## Acupuncture in the Treatment of Parkinson's Disease-Related Fatigue: A Pilot Randomized, Controlled Study

Authors : Keng H. Kong, Louis C. Tan, Wing L. Aw, Kay Y. Tay

Abstract : Background: Fatigue is a common problem in patients with Parkinson's disease, with reported prevalence of up to 70%. Fatigue can be disabling and has adverse effects on patients' quality of life. There is currently no satisfactory treatment of fatique. Acupuncture is effective in the treatment of fatique, especially that related to cancer. Its role in Parkinson's diseaserelated fatigue is uncertain. Aims: To evaluate the clinical efficacy of acupuncture treatment in Parkinson's disease-related fatique. Hypothesis: We hypothesize that acupuncture is effective in alleviating Parkinson's disease-related fatigue. Design: A single center, randomized, controlled study with two parallel arms. Participants: Forty participants with idiopathic Parkinson's disease will be enrolled. Interventions: Participants will be randomized to receive verum (real) acupuncture or placebo acupuncture. The retractable non-invasive sham needle will be used in the placebo group. The intervention will be administered twice a week for five weeks. Main outcome measures: The primary outcome will be the change in general fatigue score of the multidimensional fatigue inventory at week 5. Secondary outcome measures include other subscales of the multidimensional fatique inventory, movement disorders society-unified Parkinson's disease rating scale, Parkinson's disease questionnaire-39 and geriatric depression scale. All outcome measures will be assessed at baseline (week 0), completion of intervention (week 5) and 4 weeks after completion of intervention (week 9). Results: To date, 23 participants have been recruited and nine have completed the study. The mean age is 63.5±14.2 years, mean duration of Parkinson's disease is  $6.4 \pm 1.8$  years and mean MDS-UPDRS score is  $8.3 \pm 2.8$ . The mean general fatigue score of the multidimensional fatigue inventory is 13.5±4.6. No significant adverse event related to acupuncture is noted. Potential significance: If the results are as expected, this study will provide preliminary scientific evidence for the efficacy of acupuncture in Parkinson's Disease-related fatigue, and opens the door for a larger multicentre trial to be performed. In the longer term, it may lead to the integration of acupuncture in the care of patients with Parkinson's disease.

Keywords : acupuncture, fatigue, Parkinson's disease, trial

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