The effects of transient Tai Chi Yuttari–exercises on the oxidant stress and antioxidant capacity in the elderly

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【Purpose】The Tai Chi Yuttari–exercise program consists of calisthenics that incorporate elements of Tai Chi and was developed to allow frail elderly individuals to perform the exercise program continuously and safely. Continuous practice of Tai Chi Yuttari–exercise has been shown to improve the vascular function; however, the mechanism underlying these improvements is not clear. We evaluated the oxidant stress and antioxidant capacity of elderly people before and after Tai Chi Yuttari–exercise to obtain basic data on the effects of transient exercise on the oxidant stress and antioxidant capacity.

【Methods】The subjects were 6 females with an average age of 73 years. Two exercise conditions (Tai Chi Yuttari–exercise and walking) were applied to each subject at random. Data were collected before and after exercise and were measured after at least one day had passed between exercise sessions. The contents of meals consumed before exercise were unified using a test meal. The items evaluated were as follows: oxidant stress (diamon–reactive oxygen metabolites, d-ROMs), antioxidant capacity (biological antioxidant potential, BAP), and blood pressure (BP). The statistical analysis used the unpaired t-test, a two-way analysis of variance, and multiple comparison. The research ethics committee of University approved this study.

【Results】The d-ROM levels did not significantly differ before and after exercise under both exercise conditions. The BAP was significantly lower before walking than before the Tai Chi Yuttari–exercise. The BAP significantly changed from 1948 ± 173 to 2125 ± 119 μmol/L after walking exercise only. However, the BAP after exercise was not significantly different between the exercise conditions. The BP only significantly decreased after Tai Chi Yuttari–exercise.

【Discussion】For Tai Chi Yuttari–exercises, the influence on oxidation stress is similar to that of walking. While similar effects on the BAP may occur, our results are inconclusive. This study is useful for clarifying the mechanism by which Tai Chi Yuttari–exercise improves the vascular function.