



RESEARCH ARTICLE

Acupuncture as Adjuvant Therapy for Sleep Disorders in Parkinson's Disease

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Available online ■ ■ ■

Received: May 3, 2016
Revised: Dec 15, 2016
Accepted: Dec 20, 2016

KEYWORDS

Acupuncture;
Parkinson Disease;
Sleep Disorders

Abstract

There are few studies which attest the efficacy of acupuncture on treatment of sleep disturbs in Parkinson disease. The aimed of this randomized clinical trial was to evaluate the effects of acupuncture on sleep disturbs of 22 patients with diagnosis of idiopathic Parkinson disease (Hoehn–Yahr 1 to 3) who have assistance on the Pro-Parkinson Program of Clinical Hospital at Federal University of Pernambuco in Brazil. All participants were evaluated by Parkinson Disease Sleep Scale (PDSS) before and after 8 weeks. The experimental group was submitted to 8 sections (once a week) which had duration of 30 minutes. The control group had no intervention. The intervention was executed using the acupuncture points LR3 (*Taichong*), SP6 (*Sanyinjiao*), LI4 (*Hegu*), TE5 (*Wai-Guan*), HT7 (*Shenmen*), PC6 (*Neiguan*), LI11 (*Quchi*), GB20 (*Fengchi*). Paired analyses were obtained by Wilcoxon test and independent analyses were made according to Mann–Whitney test. This study presented a potential therapeutic benefit of acupuncture on sleep disturbs of

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pISSN 2005-2901 eISSN 2093-8152

<http://dx.doi.org/10.1016/j.jams.2016.12.007>

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Parkinson's disease patients. This study showed a possible therapeutic benefit through acupuncture in sleep disorders in patients with PD. However, we propose new studies related to the effects of acupuncture on the clinical symptoms and evolution of the disease.

1. Introduction

Parkinson's disease (PD) is a neurodegenerative disorder with a high prevalence in older people, affecting 1 in 1000 people aged >60 years. Although it has been widely accepted that it has a relationship with dopaminergic neuron death, its etiology remains unknown [1,2]. Sleep disturbance is often a nonmotor symptom in PD, which includes excessive daytime sleepiness and insomnia [3–6]. Such sleep disturbance occurs as part of the disease course of the evolution of PD, and as a side effect of anti-parkinsonian medication [7,8].

Acupuncture is a method in Traditional Chinese Medicine that was developed in the 1st century BCE [9,10]. With regards to PD, some studies have suggested promising results, such as relief of a wide range of symptoms and a reduction in adverse drug effects [11,12]. Acupuncture has been shown to improve scoring on the Parkinson's Disease Sleep Scale (PDSS) [13]. This result may reflect neuro-modulation by substances like γ -aminobutyric acid, melatonin, and β -endorphins [14].

The present study evaluated the effects of acupuncture on sleep disturbance in patients participating in the Pro-Parkinson Program at the Clinical Hospital, Federal University of Pernambuco, Brazil.

2. Materials and methods

2.1. Ethics statement

This was a randomized clinical trial conducted according to the CONSORT 2010 checklist. All patients signed an informed consent form, and the study was approved by the Ethics Committee for Research with Humans at the Center of Health Sciences of Federal University of Pernambuco (Protocol CAAE: 49662915.4.0000.5208). This trial was registered at ClinicalTrials.gov NCT: 02731677.

2.2. Participants

Twenty-two PD patients diagnosed by a neurologist entered the study. Patients were recruited during their routine outpatient visit to the Neurology Clinic (Pro-Parkinson Program) at the Clinical Hospital, Federal University of Pernambuco. Inclusion criteria were: (1) patients with idiopathic PD according to the UK Parkinson's Disease Society Brain Bank criteria [15]; (2) Stage I–III PD, according to the Hoehn–Yahr (HY) scale [16]; (3) age 35–80 years; (4) minimum score of 18 on the Mini Mental State Examination (MMSE) for low academic level or a minimum score of 26 for high academic level [17]; and (5) a stable dose of anti-parkinsonian medication for ≥ 2 months. We excluded

patients who had another neurological condition or who had received physiotherapy. The patients were enumerated and allocated to experimental or control groups according a simple raffle.

The Pro-Parkinson Program promotes multidisciplinary assistance for patients with PD. It also offers educational activities for patients and their caregivers. Currently, the program receives an average of 250 patients annually, and comprises of professors and undergraduate and post-graduate students in medicine, physiotherapy, odontology, psychology, speech therapy, and occupational therapy, as well as a support team.

2.3. Clinical assessment

All patients were clinically evaluated prior to starting the study with the following instruments: MMSE, HY scale, and PDSS, and after eight sessions, only PDSS was applied.

2.3.1. HY scale

The HY scale was developed by Hoehn and Yahr [16]. The original version consists of five stages that evaluate the severity of PD by analyzing global signals and symptoms, which classifies individuals according to their incapacity. Stage I: patients present with unilateral symptoms (tremor, stiffness, and bradykinesia) but can have autonomy. Stage II: bilateral symptoms together with abnormal speech, bent posture, and the well-known "en-bloc gait". Stage III: addition of characteristic postural instability; until this stage, autonomy can be preserved. Stage IV: patients are dependent on caregivers. Stage V: patients are restricted to bed or a wheelchair.

2.3.2. MMSE

MMSE is a useful tool for screening for cognitive disturbance because of its ease of application and that fact that it only requires 5–10 minutes. It comprises of 11 items that can accumulate a total score of 30 points. The first part of the test evaluates memory and executive function (attention and concentration), and the second part evaluates cortical function. The cutoff is according to academic achievement: analphabetism or low academic achievement, 18 points; ≥ 8 years of schooling, 26 points [17].

2.3.3. PDSS

PDSS is a visual analog and self-administered scale comprising 15 items that address the following domains: (1) overall quality of sleep; (2) sleep onset and maintenance insomnia; (3) nocturnal restlessness; (4) nocturnal psychosis; (5) nocturia; (6) nocturnal motor symptoms; (7) sleep refreshment; and (8) daytime dozing. It is administered during the ON phase, which means under antiparkinsonian drug action. The severity of symptoms is registered by the

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