

Clinical Research Progress of Complementary and Alternative Medicine of Peritoneal Dialysis Complications

Yaning Bai¹, Wei Leng^{2,*}

¹*Shaanxi University of Traditional Chinese Medicine, Xianyang 712046, China*

²*Affiliated Hospital of Shaanxi University of Traditional Chinese Medicine, Xianyang 712000, China*

*Corresponding author

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Abstract: Objective: To summarize the research progress of complementary and alternative medicine in the clinical treatment of peritoneal dialysis. **Methods:** 218 related literatures were comprehensively searched from Wanfang, CNKI, Pubmed and other databases, and 35 eligible literatures were analyzed and included after screening. **Results:** Different from mainstream treatment, complementary and alternative medicine, including exercise therapy and TCM external treatment, not only has therapeutic effect on peritoneal dialysis complications, but also has advantages of simplicity, economy, reduction of excess water intake and less side effects. **Conclusion:** Complementary and alternative medicine can improve the quality of life and survival rate of patients with peritoneal dialysis, which will become an important topic in the future treatment of peritoneal dialysis.

1. Introduction

Peritoneal dialysis (PD), hemodialysis (HD) and renal transplant are the main treatments for end-stage renal disease. Peritoneal dialysis is more widely used in clinical practice due to its advantages of simplicity, economy, maximum protection of residual renal function and hemodynamic stability^[1]. The annual growth rate of peritoneal dialysis patients in China is about 15%-18%. By the end of 2017, about 596,000 dialysis patients have been registered in the system, including 86,264 peritoneal dialysis patients, which is the country with the largest number of peritoneal dialysis patients in the world^[2]. With the wide application of peritoneal dialysis, its complications become increasingly prominent. In addition to the mainstream medical treatment methods, the complementary and alternative medicine proposed in recent years also provides new ideas for clinical treatment. Complementary and alternative medicine (CAM) refers to a combination of diagnostic, therapeutic, and preventive methods that complement the shortcomings of mainstream medicine and cannot be achieved by mainstream medicine. Commonly used complementary and alternative therapies include exercise therapy, acupuncture, point massage, homeopathy, music therapy, etc.^[3]. Now its progress summary is arranged as follows, in order to enjoy you mutual encouragement.

2. Exercise therapy

Current guidelines suggest that nephrologists encourage PD patients to increase their activity levels; However, PD patients are not encouraged to participate in exercise programs, because they believe that this method has certain risks and lacks accurate and appropriate exercise programs^[4]. However, in recent meta-analyses of exercise and PD, no exercise-related serious adverse events were reported, including aerobic exercise and combined resistance/aerobic exercise programs^[5]. An editorial published in a British journal urged clinicians to incorporate exercise programs into standard practice for dialysis patients, and further demonstrated that improved physical function in dialysis patients can help prevent some clinical and functional disabilities, reduce hospitalization and mortality, and improve patient eligibility for transplantation^[6].

2.1 Traditional Chinese Medicine movement

Lin Jiwei^[7] Li Qiang et al.^[8] explored the therapeutic effect of Baduanjin in patients with peritoneal dialysis. Total antioxidant capacity, malondialdehyde (MDA) content, superoxide dismutase (SOD), interleukin-2 (IL-2), interferon (INF -- Y), interleukin-6 (IL-6), tumor necrosis factor (TNF), serum albumin (ALB), hemoglobin (Hb) and other indicators of clinical subjects were detected. It was found that the practice of Baduanjin for 12 weeks could improve the nutritional status of PD patients, and had anti-inflammatory, antihypertensive, antioxidant and immune abilities. Ling^[9] and Mustata^[10] observed the efficacy of taijiquan in 72 patients with peritoneal dialysis and 6 patients with peritoneal dialysis, 2-3 times per week. After 6 months, 6min walking test and SF-36 were used to evaluate the exercise effect, and it was found that the physical quality of life score of the patients improved. It is concluded that taijiquan exercise can significantly improve the quality of life of patients with peritoneal dialysis.

