Original Research Article

Effect of Tai-chi on Disequilibrium of Aging (Presbystasis)

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Abstract

Background: Tai Chi Chuan (meaning Supreme Ultimate Force), popularly known as Tai Chi is an internal Chinese martial art practised for both defence and health purposes.

Materials and methods: We selected 4 male persons of age group between 65 and 72 years with presbystasis. All of them had been treated with medication and good rest for a period of more than 6 months without much relief. We planned to evaluate the efficiency of Tai Chi through comparison of functional test of balance (Romberg test) and the perception of balance and falls by using Dizziness Handicap Inventory (DHI) questionnaire obtained prior and following the Tai Chi course.

Results: All the patients observed not only significant improvement in the balance, they also got more confidence in walking, running, bending and from the fear of falling. They were re-examined after one month (total 12 weeks of exercises) with Romberg test (to rule out bias by the patients) and DHI questionnaire. There was a significant improvement in the Romberg test and there was significant decrease in the DHI score from average 63.5 (severe dizziness) to 43.5 (moderate dizziness)

Conclusion: The findings of the Tai Chi in the rehabilitation of balance problem in the elderly persons found to be very effective. Tai Chi is easy to carry out and very comfortable for the older people. They can practice the exercises at home, at outdoor without much effort and difficulty.

Key words

Tai Chi, Disequilibrium, Aging, Presbystasis.

Introduction

Tai Chi Chuan (meaning Supreme Ultimate Force), popularly known as Tai Chi is an internal Chinese martial art practised for both defence and health purposes. In China, Tai Chi is categorized under the Wudang group of Chinese martial arts – that is, the arts applied with internal power. It consists of sequence of movements which are originally derived from the martial arts. The performance in Tai Chi is slow, soft and graceful with smooth and even transitions between them [1]. It is supposed that focusing the mind solely on the movements of the Tai Chi form, helps to bring about a state of mental calm and clarity. Tai Chi is thought as a moving form of Yoga and meditation combined, and can also be called 'meditation in motion'.

In Chinese philosophy and medicine there exists the concept of 'Chi', which is a vital force that animates the body and circulates in patterns that are closely related to the nervous system in the human body. One of the aims of Tai Chi is to promote the circulation of this 'Chi' within the body which balances positive and negative forces which is essential for good health. It is believed to enhance the health and vitality of the person and decrease the pain, depression, stress and anxiety [2-7].

The health benefits of Tai Chi was promoted in the early 20^{th} century, which was widely accepted worldwide later for its benefits of health and health maintenance. Its health benefits are supported by national Parkinson foundation and diabetes Australia association.

Recently a lot of researchers and scientists are paying attention towards Tai Chi to prove its health benefits. Aim of present study was to find out the rehabilitative effect of Tai Chi exercises in presbystasis in Indian Citizens.

Materials and methods

We selected 4 male persons of age group between 65 and 72 years with presbystasis. All of them had been treated with medication and good rest for a period of more than 6 months without much relief. They were all having a complaint of pure vertigo problem without tinnitus and having a mild sensori-neural hearing loss, as claimed after the audiological investigations. They did not have any history of migraine or vomiting, except a complaint of light aural fullness. General Medicine department has ruled out all the medical causes of vertigo.

Most of them were from economically well established families and had no problem while trying out the new techniques as a part of their rehabilitation process in our Vertigo Clinic. We planned to evaluate the efficiency of Tai Chi through comparison of functional test of balance (Romberg test) and the perception of balance and falls by using Dizziness Handicap Inventory (DHI) questionnaire [4] obtained prior and following the Tai Chi course.

