson 's disease, even before the onset of motor symptoms [21]. Common types of pain in Parkinson 's disease are musculoskeletal pain, dystonia pain, radicular pain, central pain, akathisia and other types of pain, of these, musculoskeletal pain is the most common type [22]. A clinical study floating needle the efficacy of Parkinson's disease with pain in the extremities by randomizing 40 patients with Parkinson's disease with pain. On the basis of routine treatment, the observation group was treated with floating needle once a day for 2 days, and the control group was treated with acupuncture once a day. After 2 weeks of treatment, the pain and quality of life of the two groups were scored. The results showed that floating needle can effectively relieve the pain symptoms of patients and improve the quality of life of patients. The curative effect is better than that of ordinary acupuncture [23]. Observations on the efficacy of acupuncture for softening tendons and relieving pain in treating Parkinson 's disease with pain and its therapeutic effect on different types of pain. By collecting 84 patients with Parkinson 's disease with pain, the patients were divided into musculoskeletal pain group, root pain group, dyskinesia pain, akathisia group and other groups according to different types of pain. All patients received routine basic treatment of Parkinson 's disease, stopped taking analgesics, and at the same time were given acupuncture for softening tendons and relieving pain, acupoints: Baihui, Shenting, Yintang, Fengchi, Quchi, Waiguan, Hegu, Yanglingquan, Taixi, Taichong, while according to the patient 's pain symptoms plus local Ashi points. After 10 days of treatment, through the pain score, the results showed that the tendon pain acupuncture treatment of Parkinson 's disease with pain has a certain clinical effect, to improve the musculoskeletal pain, sedentary pain better effect on root pain and dyskinesia pain effect is not obvious [24]. There are also clinical reports of fire needle treatment of Parkinson 's disease with pain, the results show that fire needle combined with ordinary acupuncture can effectively relieve Parkinson 's disease with pain [25].

7. PD with Urination Disorder

Gastrointestinal and urination dysfunction is the most common autonomic nerve dysfunction in patients with Parkinson 's disease, 40 % to 70 % of patients with Parkinson

's disease will appear urination dysfunction, and with the progress of the disease and continue to increase [26]. The most common lower urinary tract symptoms in patients with Parkinson 's disease are increased frequency of urination at night, urgency, stress urinary incontinence, and increased frequency of urination during the day [27]. Clinical observation of moxibustion on Parkinson 's urination disorder observation, by collecting 61 cases of Parkinson 's disease with urination disorder patients, were randomly divided into two groups, the observation group was treated with conventional western medicine foundation treatment, the treatment group in the observation group on the basis of Qihai, Guanyuan moxibustion, 2 weeks after the end of the treatment of urination frequency and urine volume statistical analysis, the results show that moxibustion to improve patients urination frequency, each urination volume and improve the level of urinary incontinence improvement effect is obvious [28].

8. Evaluation and Prospect of Acupuncture for Non-motor Symptoms of Parkinson's Disease

In recent years, with the deepening of the study of non-motor symptoms of Parkinson 's disease, found that the emergence of non-motor symptoms of Parkinson 's disease earlier than the emergence of motor symptoms, while the progress of non-motor symptoms will even promote the gradual aggravation of motor symptoms, seriously reducing the quality of life of patients. A large number of clinical studies and animal experiments show that acupuncture in the early prevention of non-motor symptoms of Parkinson 's disease progress has a significant therapeutic effect, can slow the progression of Parkinson 's disease, improve the quality of life of patients. However, the following problems remain; the mechanism of acupuncture treatment for Parkinson's disease is not clear and further animal studies are needed to elucidate the mechanism of acupuncture treatment. The acupuncture points and the amount of stimulation during the treatment of Parkinson's disease cannot be quantified and standardized. Extensive and standard studies should be conducted in future research to further promote the use of acupuncture in the treatment of Parkinson's disease.

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