NON-DRUG THERAPY

Effects of Acupoint Exercise on Anxiety, Depression and Sleep Quality of Hemodialysis Patients

Zhang Dongqin (张冬琴)*, Yang Dan (杨　丹), Pan Xiuli (潘秀丽)

Blood Purification Room, The Central Hospital of Wuhan, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430000, China

*Corresponding author: Zhang Dongqin, Nurse Practitioner, E-mail: hhhhhhx6@126.com

ABSTRACT

OBJECTIVE: To explore the influence of acupoint exercise on anxiety, depression and sleep quality in hemodialysis patients, aiming to provide scientific basis for clinical diagnosis and treatment. **METHODS:** A total of 78 hemodialysis patients who were treated in our hospital from May 2015 to May 2018 were selected as subjects. All patients were divided into two groups according to the random number table method. Among them, 40 patients in the observation group were given acupoint operation intervention, and 38 patients in the control group were given routine care. The anxiety level (HAMA), depression level (HAMD), hopeful sleep quality (PSQI) level, and quality of life (SF-36) levels were compared between the two groups. **RESULTS:** The HAMA and HAMD scores of the two groups were not significantly different before intervention. However, the scores of HAMA and HAMD in the observation group were lower than those in the control group. The scores of the PSQI scale were higher than those in the control group, indicating that the sleeping quality of the observation group was better. And the SF-36 score was higher in the observation group than that of the control group, and the difference was statistically significant. **CONCLUSION:** Acupoint exercise plays an important role in improving anxiety and depression and quality of sleep in hemodialysis patients. It can effectively improve the quality of life of hemodialysis patients, and can be applied clinically to improve its therapeutic effect.

KEYWORDS: Acupoint exercise; Hemodialysis; Anxiety and depression; Sleep quality; Quality of life

The incidence of end-stage renal disease has increased in recent years. According to statistics, the annual incidence of end-stage renal disease in China is approximately 120 million[1]. The adequacy of hemodialysis is one of the clinically-studied and unsolved problems. There is no objective evaluation index of hemodialysis adequacy, with lack of awareness of hemodialysis adequacy, and that the current scientific and technolodical level can not achieve full dialysis, so patients will always have various clinical complications, whose lives and work are affected, leading to the significant decline of life quality, and they are prone to negative emotions such as anxiety and depression, which is also generally accompanied by sleep disorders. Therefore, it is of great significance to find effective interventions to alleviate the negative emotions of hemodialysis patients and improve their sleep quality[2,3]. Acupoint exercise is an adjuvant therapy of drug therapy and is currently widely accepted in Asia, especially in China. Acupoint exercise is a clinical nursing measurement developed based on Traditional Chinese Medicine theory and clinical massage. Through massage of different acupoints of patients, reinforcement of the kidney and qi, and removal of blood stasis are achieved, and systemic blood circulation was improved[4]. Studies have shown that acupressure massage has a positive effect on relieving individual's negative emotions and improving individual's sleep quality, and has been widely used clinically in hypertension, diabetes and other diseases, and in intensive care unit, department of obstetrics and gynecology and other medical fields. The effect is good and is widely regonized by patients[5,6]. In this study, acupuncture interventions were performed on hemodialysis patients in our hospital and the results were found to be significant. The following is report.

DATA AND METHODS

General Data

A total of 78 hemodialysis patients who were treated in our hospital from May 2015 to May 2018 were