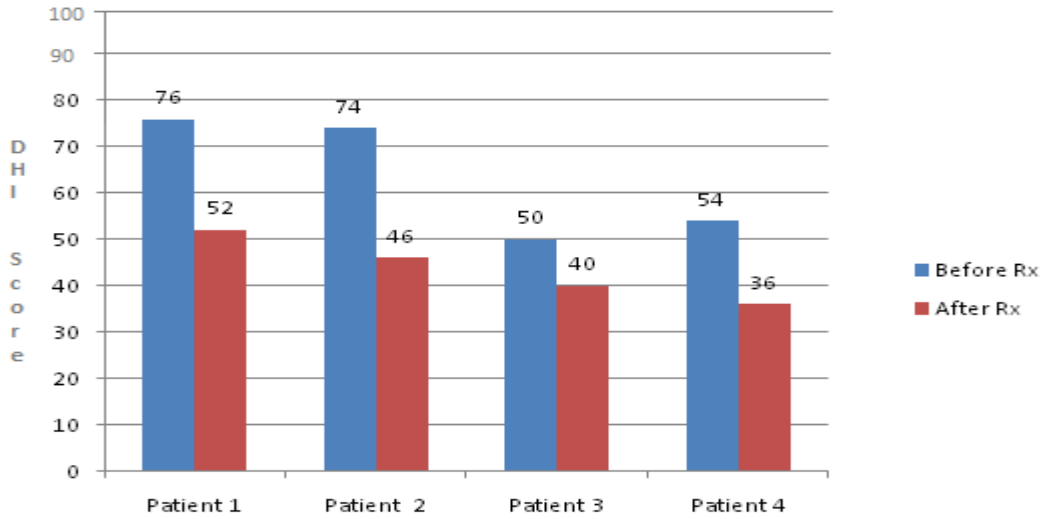
We reviewed different literatures and decided to follow simple forms of Tai Chi that were commonly used by different researchers for a period of 12 weeks. The Tai Chi movements were taught to them by an expert teacher of martial art from Chinese origin under the supervision of Otolaryngorhinologist. The exercise practice was done following scientifically recommended sequences. They are – Hold the ball (Wu style), Turning the wheel (Yang style), Brush the knee and Twist Step (Yang Style), step back as repulsive monkey (Yang Style), Walking the circle (Pa-kua Style), Kick heel to left and right (Wu style), partition of the Wild Horse's Mane (Wu style).

Results

The patients were asked to do the Tai Chi exercises at home for a period of minimum two months and come back. All the patients had done the exercises at home for two months and later attended the vertigo clinic. All the patients observed not only significant improvement in the balance, they also got more confidence in walking, running, bending and from the fear of falling.

They were re-examined after one month (total 12 weeks of exercises) with Romberg test (to rule out bias by the patients) and DHI questionnaire. There was a significant improvement in the Romberg test and there was significant decrease in the DHI score from average 63.5 (severe dizziness) to 43.5 (moderate dizziness) as per **Graph - 1**.

Graph – 1: DHI scores of the patients before and after the Tai Chi.



Discussion

Tai Chi benefit was studied in the patients with ankylosis spondylitis [7] where the researcher himself was a subject. There was not only improvement in flexion deformity caused by ankylosis spondylitis, but also improvement noticed in skeletal muscle strength, limb coordination, balance, chest movement and ability to relax. Many studies done on the older population in respect to the use of Tai Chi for different factors revealed significant improvement in the gait and posture problems in all the cases [2, 8, 11, 12, 13].

Two studies were done on the effect of Tai Chi in frailty reduction in aged population in USA that were sponsored by National Institute on Aging (NIA) in 1996. First study showed reduction in the risk of falling by 47.5% after doing Tai Chi. Second study showed improvement in balance and muscular strength. The Director of Musculoskeletal Research in NIA's geriatric program, Chhanda Dutta, Ph.D. remarked – " we must make sure that we look at every approach, especially relatively inexpensive ones like Tai Chi, which can be done by the people at home and friends once they have had the proper training. It is a part of the 'low tech' method, which can help the older people to avoid frailty and falling" [9, 10].

According to Jen-Chen Tsai (2003), 12 weeks of Tai Chi training reduced systolic blood pressure by 15.6 mm Hg and diastolic blood pressure by 8.8 mm Hg [14, 18]. The serum total cholesterol level decreased 15.2 mg/dL and high density lipoprotein cholesterol increased 4.7 mg/dL. By using STAI evaluation, both trait anxiety and state anxiety were decreased [17].

Several studies had been done regarding duration of the training period required for the benefits of Tai Chi. The minimum duration claimed was 8 weeks, where as for the best results it was 12 to 20 weeks [15].

Conclusion

The findings of the Tai Chi in the rehabilitation of balance problem in the elderly persons found to be very effective. Tai Chi is easy to carry out and very comfortable for the older people. They can practice the exercises at home, at outdoor

without much effort and difficulty. The senior citizens were happy and found much relieved and showed better confidence in balance and gait after the Tai Chi training. The result was associated with significant improvements in balance.

A further study is needed with more number of subjects with different age groups to support Tai Chi as a successful therapeutic technique in vestibular rehabilitation in Indian population, as it is successfully established in the west.

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