2.2 Target intensity aerobic exercise and resistance exercise

YanBiYan such as^[11] in 147 patients with abdominal through clinical randomized controlled trials observed target intensity aerobic exercise on the therapeutic effect of PD patients, found that after 6 months, exercise group of mini nutritional assessment (MNA), arm muscle circumference (MAMC) in peritoneal dialysis after, blood phosphorus, serum creatinine, serum albumin, prealbumin and biochemical indicators have improved significantly, It shows that this method can effectively improve the nutritional status of patients with abdominal dialysis and improve their quality of life. Du Liping^[12] in 90 patients with abdominal through as the research object, found that patients with abdominal through movement and nutrition, complications, and is closely related to the social support level, exercise self-efficacy, etc, and aerobic exercise program to improve the patient's physical activity, strengthen the patients exercise performance such as effective, and can improve patients psychological status and quality of life. Niu Tieming et al.^[13] selected 72 patients with maintenance peritoneal dialysis to explore the effects of anti-resistance exercise combined with aerobic exercise on their immune function, microinflammatory state and exercise tolerance. After 24 weeks of treatment, they found that CRP, IL-6 and other inflammatory factors decreased significantly (P< 0.05); Immune T cells subgroup CD4 +, CD8 +, IgG immune indexes such as improved, exercise endurance 6 min walking test, 1 min sit test and grip strength, joint resistance movement shows that aerobic exercise to treat patients with abdominal through state of micro inflammation, improve immune inflammatory response in patients with peritoneal dialysis, and improve human activity tolerance ability. Clarkson MJ et al.^[14], in a systematic review and meta-analysis of 27 randomized controlled trials, found that aerobic exercise and resistance exercise, as well as similar muscle activation methods (such as electromyographic stimulation and respiratory exercise), were

beneficial to daily activities of patients with end-stage renal disease undergoing dialysis, and concluded that no matter which type of exercise, Can improve objective measures of physiological function in patients with end-stage renal disease undergoing dialysis. Bennett PN et al. ^[15] studied the feasibility of exercise therapy in PD patients in a clinical randomized controlled trial, and found that 72% of the patients completed the study, and 77% of the patients who completed the study insisted on exercise, and came to the conclusion: Resistance and cardiovascular exercise programs appear to be feasible and safe for patients with PD, and it is recommended to provide exercise programs coordinated by exercise professionals for the treatment of patients with PD to reduce physical deterioration in patients with PD. Bohm c. ^[16] in a range review study (including aerobic and aerobic united resistance movement) found that in the 12 weeks to 1 year time, aerobic exercise, resistance movement or joint sports can improve general health related quality of life (HRQOL) of physical indexes and measurement scale, and no benefit on mental health. It is worth mentioning that exercise intervention over a longer period of time (6 months) improved depressive status, suggesting that the benefits for PD patients increased with the duration of exercise. Isnard-rouchon M. et al. ^[4] suggested that increasing abdominal muscles through exercise can actually reduce hernias and leakage. Therefore, conservative advice for PD patients to avoid exercise may be harmful to patients. His studies in the US and Australia found that PD patients were keen to make an appointment with an exercise physiologist (EP) and were well on dialysis.

2.3 Walk

Tang Fang et al. ^[17] included 34 patients with maintenance peritoneal dialysis to study the influence of walking on their volume status. After 8 weeks, they found that this method could reduce the extracellular moisture content and fraction ratio of patients with maintenance peritoneal dialysis, promote the excretion of excess water in PD patients, and thus achieve the purpose of protecting residual renal function. Uchiyama K. et al. ^[18] found in a clinical randomized controlled trial that compared with the conventional nursing group, the exercise group improved aerobic capacity, several fields of HRQOL and serum albumin levels assessed by incremental round trip walking test (ISWT), suggesting that the exercise program to improve physical function could have a beneficial effect on PD patients.

3. External treatment of Traditional Chinese medicine

External treatment of traditional Chinese medicine to stimulate the meridians, acupuncture points, skin and mucosal drug ACTS on the body surface into the lesion to reach a treatment to cure disease, preventing disease in huangdi neijing raises powder, plaster, use of medicine treatment thereof, the element theory of ask to be really big "within internal governance, the external governance", laid a theoretical foundation for the application of external treatment. In recent years, external treatment of TRADITIONAL Chinese medicine has been favored in clinical treatment due to its advantages of convenience, low price, small side effects and good therapeutic effect.