selected as the study subjects, aged from 24 to 46 years old; mean age is 35.14 ± 4.23 years old; and there were 43 males and 35 females, whose mean duration of disease is 15.11 ± 2.17 months, and mean years of education is 14.18 ± 3.08 years. There were 22 males and 18 females in the observation group aged from 24 to 44 years old; mean age is 34.76 ± 4.31 years old; mean duration of disease is 14.93 ± 2.31 months; and mean year of education is 14.52 ± 3.11 years. There were 21 males and 17 females in the control group aged from 25 to 46 years old; mean age is 35.43 ± 4.52 years old; mean duration of disease is 15.36 ± 2.09 months; mean years of education is 14.25 ± 3.10 years. There was no statistical difference in age, gender, duration of disease and years of education between the two groups. Inclusion Criteria: ①The patient had no mental illness, and had normal hearing and vision, and was able to communicate normally; ②The patient had sleep disorders; ③Acupoints that involved in the patient's acupoint exercises had no skin problems; ④The patient did not use sedative and hypnotic drugs in the past 1 month; ⑤The patient was able to complete the entire study and did not withdraw halfway; ⑥All patients agreed to participate in this study.

Methods

Routine care

It mainly includes reminding patients to take medicine, proper diet and exercise according to the doctor's advice, and taking care of them on time, which mainly includes taking body temperature, pulse, blood pressure, weight, etc., giving psychological support according to the patient's emotion changes, understanding the patient's troubles, and eliminating the patient's concerns, and also ensuring that patients actively cooperate with the treatment.

Acupoint exercises

Patients in the observation group accepted acupoint exercises every night on the basis of routine nursing care. ①Warm water foot bath: the patient took a high sitting position and prepared a pot of water with a temperature of 40 to 45℃. The water surface was about 10 cm above the ankle of the patient. During the foot bath, hot water was continuously added to make the patient's body slightly hot, which was the best water temperature, and the time was 20 min. ②Massaging Neiguan (Pc6) point: the medical staff used the thumb pulp to press the patient's Neiguan (Pc6) point, with the patient's slight numbness accompanied by heat sensation as the standard, alternately on both sides, and each side 30 times for a total of 10 min; ③Massaging Shenmen (Ht7) point: the medical staff continued to use the thumb pulp to press the patient's Shenmen (Ht7) point, with the patient's slight numbness accompanied by heat sensation as the standard, alternately on both sides, and each side 30 times for a total of 10 min. After the massage dried the patient's feet, and foot bath ended; ④Massaging Zusanli (St36) point: the medical staff used the thumb pulp to press the patient's Zusanli (St36) point with patient feeling needle-like soreness and heat as the standard, and alternate on both sides, and each side 30 times for a total of 10 min; ⑥Massaging Yongquan (Ki1) point: the patient took a flat position with the medical staff using both hands' thumb pulp pressing the patient's Yongquan (Ki1) point, with the patient feeling numbness as the standard, alternately on both sides, each side 30 times, the time was a total of 10 min; ⑦After receiving the acupressure massage, the patient was instructed to adjust breathing and had a foot bath in warm water in 15 min. Patients were evaluated 1 month later and data was collected.

Evaluation index

Compare the anxiety (HAMA), depression level (HAMD), hopeful sleep quality (PSQI) level, and quality of life (SF-36) level between the two groups.

HAMA[7]: The scale was developed by Hamilton in 1959 to measure the level of anxiety and depression in patients with neurosis and other diseases. It contains a total of 14 items, using a 5-grade scoring method from 0 to 4, and is independently scored by trained raters using observation and conversation. 0 is asymptomatic, 1 is light, 2 is moderate, 3 is heavy, and 4 is extremely heavy. The higher the score is, the higher the level of anxiety will be.

HAMD[8]: The scale was developed by Hamilton in 1959 to measure the level of depression in patients with neurosis and other diseases. It contains a total of 14 items, useing a 5-grade scoring method from 0 to 4, and is independently scored by trained raters using observation and conversation. 0 is asymptomatic, 1 is light, 2 is moderate, 3 is heavy, and 4 is extremely heavy. The higher the score is, the higher the level of depression will be.

PSQI[9]: The scale was developed by Dr. Buysse, a

psychiatrist at the University of Pittsburgh in the United States in 1989 to measure the sleep quality of patients with sleep disorders, mental disorders, and average people. The scale contains a total of 5 other items and 19 self-evaluation items. This study selected three indicators, which wee sleep latency, sleep time and sleep quality, using 0 to 3 levels of 4 values. The higher the score is , the worse the patient's sleep quality will be.

