

Original Article

Effect of Tai Chi exercise on the physical and mental health of the elder patients suffered from anxiety disorder

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Abstract: Objective: Observe the effect of Tai Chi exercise on the rehabilitation of elder patients suffered from the anxiety disorder. Methods: 32 elder patients suffered from the anxiety disorder are randomly divided into the experimental group and the control group and each of them consists of 16 patients. The control group only receives the drug therapy, while the experimental group is treated with Tai Chi exercise in addition to the drug therapy. When they are chosen and 45 days after treatment, they are respectively evaluated by Hamilton Anxiety Scale (HAMA) and Generic Quality of Life Inventory-74 (GQOLI-74). The cured patients stop the drug therapy, but the cured patients in the experimental group continue to do Tai Chi exercise after stopping the drug therapy. After tracing and investigating each cured patient for 2 months, test and evaluate whether their disease reoccurs within the 2 months. Results: After 45 days' treatment, it is found that HAMA and GQOLI-74 scores of the patients in the experimental group are improved significantly in comparison with those in the time of their selection and those in the control group ($P < 0.05$); upon tracing and investigation of the cured patients, it is found that the recurrence rate is 42.86% in the control group, while that of the experimental group is only 9.09%. Conclusion: After the elder patients suffered from the anxiety disorder are treated with Tai Chi exercise in addition to the drug therapy, their effect is more significant than those who only are treated by the drug. Meanwhile, if the patients are only treated by the drug, their disease is easy to reoccur after curing. However, if they insist on Tai Chi exercise, the recurrence rate is low and the effect is significant.

Keywords: Tai Chi, anxiety disorder, treatment, old people, effect

Introduction

Anxiety etiology is complex and it is closely related to physical and mental state of the patient, his/her family, society and the surrounding living environment and other factors. Additionally, the physical functions of elderly people decline, their constitution and activity capability also decrease, or physical illness exercises physical and mental pressure on them, which are the main factors inducing elderly anxiety disorder [1]. With the advent of the aging society, the elder patients suffered with anxiety disorder increase from time to time. The prominent problem, facing each family, is how to improve and focus on mental health of elderly people. Nowadays, the anxiety

disorder is mainly treated from the psychological aspect. Although the drug therapy obtains the exact curative effect, it has the disadvantages of strong side effect, slow effect, addiction and so on [2, 3]. Additionally, the elderly people have poor constitution and bear strong psychological pressure, for this reason, the drug therapy is usually not conducive to rehabilitation and protection of physical and mental health of the elderly people [4]. Tai Chi is an essence in China traditional martial arts and it is based on the Chinese traditional philosophy, health preserving, health science, medicine, aesthetics and many other disciplines. Its fitness effect has been generally recognized by the world and the exercise method lies in harmony between man and nature and internal

and external process, meanwhile, it has the characteristics of dredging the channels, improving pneuma and spirit and slowing movement. It is an exercise method suitable for the physical and psychological characteristics of elderly people. In the study, the elder patients with anxiety disorder are treated by a means of Tai Chi exercise and it is found that it has an obvious effect on the improvement of the patient's physical and mental health. It is reported as follows.

Data and methods

Study data

Obtain the first hand information of patients from the Henan Province Second Charity Hospital and the hospital of Henan Polytechnic University (Psychological Counseling Center) and select 32 patients suffered from anxiety disorder at the ages of 60-75 years old. The patients meet the diagnostic criteria for anxiety disorder in Chinese Classification and Diagnostic Criteria of Mental Disorders (The third version) (CCMD-3) and their Hamilton Anxiety Scale (HAMA) evaluation scores ≥ 14 ; exclude and merge these patients who suffer from other mental disorders, severe organic diseases and severe somatic diseases. The patients are randomly divided into the experimental group and the control group, and each group consists of 16 patients. In the experimental group, their mean age is 65.3 ± 7.1 years old and HAMA score is 19.4 ± 5.6 ; the mean age in the control group is 66.1 ± 8.3 years old and HAMA score is 19.7 ± 5.3 . Two groups of patients are comparable after their basic data is tested in the consistency aspect and the inter-group difference has no statistically significance ($P > 0.05$).

Treatment method

The control group: it is only treated by oral drug. Drug name: Paroxetine (Produced by Tianjin TSKF Pharmaceutical Company Limited, the trade name "Seroxat"). 2 times per day, 10 mg/time, 45 days' treatment in total.

The experimental group: the therapy combining the oral drug with Tai Chi exercise. The patients in the experimental group are same with those in the control group and they are treated by the drugs, besides they do Tai Chi exercise for 35 minutes respectively at morning and at eve-

ning. Each exercise is divided into two parts. The first part is preparation for exercise: Chen Style Tai Chi- activity of all joints in the whole body. This part focuses on the stretching exercise and practice for all joints from top to bottom and from hand to foot; the second part is 18 essences of Chen Style Tai Chi. These 18 essences are the core of Chen Style Tai Chi and it integrates 18 postures required by the modern fitness training. The entire postures integrate motion and quietness and it is easy for the old people to learn and practice.

