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FEASIBILITY OF CLINICAL HYPNOSIS FOR THE TREATMENT OF PARKINSON'S DISEASE: A CASE-STUDY¹

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Abstract

Parkinson's disease is a severe neurodegenerative disorder with a prevalence rate of approximately 1.6% in elderly Americans. This case study reports on a 51-year-old male Parkinson's patient who received 3 weekly sessions of a hypnosis intervention, as well as instruction in self-hypnosis. Actigraphy was used to assess rest-tremor severity. Results revealed a 94% reduction in rest tremors following treatment. Self-reported levels of anxiety, depression, sleep quality, pain, stiffness, libido, and quality of life also showed improvements. The patient reported a high level of satisfaction with treatment. These findings suggest clinical hypnosis is potentially feasible and beneficial treatment for some Parkinson's symptoms. Further investigation with diverse samples and an ambulatory monitoring device is warranted.

Parkinson's disease (PD) is a severe and progressive neurological disorder that affects both the physical and psychological health of the patient. Recent estimates suggest that 1.6% of elderly Americans have Parkinson's disease (Wright Willis, Evanoff, Lian, Criswell, & Racette, 2010), and that PD is the second most commonly occurring neurodegenerative disorder in high-income countries (Walker, Davidson, & Gray, 2012). The involuntary movement of appendages, known as rest tremor, is commonly treated as the primary symptom of PD (Hellmann, Melamed, Steinmetz, & Djaldetti, 2010) and is present in approximately 50% of patients at the time of diagnosis (Schlesinger, Benyakow, Erikh, Suraiya, & Schiller, 2009). Treating rest tremor can prove difficult for several reasons. Resting tremor is often much more resistant to dopamine replacement therapy than are other motor symptoms. Additionally, a wearing-off effect commonly occurs in patients at more severe stages of the disorder, where the effectiveness of medication steadily decreases over time. Finally, the severity of rest tremors is known to fluctuate with shifting stress levels (Pursiainen, Korpelainen, Haapaniemi, Sotaniemi, & Myllylä, 2007).

Parkinson's disease is an inherently stressful disorder. Limitations in mobility decrease quality of life and limit social support. These problems are often exacerbated by a plethora

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of difficult and potentially disabling nonmotor parkinsonian symptoms including, depression, anxiety, sleep disturbance, and autonomic system dysfunction (e.g., incontinence, constipation, sexual dysfunction, hyperhidrosis, heat and cold intolerance).

Dopamine replacement therapy with levodopa is the most commonly prescribed treatment option for Parkinson's patients. It is often assumed that if dopamine replacement therapy produces improvements in rest tremor severity, a subsequent improvement in nonmotor symptoms will also occur. However, past research has indicated that this does not always hold true (Stambaugh, 1977) and that nonmotor symptoms may actually worsen following dopamine replacement therapy (Jenner, 2008). Furthermore, Truong et al. (2008) noted that patients who receive dopamine replacement therapy often have trouble coping with the shifting severity of their symptoms. Dramatic fluctuations in the degree of motor symptom severity and subsequent pain can worsen levels of anxiety and depression and lead to panic attacks and suicidal ideation. In addition, shifting neurotransmitter levels can result in delusions and hallucinations that may worsen discomfort (Truong et al., 2008). These cognitive impairments occur most frequently in patients with a history of depression and sleep disturbances, which highlights the importance of using a treatment method that can improve symptoms across a variety of areas.

These studies indicate very clearly that alternative treatment options aimed at improving both the physical and psychological symptoms of PD are needed. This need is exemplified by the growing number of individuals with Parkinson's disease who report using nontraditional treatment options. Estimates suggest that 40% of American Parkinson's patients (Rajendran, Thompson, & Reich, 2001) and as many as 76% of Parkinson's patients worldwide (Kim, Lee, Kim, Lee, & Chung, 2009) seek relief in treatments other than dopamine replacement therapy.