SF-36[10]: This is a universal measurement scale developed by the Medical Outcomes Study (MOS) group and is used to measure the life quality of patients. It contains a total of 8 items, which are physical function, physical role, physical pain, overall health status, vitality, social function, emotion role and mental health. The total score ranges from 0 to 100 points. The higher the score is, the better the patient's life quality will be.

Statistical methods

SPSS 19.0 software was used to statistically analyze the data obtained in the study. The *t*-test was used to compare the measurement results of the two groups, and the χ^2 test was used to compare the counting data. $P < 0.05$ was considered statistically significant.

RESULTS

Comparison of HAMA and HAMD scale scores between the 2 groups

By comparing the scores of the HAMA and HAMD scales between the two groups of hemodialysis patients, it can be found that the scores of the HAMA and HAMD scales in the observation group were lower than those in the control group, and the difference was statistically significant ($P < 0.05$), indicating that acupoint exercises can relieve anxiety and depression in hemodialysis patients. See Table 1.

Comparison of PSQI scores between the two groups

By comparing the PSQI scores of the two groups of patients, it can be found that the items such as sleep latency, sleep time, and sleep quality in the observation group were lower than those in the control group, and the difference was statistically significant ($P < 0.05$), indicating that acupoint exercise can improve sleep quality in hemodialysis patients. See Table 2.

Table 2. Comparison of PSQI scores between the two groups

	Sleep Latency/min	Sleep Time/min	Sleep Quality/min
Observation group	1.14 ± 0.71	1.08 ± 0.48	0.71 ± 0.45
Control group	1.55 ± 0.62	1.71 ± 0.57	1.03 ± 0.39
t	2.013	2.091	2.153
P	0.042	0.045	0.035

Comparison of SF-36 scores between the two groups

By comparing the SF-36 scores of the two groups of patients, it can be found that the scores of the patients in the observation group were higher, and the difference was statistically significant ($P < 0.05$), indicating that acupressure has a positive effect on improving the life quality of hemodialysis patients. See Table 3.

Table 3. Comparison of SF-36 scores between the two groups

	SF-36/min
Observation group	87.45 ± 6.17
Control group	79.22 ± 5.83
t	2.207
P	0.030

CONCLUSION

Negative emotions such as anxiety and depression are companions of the disease and are a mixture of multiple emotions. They are often accompanied by the development of the disease and can accelerate the deterioration of the disease. The anxiety and depression of hemodialysis patients are more pronounced. The patient's body and mind are in a state of extreme nervousness and fear, and often

Table 1. Comparison of HAMA and HAMD scale scores between the two groups

	HAMA/min (before intervention)	HAMA/min (after intervention)	HAMD/min (before intervention)	HAMD/min (after intervention)
Observation group	50.14 ± 4.93	30.17 ± 4.33	48.71 ± 4.21	31.56 ± 4.78
Control group	49.18 ± 4.80	39.08 ± 4.28	49.03 ± 4.52	40.94 ± 4.31
t	1.053	2.384	1.854	2.574
P	0.111	0.017	0.055	0.013

accompanied by sleep disorders. Any minor changes may cause the patient's mood to collapse and exacerbate the development of the patient's condition[11,12]. In recent years, medical practitioners have been exploring the relationship between anxiety and sleep, trying to solve the patient's anxiety and sleep disorders at the same time. At present, it has been clinically confirmed that the effect of sedative and hypnotic drugs can cause harm to patients. Therefore, pain care, TCM mental nursing, and comfort care and other ways are gradually used. Different acupoints have different effects, so acupressure massage is also an important intervention to relieve negative emotions and promote sleep[13,14].

