Influence of doing exercise for different length of time and with different degree of intensity on serum cytokine levels in COPD patients

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View from specialist: It is creative, and of certain scientific and educational value.

[ABSTRACT] Objective: To evaluate influence of doing Taijiquan at different times and with different intensities on IL-1, IL-6, TNF-α levels in patients with COPD of stable phase. Methods: A total of 140 COPD cases of remission stage were enrolled and randomly divided into different groups in this study. Fifty-five cases were randomly divided into sub-groups doing Taijiquan for different length of time, for consecutive 12 weeks; another 55 cases doing the exercise with different intensity, also for 12 weeks; other 30 cases were assigned as negative control group. Sandwich ABC-ELISA assay were applied to determine the serum IL-1, IL-6, and TNF-α levels of each group before and after the training. Results: Decrease in serum IL-1, TNF-α levels of the four trial groups doing Taijiquan were more significant ($P<0.05$) than that of the control group. However, within the subgroups, the level of serum IL-1, TNF-α in the group doing Taijiquan with medium intensity fell more significantly than the group doing the exercise with low intensity ($P<0.05$); Similarly, serum IL-1, TNF-α levels in the group doing Taijiquan for sixty-minutes per time decreased more significantly than the group doing Taijiquan for thirty-minutes ($P<0.05$). No significant difference in the decrease of IL-6 level was found ($P>0.05$) among the trail groups. Conclusion: With the extension of time, the exercise of Taijiquan can achieve medium intensity, which can reduce the proinflammatory cytokines levels of IL-1, TNF-α and relieve the chronic inflammation reaction in COPD remission stage, but it has little effects on regulating serum IL-6 level.

[KEY WORDS] Exercise time, Exercise intensity, Chronic obstructive pulmonary disease; Cytokine