3.1 Traditional Chinese medicine enema

Selection in LeYang, hong-tao Yang, etc. ^[19] 16 cases caused by intestinal sedimentation piece of drift tube in patients with abdominal, with colon dialysis with home-made Chinese medicine decoction (radix et rhizoma rhei, dandelion, oysters, cortex moutan, etc.) high retention enema, 2 weeks later found that good catheter reset and ultrafiltration, dialysis fluid drainage unblocked, avoid the drift tube caused by catheter removal, improve the quality of survival, These results indicate that this method is effective for the treatment of translocation of peritoneal dialysis catheter caused by

intestinal stasis. Lei Yangyang et al. [20] clinically applied Fushan Granule combined with enema to treat gastrointestinal discomfort in patients with peritoneal dialysis, and found that this method could not only improve clinical discomfort symptoms of patients, improve hemoglobin (Hb), albumin (ALB) and other indicators, but also significantly increase ultrafiltration after more than 3 months of treatment. These results suggest that oral Chinese medicine combined with enema therapy can treat gastrointestinal symptoms and improve nutritional status in patients with PERitoneal dialysis. In addition, the elimination of excess water can also protect the residual renal function. Tian Xiao et al. [21] conducted a randomized controlled clinical trial to study the application of Urine duqing granules in the treatment of peritoneal dialysis patients, and the results showed that it could reduce vascular endothelial cell growth factor (VGEF), interleukin-8 and interleukin-6 (IL-8, IL-6) and other inflammatory indicators, thus improving the microinflammatory state of peritoneal dialysis patients.

3.2 Acupuncture

TongMeng instant [22] select 60 patients with peritoneal dialysis concurrent malnutrition, found that conventional treatment combined electric acupuncture therapy can improve appetite, increase the plasma albumin (propagated) and protein content, increase the upper arm grip strength, etc., shows that electric acupuncture combined routine therapy can obviously improve the nutritional status of patients improve the upper arm grip strength, improve the quality of life. Yang qiang etc. [23] line selection for the first time to drain tube insertion. we 69 cases of patients, found that compared with traditional acupuncture anesthesia combined basic anesthesia based anesthesia, its need for more small total dose of pain medication, surgery physician satisfaction is higher, the transfer probability is low, general anesthesia in the PD tube insertion. we adopt acupuncture anesthesia compound foundation than traditional local anesthesia is more safe and effective. In a study of 26 patients undergoing peritoneal dialysis, Sun Hong et al. [24] found that moxibustion with Traditional Chinese medicine can effectively improve dialysis ultrafiltration volume, reduce c-reactive protein, interleukin-6 and other inflammatory indicators, reduce microinflammatory state of patients, improve serum albumin content, and improve malnutrition. Zhu Min et al. [25] observed 50 CAPD patients (spleen and kidney Yang deficiency type) with warm moxibustion at acupoints (Zhongwan, Shenque and Guanyuan). After 2 weeks of treatment, they found that this method could effectively improve the clinical symptoms of patients, and increase the levels of serum albumin (ALB), prealbumin (PA), urea clearance index (KT/V) and weekly creatinine clearance rate (TCcr). The results showed that MQSGA could significantly improve the clinical symptoms and nutritional status of CAPD patients with spleen-kidney-yang deficiency, and improve the adequacy of peritoneal dialysis. In a randomized controlled clinical trial of 26 CAPD patients, Sun Yunsong et al. [26] found that after 24 hours, the contents of hyaluronic acid and CA-125 in peritoneal dialysis fluid of patients in the treatment group (Chinese traditional moxibustion Shenque acupoint) and the total 24h ultrafiltration volume increased significantly, indicating that this method can effectively improve the dialysis ultrafiltration volume of patients and slow down the failure of ultrafiltration function. Then achieve the protection of residual renal function.