Hypnotherapy may be an effective treatment option for patients seeking relief from their parkinsonian symptoms. Previous studies have found hypnosis to be effective at treating symptoms of PD such as pain, depression, anxiety, and sleep disturbance, and autonomic dysfunction (Castel, Salvat, Sala, & Rull, 2009; Elkins, Marcus, Sterns, & Rajab, 2007; Hawkins, 2001). Further, two studies that have examined the use of hypnosis in the treatment of Parkinson's disease have produced favorable results. Stambaugh (1977) used six sessions of hypnotherapy involving standard eye-fixation techniques, cognitive suggestion, and mental imagery to eliminate nighttime awakenings, stop analgesic use, promote healthy appetite, and eliminate ruminating thoughts of depression in a hospitalized 59-year-old male patient. However, the patient's motor symptoms were already being managed satisfactorily with levodopa. Therefore, the effectiveness of hypnosis on rest tremor was not assessed. Wain, Amen, and Jabbari (1990) reported a case study in which a 76-year-old man who had been hospitalized due to complications resulting from Parkinson's disease was treated using hypnosis that included suggested mental imagery. Results were that left leg tremor, the chief symptom of concern for the patient, improved during hypnosis. However, interpretation was limited due to the fact that the researchers did not utilize an objective physiological measure when assessing tremor. The purpose of the present study was to assess the ability of hypnotherapy to treat Parkinson's disease while using an objective physiological device to record rest tremor as well as validated self-report inventories to assess nonmotor symptoms.

Case Study

Mr. A was a married, 51-year-old, white male with two adult children. He had obtained a bachelor's degree and was employed as a teacher. The patient had been diagnosed with Parkinson's for 1 year and 9 months. Mr. A originally sought treatment from an orthopedic

surgeon after experiencing stiffness and pain in his left shoulder. The orthopedic surgeon diagnosed Mr. A as suffering from Parkinson's disease after witnessing trembling in the fingertips of Mr A's left hand. Mr. A was then referred to a neurologist who confirmed the diagnosis. He was prescribed carbidopa levodopa and ropinirole for tremor.

Mr. A was referred by his neurologist for consideration of hypnotherapy due to continued symptoms despite medications. During Mr. A's initial visit (with GE), he reported that his left side was chiefly affected by the disease and that he felt pain and stiffness throughout the left side of his body that was particularly troublesome in the morning. Rest tremor was visually apparent in both his left hand and foot at this time. Mr. A reported that tremor severity fluctuated depending upon his stress level. Apart from rest tremor, the patient's chief symptoms of complaint were poor sleep and anxiety. The patient also reported an absence of any major psychological disorders that might interfere with the effectiveness of hypnotherapy. He had no prior experience with clinical hypnosis or any other mind-body therapy. Mr. A indicated that his chief motivations for consenting to participate in the study were the desire to obtain a restful night's sleep and the hope of slowing the progression of the disease.

Measures

Actigraphy—Tremor severity was assessed by the Actiwatch Score, a small, wrist-worn device containing an accelerometer. The actiwatch was worn on the patient's left wrist, as this was the side most affected by rest tremor. Tremor activity was recorded in a zero crossing mode, meaning that the actiwatch recorded the number of occurrences during which the accelerometer waveform crossed 0 during patient movement. Each recorded occurrence is referred to as an activity count. The Phillip's Respironics Actiware 5 software package was used to determine the total number of activity counts displayed by the participant. Data outputs were divided into 25 1-minute intervals, with activity recorded during a 5-minute baseline period and 20 minutes of clinical hypnosis. Schlesinger et al. (2009) have shown that actigraphy is a reliable method for measuring fluctuations in rest tremor severity during a mind-body intervention. Nass and Nass (2008) have also shown that actigraphy can be used to differentiate Parkinson's patients from healthy controls.

The Stanford Hypnotic Clinical Scale (SHCS)—The SHCS is a five-item measure designed to assess an individual's susceptibility to hypnotic suggestion (Morgan & Hilgard, 1978-1979). The five items are given as tasks and include moving the hands together, having a dream, experiencing age regression, complying with a posthypnotic suggestion to cough or clear the throat, and experiencing posthypnotic amnesia. Participants who pass four or five items are believed to be highly susceptible to hypnotic suggestion. Participants passing two or three items are moderately hypnotizable, and participants who pass one or no items are only slightly hypnotizable.

