

WATSU therapy for individuals with Parkinson's disease to improve quality of sleep and quality of life: A randomized controlled study

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Abstract

Background

and Purpose: Sleep disorders are one of the most frequent non-motor symptoms of Parkinson's disease (PD). This study aimed to verify whether adding WATSU to land-based therapy leads to additional beneficial therapeutic effects regarding quality of sleep and quality of life (QOL) in individuals with PD.

Materials & methods A randomized control trial design was used. Participants completed nine-week interventions. The control group (CG) received land-based therapy, while the intervention group (IG) received the same land-based therapy and additionally WATSU. Sleep quality and QOL were measured at baseline and post-interventions by Pittsburgh Sleep Quality Index and Nottingham Health Profile, respectively.

Results Twenty-eight participants completed the study. In contrast to CG, the IG presented with significant improvements in both, quality of sleep and QOL (p < 0.001).

Conclusion WATSU has the potential to be an attractive adjunct therapy for producing positive health impacts regarding sleep quality, which may translate to an overall improvement in QOL of individuals with PD.

Introduction

Society is in the midst of a new epidemiological profile; the population is aging, and life-expectancy is increasing [1]. Chronic and degenerative diseases, including Parkinson's disease (PD), are closely related to age and are increasing in prevalence [2].

PD is a chronic, neurodegenerative disease affecting approximately 2% of the population over the age of 60 and 4% of those over the age of 80 [3]. PD is clinically characterized by resting tremors, rigidity, bradykinesia, and postural and gait instability [4]. The signs and symptoms found in individuals with PD can be divided into motor and non-motor, the latter include, e.g., orthostatic hypotension, constipation, dysphagia, urinary and sexual dysfunction, depression, fatigue, and sleep disorders [5].

Sleep disorders are among the most common disabling non-motor symptoms of PD and reflect a significant negative impact on individuals' quality of life (QOL) [6]. These disorders are believed to be among the first manifestations of PD [7] and have already been described as part of paralysis agitans by James Parkinson in 1817 [8].

Sleep disorders in PD are not well understood, as they may arise from the pathology of the disease and/or may be related to factors such as the inability to move in bed, movement dystonia, sore leg cramps, restless leg syndrome, anxiety, depressive symptoms, nightmares, medications, excessive daytime sleepiness, and sleep apnea, all of which can interfere with falling asleep or sleep maintenance, and/or cause an increase in frequent nocturnal awakenings or sleep fragmentation with consequent reduction of its efficiency [9], [10], [11].

Research indicates that non-motor symptoms are largely responsible for the decline in QOL. Particularly, sleep disorders have been associated with poor QOL in individuals with PD [12], [13], [14]. Based on these facts, it is expected that physical therapy will expand the goals and therapeutic approaches in PD. Among the different resources in physical therapy used for the treatment of individuals affected by this disease, there is aquatic physiotherapy in a heated pool, which uses water as a therapeutic agent, applying its physical properties in association with a program of specific therapeutic exercises, e.g., WATSU (a portmanteau word: water and shiatsu). This method was chosen for application in this study because it has been developed to allow the body to drift into a deeper state of relaxation, to act on physical, emotional, and psychological aspects, and to improve the overall sense of well-being [15,16]. WATSU consists of buoyancy, passive myofascial stretching, rotational and spiral rhythmic movements, massage, gentle traction, and joint manipulations, both free and sequential, in which the donor offers total support, resembling a dance in warm water. These transitions are as important as the postures themselves, creating a sense of continuity and flow, which develops confidence and helps the receiver to relax [15,17]. The WATSU approach has been investigated in very few clinical trials. In a recent systematic review and meta-analyses study, Schitter et al. [18] presented limited evidence of the benefits of passive hydrotherapy WATSU on physical and mental health in relation to acute and chronic conditions, and in healthy individuals. Beneficial effects of WATSU regarding sleep disorders were reported in individuals with fibromyalgia [19] and cerebral palsy [20]. Already observed improvement in sleep disorders by WATSU justifies trying to achieve a similar result in individuals with PD. Aquatic therapy is presently used as a treatment for individuals with PD in clinical practice [21,22], and with regard to WATSU tentatively researched [23]. However, to our knowledge, there has been no specific research focused on WATSU intervention for individuals with PD who complain of sleep disorders.

In this context, the main aim of the present study was to evaluate whether adding WATSU to land-based therapy leads to additional beneficial therapeutic effects regarding quality of sleep in individuals with PD. The secondary aim was to assess whether adding WATSU therapy to land-based therapy can also have a positive impact on QOL in individuals with PD.

Section snippets

Design

The present study was a randomized controlled trial approved by the Ethics Committee of the Pontificia Catholic University of Paraná (PUCPR), Brazil, and conducted according to the Declaration of Helsinki principles. However, this study was not registered in a publicly accessible registry. All participants provided written informed consent before enrollment....

Participants

Sixty individuals with idiopathic PD from the Parkinson's Disease Association of Paraná (APPP), Brazil, were screened for eligibility to...

Results

Sixty individuals were initially screened, 35 of them could be enrolled in the study. Seven individuals (IG: n = 4 and CG: n = 3) dropped out after randomization (Fig. 2). Consequently, the data of 28 individuals were used for statistical analysis. Adherence to protocol was satisfying as only two land-based therapy sessions and no WATSU sessions were missed in total by the participants. Fourteen individuals underwent only land-based therapy (8 men and 6 women) and 14 additionally underwent 18...

Discussion

This study aimed to verify whether adding WATSU to land-based therapy leads to additional beneficial therapeutic effects regarding quality of sleep and QOL in individuals with mild to moderate PD (H&Y 1–3.)

In addition to drug treatment, there are other multidisciplinary therapeutic approaches to alleviate the signs and symptoms of the disease. Physical activity is considered a useful non-pharmacological strategy in the management of sleep disorders in PD [34]. In clinical practice,...

Conclusion

The present results suggest that the clinical implementation of WATSU therapy together with land-based physiotherapy programs may provide benefits with statistically significant and clinically relevant effect sizes for sleep quality and QOL in individuals with a mild or moderate stage of PD. Therefore, it is evident that future studies involving adequate power, more severely impaired participants, different protocols of WATSU duration and frequency, follow-ups, and comparisons to other aquatic...

Author statement

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