3.3 Acupoint sticking

Liu Xiaoyuan [27] included 42 patients with peritoneal dialysis, which were divided into control group (routine treatment) and treatment group (routine treatment plus spleen Johnson prescription acupoint application). Two months later, it was found that the total score of TRADITIONAL Chinese Medicine symptom (FAI) in the treatment group decreased compared with the previous. Hb, BUN, Alb, pre-AIB, iPTH and CRP were all improved, indicating that conventional treatment combined with yunpi Johnson prescription acupoint application can improve physiological function and quality

of life. Zhu Yajin ^[28] research evodia rutaecarpa acupoints were applied such as (spring) in the treatment of PD patients complicated with restless leg syndrome, found in symplectic hot product of evodia rutaecarpa (contain ingredients evodia rutaecarpa alkali can alleviate muscle pain), through the acupoint sticking well point yongquan, can improve the patients' pain, insomnia, reduce excess water intake in order to protect the residual renal function and so on. Zhang Luyun etc. ^[29] choose 80 cases of patients with abdominal through observation spleen and kidney invigorate the circulation of external party points were applied to abdomen patients, the results showed that this method can not only protect PD patients with residual renal function, improve the nutritional status of patients and compared with traditional one, the curative effect quite but avoids excess water intake, more benefit in patients with end-stage renal disease. Chen GUo-ying ^[30] selected 150 patients with peritoneal dialysis complicated with constipation for clinical randomized controlled trial, and found that Chinese medicine acupoint application (Shenque) had a significant therapeutic effect on PD complicated with constipation for 1 week, and the treatment rate (94.8%) was higher than that of rhubarb sodatablet group (80%).

3.4 Ear therapy

Fan Wei et al. ^[31] included 60 patients with peritoneal dialysis, and found that the significant efficiency and effective rate of auricular point pressing therapy were higher than that of traditional oral sedative hypnotic therapy, indicating that auricular point pressing of TRADITIONAL Chinese medicine has a certain effect on insomnia treatment. Wang Yiping et al. ^[32] clinically selected 120 hypertensive patients with peritoneal dialysis and selected ear acupoints (Shenmen, heart, hypotension groove, ear tip, etc.) to treat hypertension with Wang Zhili line seeds and beans, and found that this method can significantly improve the blood pressure of patients with chronic renal failure, reduce the occurrence of complications, and improve the clinical efficacy.

3.5 Point massage

Liu Xi ^[33], such as the selection of 60 patients with peritoneal dialysis and hypertension in clinical research, found that acupuncture point massage can improve patients' clinical symptom such as dizziness, headache, fatigue tired, but for hypertension control effect is not obvious, still need long time watching, but because of its advantages of convenience, economy, and no adverse reactions, and clinically can be used as auxiliary treatment of hypertension. Yang Xiaojuan et al. ^[34] included 80 patients after peritoneal dialysis catheterization for clinical experiment, and found that acupoint massage and meridians flap (foot Yangming stomach meridian) on the basis of conventional treatment and nursing care can significantly shorten the time of anal exhaust after peritoneal dialysis catheterization and improve the problem of intestinal flatus. Natale P. et al. ^[35] found that acupoint massage can improve sleep latency and duration.

4. Summary

At present, more than 272,000 patients receive peritoneal dialysis worldwide, accounting for 11% of the total number of dialysis patients, with an annual growth rate of 8%. The situation is becoming increasingly serious ^[36]. In clinical practice, traditional drug therapy can no longer meet the requirements of preventing and treating complications, protecting residual renal function, and improving the quality of life and survival rate of PD patients. Complementary and alternative medicine provides new ideas for future treatment. At present, although the clinical studies on exercise therapy and external treatment of TRADITIONAL Chinese medicine have achieved some success, there is still a lack of large-scale RCT experiments and long-term follow-up reports, and the clinical

evidence is not enough, and few people mention the treatment of patients' psychological state. In addition, peritoneal dialysis patients still lack systematic and complete management and scientific awareness of propaganda and education. Therefore, how to manage PD patients well and better carry out alternative therapy is still an important direction of future research.

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