Sedative hypnotics have been proven to have unavoidable toxic side effects, especially when used in large doses, which can cause patients to suffer from transient amnesia or even unconscious sleep. Due to the higher requirements of exercise therapy for patients, hemodialysis patients are often unable to adhere to exercises for physical reasons. Therefore, it is more appropriate to use acupressure interventions. Traditional Chinese Medicine theory states that acupressure can have different effects on human body[15]. Massaging Neiguan points are often used for treating stomach pain and other stomach diseases, heartache, chest tightness and other cardiothoracic disorders and insomnia epilepsy and other conscious disorders. It can regulate qi flow to subside pain, relieve mental stress, and the effect is remarkable. Massaging Shenmen points are often used for treating vexation, convulsions, neurasthenia, schizophrenia and other conscious disorders. It can calm the mind, reinforce heart qi, regulate autonomic nerves and effectively calm the patients. Zusanli, as the main acupoint of the Stomach Meridian of Foot-Yangming, can enhance intestinal motility, help digestion, improve appetite, regulate the patient's endocrine, improve heart function and relieve anxiety and depression in patients[16,17].

The meridian theory of Traditional Chinese Medicine points out that the foot of human body has acupuncture points corresponding to the functions of the internal organs of human body. After the dysfunction of the human organs, it will show an imbalance of yin and yang, leading to the occurrence of diseases and insomnia and dreams. Yongquan points are regarded as one of the first-aid points and are often used to treat symptoms such as insomnia, neurological headache, and shock, and have the effect of dissipating heat and invigorating vitality[18,19]. Foot bath treatment is currently one of the ways that Chinese medicine scholars continue to admire to treat diseases. Due to the rich blood vessels in the foot, the warming effect of hot water can stimulate the foot reflex zone of the patient, promote telangiectasia, promote blood and qi circulation, clear the meridians, balance yin and yang, and promote foot metabolism. At the same time, warmness can stimulate the nerve endings of the foot, thereby inhibiting the cerebral cortex, which can effectively eliminate fatigue and deepen sleep[20,21]. The data of this study showed that SF-36 scale score of patients in the observation group was higher than that of the control group, and the difference was statistically significant ($P < 0.05$). Acupressure massage is an auxiliary exercise of low-intensity. It is a rehabilitation method combined with both active and passive exercise. The lesions of the small blood vessels and peripheral nerves of the patients, who adhere to acupressure for a long time, are reduced, and the average blood flow velocity is increased, and the systemic blood circulation is improved, indicating that acupressure exercises are effective in relieving anxiety and depression in hemodialysis patients and improving their sleep quality. The life quality of patients has been effectively improved, which is consistent with previous reports[22].

Acupoint exercises can effectively improve the anxiety and depression of hemodialysis patients, improve their sleep quality and life quality, and can be used clinically to improve anxiety, depression, and sleep problems in hemodialysis patients.

REFERENCES

1. Wang J, Huang YL, Wu ZM, et al. Effect of exercise training on anxiety and depression in uremic hemodialysis patients. Guangxi Medical, 2014, 42(9): 1225-1227.
2. Zhang TJ, Zhang L. Analysis of the distribution of TCM syndromes in 90 hemodialysis patients. World Journal of Integrative Medicine, 2015, 9(2): 207-209.
3. Tang CY, Wang RP, Ye XQ, et al. Analysis of demographic characteristics of sleep status in 424 hemodialysis patients. Chinese Journal of Integrative Medicine Nephropathy, 2012, 13(7): 611-614.
4. Li WX, Wu LL, Chen X, et al. Clinical study of evidence-based nursing intervention for malnutrition in hemodialysis patients. World Journal of Integrative Medicine, 2015, 9(9): 1242-1244, 1248.