Hospital Anxiety and Depression Scale-Anxiety Subscale (HADS-A)—The HADS-A consists of seven questions that form the anxiety subscale for the Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983). Each question is rated on a 4-point Likert scale with a score of 0 indicating an absence of symptomology and a score of 3 indicating severe symptomology.

The Center for Epidemiologic Studies Depression Scale (CES-D)—The CES-D is a 20-item self-report inventory designed to assess the presence of depressive symptoms over the past 7 days (Radloff, 1977). Items are scored on a scale of 0 to 3 with a score of 3 indicating that a symptom has been present most of the time.

Parkinson's Disease Questionnaire (PDQ)—The PDQ is a self-report inventory designed to measure the degree to which parkinsonian symptoms adversely impact the quality of life of Parkinson's patients. The questionnaire contains eight subscales, each designed to assess a potential problem area. The subscales included are: mobility, activities of daily living, stigma, emotional well-being, social support, cognition, bodily discomfort, and communication (Peto, Jenkinson, Fitzpatrick, & Greenhall, 1995). Items are ranked on a 5-point Likert scale, with a score of 0 indicating that the patient never has a problem in this area. A summary score is computed by summing subscale scores (Jenkinson, Fitzpatrick, Peto, Greenhall, & Hyman, 1997).

Pittsburgh Sleep Quality Index (PSQI)—The PSQI is a 19-item self-report inventory designed to measure sleep quality. The 19 items are grouped into seven subscales: sleep quality, sleep efficiency, daytime dysfunction, sleep latency, sleep disturbances, sleep duration, and use of sleep medication. These seven subscales are scored on a scale of 0 to 3 with higher scores indicating greater sleep pathology. Subscale scores are summed to create a global score ranging from 0 to 21. Global scores above 4 are normally considered indicative of poor sleep quality (Buysse, Reynolds, Monk, Berman, & Kupfer, 1989).

Pain—A 100-mm, visual analog scale (VAS) was used to measure average pain intensity over the previous week. The item "During the past week, on average, how much pain have you experienced?" was anchored *no pain* on one end, and *the most intense pain possible* on the other end.

Stiffness—An additional VAS scale measured joint stiffness over the previous week. The lower boundary of the scale was anchored by the phrase *no stiffness*, while the upper boundary was anchored by the phrase *the most stiffness in my joints possible*.

Satisfaction with libido—The patient was asked to rate his satisfaction with his libido on a scale from 1 to 10. The lower end of the 100-mm scale was anchored by 1 and the upper end of the scale was anchored by 10.

Hypnotherapy Intervention

After Mr. A signed an informed consent document and completed baseline questionnaires, he was seen for three weekly sessions of clinical hypnosis. Each session began with a standard hypnotic relaxation induction (Elkins & Handel, 2001) during which Mr. A was asked to focus on a point in the ceiling and imagine himself at the top of a staircase that led to a comfortable room. Hypnotic suggestions were aimed at increasing relaxation and reducing the intensity and frequency of rest tremors through increased control over dopamine levels. Examples of suggestions included:

Drifting into a relaxed and calm hypnotic state...deeper and more calm with every breath of air...so deeply relaxed now...that you will be able to respond to each hypnotic suggestion. There is a relationship between the mind and the body...and as you drift into a deeper trance state...the levels of dopamine will begin to increase...and tremor becomes less and less...the levels of dopamine... increasing... and tremors decreasing...now...

In addition, posthypnotic suggestions were given for continued lessening of tremor, decreased pain, improved sleep, and libido. Each session was ended with suggestions for Mr. A to return to conscious alertness. Mr. A was also provided with a CD player and an audio recording of the initial hypnosis session and was instructed to practice self-hypnosis with the recording at home at least once daily.

