

## **Benefits of Tai Chi for Elderly Patients with Congestive Heart Failure**

*Yeh GY, Wood MJ, Lorell BH, et al. Effects of tai chi mind-body movement therapy on functional status and exercise capacity in patients with chronic heart failure: a randomized controlled trial. Am J Med 2004;117:541–8.*

### **Study Overview**

**Objective.** To determine the impact of 12-week tai chi program on quality of life and functional status of elderly adults with congestive heart failure (CHF).

**Design.** Randomized, nonblinded controlled trial.

**Setting and participants.** Adults with CHF with depressed ejection fraction were recruited from academic medical centers in Boston, MA, and randomized to either usual care (including pharmacologic therapy and dietary and exercise counseling) ( $n = 15$ ) or two 1-hour group tai chi classes every week for 12 weeks plus usual care ( $n = 15$ ).

**Main outcome measures.** Quality of life as measured by a self-assessment questionnaire, exercise capacity (including distance walked in 6 minutes and peak oxygen uptake), and serum biomarkers of CHF.

**Main results.** Quality of life scores deteriorated in the usual care group but improved in the tai chi group (mean between-group difference in change,  $-25$  points;  $P = 0.001$ ). Those in the tai chi group also walked further in 6 minutes than did those in the usual care group. However, there was no statistically significant differences in peak oxygen uptake between the 2 groups. Those in the tai chi group had slightly better B-type natriuretic peptide levels ( $-138$  pg/mL;  $P = 0.03$ ), but there were no differences in other serum biomarkers.

**Conclusion.** Among elderly patients with CHF, patients who had 2 hours of tai chi each week had better quality of life and some improvements in serum biomarkers of heart failure compared with usual care.

### **Commentary**

CHF is a major cause of morbidity and mortality in the United States and remains one of the most expensive diagnoses in this country. While new therapies have reduced hospitalizations and improved the quality of life for many with CHF, much more needs to be done. Tai chi, the ancient Chinese exercise, has been shown to improve balance, de-

crease falls, and may have an impact on cardiovascular disease [1,2]. However, most studies of tai chi have been observational and, therefore, important questions about tai chi's efficacy still persist.

Given the limitations of observational studies, Yeh et al chose to perform a randomized controlled trial. They studied patients with advanced cardiac dysfunction who were most likely to have poor exercise capacity and, therefore, most likely to benefit from an intervention that might improve physical conditioning. They randomized patients using a complex randomization scheme but did not explain why they chose this method. The authors used well-validated outcome measures, standard biomarkers, and followed patients for 12 weeks to determine outcomes. The length of follow-up was likely adequate for the outcome measures used but were unlikely to assess for more clinically important outcomes such as rehospitalization or death.

Two major limitations of study design significantly affect the interpretation of the study. First, the patients in the usual care group received no additional care, while those in the tai chi group had 2 hours per week of extra contact with other CHF patients and clinical personnel. Any kind of clinical intervention where patients with a chronic disease have extra time with social and clinical contacts is likely to be useful. This study fails to answer whether the benefits seen here were due to tai chi specifically. This issue could have been addressed by creating another program for patients in the usual care group that provided two 1-hour support group sessions each week.

The second limitation is much harder to address—the lack of blinding. While it would have been nearly impossible to blind the participants to their assignment group, it would have been easier to blind the study staff who did the assessments. However, the authors do not report whether the research staff were blinded or not. The lack of blinding also has an important impact on the interpretation of the results.

### **Applications for Clinical Practice**

Yeh and colleagues studied the effect of tai chi on patients with CHF and found that those who received this intervention seemed to do better. While this study adds important new information to our knowledge base about the impact of

tai chi, the important study limitations make more conclusive limitations difficult. However, given the lack of any real downsides to tai chi, it is worth considering as part of a multifaceted approach to caring for people with CHF.

*—Review by Ashish K. Jha, MD*

### **References**

1. Wu G. Evaluation of the effectiveness of tai chi for improving balance and preventing falls in the older population—a review. *J Am Geriatr Soc* 2002;50:746–54.
2. Lan C, Chen SY, Lai JS, Wong MK. The effect of tai chi on cardiorespiratory function in patients with coronary artery bypass surgery. *Med Sci Sports Exerc* 1999;31:634–8.

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