5. Zeng H, Wang P, Kang JX, et al. Effect of acupressure training on improving sleep quality and cognitive function in the elderly. Chinese Journal of Nursing, 2012, 47(9): 773-776.
6. Zhou FF, Meng FQ, Su LL, et al. Observation on the effect of Traditional Chinese Medicine combined with moxibustion on vertigo patients with vertebrobasilar insufficiency. Journal of Nursing Science, 2016, 23(13): 59-61.
7. Wang C, Chu YM, Zhang YL, et al. Factor structure of the Hamilton Anxiety Scale. Journal of Clinical Psychiatry, 2011, 21(5): 299-301.
8. Lu TY, Li Y, Xia P, et al. Reliability and validity of the Pittsburgh Sleep Quality Index. Chongqing Medical, 2014, 42(3): 260-263.
9. Li L, Wang HM, Shen Y, et al. Development of Chinese version of SF-36 health survey scale and its performance test. Chinese Journal of Preventive Medicine, 2002, 36 (2): 109-113.
10. Liu TR, Luo BR, Yu Z, et al. Application of acupressure combined with six-character breathing exercises in patients with stable chronic obstructive pulmonary disease. Journal of Nursing, 2018, 33(5): 41-44.
11. Li L, Wang HM, Shen Y, et al. Development of Chinese version of SF-36 health survey scale and its performance test. Chinese Journal of Preventive Medicine, 2002, 36 (2): 109-113.
12. Wang HY, Liang YD, Wang YC, et al. A comparative study of patients with persistent hemodialysis before and after intervention for anxiety and depression. Journal of Hunan Normal University (Medical Science), 2016, 13(4): 19-21, 22.
13. Yu X, Deng B, He S, et al. Association between anxiety and depression and personality traits in maintenance hemodialysis patients. Journal of Guizhou Medical University, 2017, 42 (4): 468-471.
14. Song YL, Yan JH, Ding SJ, et al. Effect of nursing intervention in patients with sleep disorders on maintenance hemodialysis. Chinese Journal of Modern Nursing, 2011, 17(22): 2630-2632.
15. Liu Xc, Sun S, Long Fr, et al. Study on the application of acupressure nursing program in acute attack of cor pulmonale. Practical Hospital Clinical Journal, 2014, 11(1): 116-118.
16. Jiang Yl, Li Yx, Yi Yp, et al. Effect of acupressure combined with emotional nursing on depressive state of patients with post-cervical depression. Chinese Journal of Practical Nursing, 2016, 32(30): 2371-2374.
17. Zhong Dq, Jiang XJ, Zeng DF, et al. Progressive relaxation training combined with acupressure in patients with chronic insomnia and mood disorders. Chongqing Medical, 2015, 43 (27): 3829-3831, 3832.
18. Bi J, Wang FY, Zhang XH, et al. Clinical observation on Anshen Powder external application of Chinese Herbal Medicine combined with acupoint massage for insomnia of patients with cancer with deficiency of heart and spleen. Chinese Journal of Practical Nursing, 2017, 33(8): 616-618.
19. Zhou D, Yu YH, Shi CL, et al. Effect of acupoint exercise on sleep and anxiety of sleep deprivation patients in intensive care unit. Nursing Research, 2017, 31(21): 2589-2592.
20. Tan YK, Nong DH, Xiao QF, et al. Observation on the application of acupressure and acupressure in the nursing of senile type 2 diabetes mellitus with lower extremity vascular disease. Nursing Research, 2015, 28(25): 3132-3133.
21. Guo XJ, Zhang HL, Zhang M, et al. Effect of acupoint hypotensive exercise on quality of life in young and middle-aged hypertensive patients. Chinese Journal of Practical Nursing, 2016, 32 (33): 2605-2609.
22. Dong H, Dai J, Yu XJ, et al. Effect of low frequency pulse therapy instrument combined with acupoint massage on maternal lactation and breast tenderness. Hebei Pharmaceutical, 2016, 38(19): 3026-3028, 3029.
23. Ma JF. Effect of acupressure on anxiety, depression and quality of life after cardiac bypass. Chinese Medicine Science and Technology, 2018, 25(1): 81-82.
24. Liang JB, Liang XX, Lv JB, et al. Effect of psychological intervention combined with acupressure on dental anxiety. Herald of Traditional Chinese Medicine, 2013, 19 (12): 151-153.

(Accepted: July 28, 2018)