Two groups of subjects are tested for the effect after 45 days' treatment. The cured patients in the control group are not arranged for any other treatments after stopping drug therapy. However, the cured patients in the experimental group continue to do Tai Chi exercise after stopping drug therapy. After tracing and investigating each cured patient for 2 months, test and evaluate whether their disease reoccurs within the 2 months.

Evaluation of curative effect

1. Adopt HAMA to evaluate anxiety of the patient respectively before the treatment and after 45 days' treatment. HAMA evaluation includes 14 items and each item score is 0-4 in 5 grades. It is checked by a professional assessor and the patients are evaluated for their severity of anxiety symptoms by the means of chat and observation. Score standard: in case of total scores ≥ 29 , they suffer severe anxiety; if it is ≥ 21 scores, they have obvious anxiety; if it is ≥ 14 scores, it can be evaluated as the anxiety; if it is ≥ 7 scores, they probably have anxiety symptom; but it is < 7 scores, they have no anxiety symptom.

2. Adopt Generic Quality of Life Inventory-74 (GQOLI-74) to evaluate the life quality of patients respectively before treatment and after 45 days' treatment. The evaluation items include physical, psychological, social, physical indicators in which the previous three indicators consist of 5 factors respectively and the physical function indicator includes 4 factors. Together with the general life quality factor, there are 20 factors in total. The higher the score, the better their life quality.

3. After tracing and investigating the patients who stop the drug therapy after they are cured

Table 1. Comparison of HAMA scores before and after the two groups of the patients are treated ($\bar{x}\pm s$, n=16)

Group	Before treatment (Score)	After treatment (Score)
The control group	19.7±5.3	14.5±4.7 ^a
The experimental group	19.4±5.6	10.7±3.9 ^{a,b}

Note: compared with those before the treatment, ^a $P<0.05$; after the treatment, compare the experimental group with the control group, ^b $P<0.05$.

for 2 months, test and evaluate whether their disease reoccurs within the 2 months.

Statistical analysis

Data from this study is expressed in ($\bar{x}\pm s$) and then it is compared by SPSS 11.5 version statistical software package, while the measurement data comparison adopts t test and $P<0.05$ indicates that the difference has statistics significance.

Results

After two groups of patients are treated for 45 days, 7 patients in the control group are cured and 11 patients in the experimental group; HAMA comprehensive scores and GQOLI-74 scores in the experimental group are significantly better than those before treatment, meanwhile, compared with the improvement effect of the control group, that of the experimental group is also better, $P<0.05$; upon tracing and investigation of the cured patients for 2 months after they stop the drug therapy, it is found that the recurrence rate is 42.86% in the control group, while that of the experimental group is only 9.09%. The results suggest that the treatment effect of the experimental group is significantly better than that of the control group and the difference has statistically significance (See **Tables 1-3**).

Discussion

Elder anxiety is a common mental disease of the old people and the disease is related to the physical and mental characteristics of the old people, their family environment and social background and other factors [5, 6]. It is generally considered to be induced due to a superposition of one or more factors. For example, the character factor, once the people grows older, physical and mental conditions change and their characters gradually are developed toward self-centered, melancholy and moody, stub-

born and lonely trend; as for the physical health, at the aging stage, some of the acute and chronic diseases also come one after another, which may induce the elderly anxiety, tension and fear; in the environmental aspect, the issues such as econom-

ic property, respecting for the elderly people and caring for the young, neighborhood relation, emergency and a sense of loss after retirement, are the common causes for the anxiety disorder of the old people. Under normal circumstances, the elderly anxiety symptoms often coexist with somatic diseases and both of them are reciprocal causation, as a result, a vicious spiral is formed and the somatic symptoms are more prominent. For this reason, they ignore the "anxiety". Because of low recognition rate, the treatment of this mental disease is delayed and it becomes a health "killer" of the old people [7, 8].