Results

Mr. A received a score of three on the Stanford Hypnotic Clinical Scale indicating moderate hypnotizability. Rest tremor activity during the first and third hypnotic session is displayed in Figure 1. Results indicate that the patient experienced a clinically significant improvement in rest tremor over the course of the intervention. The total number of activity counts recorded during hypnosis decreased from 326 at week 1 to 25 at week 3. This represents a 94% decrease in rest tremor activity from baseline to endpoint. Results also indicate that Mr. A experienced fewer rest tremors during the five-minute baseline period of session 3 than during the five-minute baseline period of session 1. This is consistent with his self-report that he maintained improvement in rest tremor severity outside of the hypnosis sessions.

Changes in nonmotor symptom severity are displayed in Table 1. Results indicate that the patient experienced improvements in excess of 60% in measures of depression, anxiety, sleep quality, pain, stiffness, and libido at 3-week follow-up. Mr. A verified these improvements by indicating that he was no longer taking anxiety medication and was able to sleep through the night. He also indicated that he was amazed by the increase in his sex drive. Results from an 8-week follow-up visit indicate that these improvements remained relatively stable with increased benefits being observed regarding depression and pain.

Results also indicated a 14% improvement in Parkinson's Disease-related (PDQ) quality of life score from baseline to 3-week follow-up. However, 8-week follow-up testing showed continued benefit with scores indicating a 69% improvement from baseline.

Discussion

The results of this study suggest that clinical hypnosis may be a feasible treatment option for Parkinson's patients. During this single case study, the patient experienced clinically significant improvements in rest tremor, depression, anxiety, sleep, pain, stiffness, and libido. These findings were confirmed by an objective physiological device, well validated self-report measures, and qualitative data offered by the patient.

It is also worth noting that the patient reported complete satisfaction with treatment on a 10-point scale. He also reported practicing self-hypnosis at least once daily during the course of treatment, despite having a full-time job. Thus, suggesting that the treatment program was not overly demanding. After completing his second hypnosis session, Mr. A had this to say about the intervention:

To experience the things that I've experienced in the last week, it's been great... I'm sure amazed, and I guess, the level that it's worked. I guess your hope is, it's not going to do anything detrimental, but your hope is that you'll get some benefit. And I think, in my wildest dreams, the things what I've been able to experience in the past week is just so much further and so much higher than what I thought would happen.

Mr A. also indicated during his 8-week follow-up visit that his blood pressure during a recent check-up was 116/75, which he remarked was "the lowest in years" and was an improvement from 130/88 recorded at a preintervention check-up.

Limitations

We acknowledge that this is a case study involving only 1 patient. Further research with additional patients suffering from Parkinson's Disease is needed to determine whether these results can be generalized to other individuals. Also, the patient scored in the moderate

range of hypnotizability, had positive expectations, and satisfactory quality of life. It is unknown to what extent these factors may have contributed to the outcome. It is also worth noting that although the study provided a physiological measure of tremors pre- and during hypnosis sessions, an ambulatory measure of tremors was not collected. Inertial measurement units (IMUs) are now available (Salarian, Russmann, Vingerhoets, Burkhard, & Aminian, 2007), and these devices may allow researchers to assess tremor severity in ambulatory Parkinson's patients. Future studies of this intervention should assess the utility of IMUs for Parkinson's research.

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Figure 1. Rest Tremor Activity. This figure illustrates five minutes of baseline data, followed by 20 minutes of hypnosis.

Table 1

Non-motor Symptom Change

	Baseline	3-Week Follow-up	3-Week Percent Change	8-Week Follow-Up	8-Week Percent Change
HADS-Anxiety	8	2	75%	4	50%
CES-D	13	5	62%	2	85%
PDQ	46.21	39.96	14%	14.55	69%
PSQI	6	2	66%	2	66%
Pain	9	1	89%	0	100%
Stiffness	29	1	97%	2	93%
Libido	2	8	300%	8	300%

Note: Percent changes reflect improvements from baseline measurement.