At present, the treatment for anxiety combines psychological counseling and drug therapy in which the psychological therapy is the main one. Oral anti anxiety drug is a commonly used method in the treatment of anxiety disorder, but anti anxiety drug has many side effects, such as drowsiness and depression. If it has been taken for a long-term, it may damage to some visceral organs, additionally, the patients suffer addiction and are dependence on the drug. Once the patients stop taking drugs, the symptoms will re-appear. Moreover, their constitution and physical performance are relatively poor and thus the long-term drug treatment will inevitably cause great harm to the health [9-11]. Some studies point out that when attention is transferred to the new things, the new psychological experience may gradually expel and replace the original anxiety [12, 13]. Other studies points out that walking can significantly improve the anxiety factor of the old people [14]; and also suggests that Tai Chi exercise can improve the psychological and autonomic nervous functions of the old people [15]. In the relevant rehabilitation therapy, some studies suggest that relaxation practice has a synergistic effect of regulating spirit, body and pranayama, thus tranquilize the mind, coordinate internal organs, regulate Qi-blood and un-impede the human blood [16, 17]. Tai Chi exercise,

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Table 2. Comparison of GQOLI-74 scores before and after the two groups of the patients are treated ($\bar{x}\pm s$, n=16)

Group		Physical function (Score)	Psychological function (Score)	Social function (Score)	Material function (Score)	General life quality (Score)
The control group	Before	60.3±4.7	61.5±5.1	59.1±6.2	66.2±4.8	63.4±6.7
	After	61.9±5.3	66.2±4.6 ^a	63.9±5.4 ^a	67.1±5.6	67.9±5.9 ^a
The experimental group	Before	59.9±7.1	60.8±5.0	58.9±6.7	66.0±4.5	62.8±7.0
	After	71.2±6.4 ^{b,c}	72.8±4.7 ^{b,c}	72.5±7.1 ^{b,c}	69.9±6.1 ^{b,c}	71.7±7.3 ^{b,c}

Note: compare the control group after and before the treatment, ^a $P<0.05$; compare the experimental group after and before the treatment, ^b $P<0.05$; compare the experimental group with the control group after the treatment, ^c $P<0.05$.

Table 3. Comparison of the disease recurrence rate of the cured patients in the two groups within 2 months ($\bar{x}\pm s$)

Group	Cured patients (Case)	Recurrence (case)	Recurrence rate (%)
The control group	7	3	42.86
The experimental group	11	1	9.09

combining motion and quietness, is suitable for regulating body and mind; in the aspect of treatment of various psychosomatic diseases, xx [18] point out that the relaxation practice in which Tai Chi is main movement, has obvious curative effect on neurosis patients.

In this study, 18 essence postures of Chen Style Tai Chi are chosen for practice. It includes the unique Qi absorption and collection as well as Qi and mind practice in Chen Style Tai Chi, through which mind, Qi, posture and breathe are integrated organically, meanwhile, it discards difficult and complex postures in Chen Style Tai Chi exercise and it takes the advantages of quick Qi acquirement, strong Qi sense, better illness elimination and fitness effect as well as convenient and easy learning. As for the impact on the nervous system of the practitioner, Chen Style Tai Chi shows that in the practice process, its roots lies in the feet and movements in the legs, while it is dominated by the waist; no matter the movements in feet and legs and waist, all must be completed in a breath. Therefore, it needs better coordination and it also indirectly plays a role in training the central nervous system, and then activate the functions of other systems and other organs and strengthen the regulation of the brain [19, 20]; At the same time, the related practice methods also point that Tai Chi practice is characterized by inside and outside union, integration of motion and quietness, motion of body accompanied by the mind, natural breath and co-existence of posture and spirit. After the

intense work, if you have the time to practice Tai Chi, you will feel refreshed and full of spirit. The long-term exercise will

has special functions of easing the tensions of the people and improving physical and mental health [21-23]. Because 18 essence postures of Chen Style Tai Chi is simple and easy to learn, it is suitable for the elder people to practice. In the study, correct the bad behaviors of the elder patients suffered with anxiety by Tai Chi exercise, regulate the physical and mental health and help to improve psychological anxiety.

Results are described as follows: ① when two groups of patients are selected, the inter-indicator difference shows no statistically significance ($P>0.05$) and the subjects of two groups can be comparable. ② After two groups of patients are treated for 45 days, 7 patients in the control group are cured and 11 patients in the experimental group; HAMA scores and GQOLI-74 scores in the experimental group are significantly better than those before treatment and in the control group ($P<0.05$). ③ Upon tracing and investigation of the cured patients for 2 months after they stop the drug therapy, it is found that the the recurrence rate is 42.86% in the control group, while that of the experimental group is only 9.09%. The practice has proved that: after the elder patients suffered from the anxiety disorder are treated with Tai Chi exercise in addition to the drug therapy, their effect is more significant than those who only are treated by the drug. Meanwhile, if the patients are only treated by the drug, their disease is easy to reoccur after curing. However, if they insist on Tai Chi exercise, the recurrence

rate is low. Suggestion: Tai Chi, the simple and easy exercise, is suitable for the old people to practice and it can significantly improve the anxiety of the elder patients with anxiety disorder and exercise good effect on the physical and psychological health, therefore, it is worthy of clinical application and promotion.

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