Problem solving therapy for the treatment of depression for a patient with Parkinson's disease and mild cognitive impairment: a case study

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Abstract: The present investigation reports on the use of problem solving therapy (PST) to treat depression in an 83-year-old woman with Parkinson's disease (PD) and concurrent mild cognitive impairment (MCI). A neuropsychological evaluation was conducted prior to the intervention and the patient demonstrated mild deficits of executive functioning and memory. The PST treatment consisted of 12 one-hour sessions that occurred weekly. Depressive symptoms were evaluated using the Hamilton Depression Rating scale and the Montgomery-Asberg Depression rating scale. At a post-treatment assessment (week 12), clinician assessment indicated that the client no longer met criteria for MDD. Weekly depression severity ratings showed significant reduction in severity of depressive symptoms over 12 weeks. Results at 1-month and 6-month follow-up demonstrated that the therapeutic gains were not only maintained, but that the client continued to improve. These results suggest that PST may be an effective treatment for the treatment of depression for individuals with a PD and concurrent MCI.

Keywords: problem solving therapy, psychotherapy, mild cognitive impairment, executive dysfunction, memory, Parkinson's disease, depression, geriatric

Introduction

Depression commonly co-occurs with Parkinson's disease (PD) with prevalence rates of 20%–50% based on community samples (Errea and Ara 1999; Schrag et al 2001, 2002). The high comorbidity between depression and PD has been attributed to both neurodegenerative changes in the mesocorticolimbic pathway in the frontal striatal regions of the brain (Robinson et al 1999) and the affective distress related to functional impairment (Brown and Jahanshahi 1995). Depression in PD patients is a significant health concern that has been linked to increased disability and decreased quality of life (Gotham et al 1986; Starkstein et al 1990; Karlsen et al 1999; Kanner and Barry 2003; Martinez-Martin et al 2003; Schrag 2004) as well as increased mortality (Hughes et al 2004) and risk of suicide (Myslobodsky et al 2001). In addition, patient depression has also been shown to negatively affect PD caregivers and is commonly linked to caregiver depression and distress (Aarsland et al 1999; Meara et al 1999; Fernandez et al 2001).

Mild cognitive impairment (MCI), a syndrome referring to cognitive impairments that do not meet criteria for dementia (Busse et al 2003; Voisin et al 2003), is also common in PD, with estimates of MCI in PD clinical samples ranging from 10% to 55% (Ostrosky-Solis 2000; Janvin et al 2003; Bosboom et al 2004; Hobson and Meara 2004; Zakharov and Iakhno 2005). Among depressed PD patients the incidence of MCI is likely higher as depression can exacerbate cognitive symptoms (Uekermann et al 2003). The current standard of practice for treating depression among individuals

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with PD is psychopharmacological intervention (Slaughter et al 2001; Marsh and Berk 2003; Shabnam et al 2003; Leentjens 2004). However, concerns regarding the efficacy and safety of these medications have been raised (Shabnam et al 2003) and a significant portion of PD patients being treated for depression often do not respond to one or more trials of pharmacotherapy (Weintraub et al 2003). Although there have not yet been studies investigating the effectiveness of pharmacological interventions specifically for older PD patients with MCI, these individuals may be further at risk for poor and unstable response to antidepressants due to changes in the frontal-subcortical brain regions (Alexopoulos et al 2000).

Given the prevalence of depression among PD patients, the impact of depression on patient quality of life, and the potential for poor responses to pharmacotherapy, there is a surprising lack of research on evidence-based psychotherapeutic interventions for these individuals. This is particularly apparent given the usefulness of psychotherapeutic interventions in late life depression (Areán and Cook 2002). Problem solving therapy (PST), in particular, has been shown to be effective for the treatment of depression in older adults (Areán et al 1993), older adults with mild cognitive impairment (Alexopoulos et al 2003), and depressed medically frail elders (Mynors-Wallis et al 2000). This case study is presented to raise awareness of the need to develop evidence-based psychotherapeutic interventions for depression among individuals with PD and MCI.

The case: PK

Presenting complaint

The patient is an 83-year-old Caucasian woman with PD who was diagnosed with major depressive disorder (MDD) based on a structured clinical interview for the Diagnostic and Statistical Manual of Mental Disorders-IV (APA 1994). The onset of depressive symptoms began approximately 5 years ago with gradual worsening over this interval. Suicidal ideation was denied and the patient had no prior history of treatment for depression. The patient is non-ambulatory and has resided in a long-term skilled nursing home since 2003. The patient endorsed mild memory difficulties; other cognitive difficulties were denied.

Medical history

The patient's medical history was significant for PD and hypertension. Recent head imaging (CT) indicated a generalized prominence of the ventricles and sulci consistent with generalized atrophy. Additionally, areas of low attenuation were reported in periventricular and subcortical areas without evidence of cortical infarction, hemorrhage or mass lesion. Her medications included: docusate (250 mg), prilosec (20 mg), hydralazine (50 mg), divalproex sodium 500 mg, carbidopa–levodopa (25 mg/100 mg), gabapentin (300 mg), furosemide (40 mg).

Cognitive assessment

The patient participated in a neuropsychological screening assessment prior to treatment as part of her intake evaluation. The cognitive evaluation consisted of the following measures: the Mini-Mental State Exam (Folstein et al 1975), the Wisconsin Card Sorting Test-64 Computer Version 2 (WCST) (PAR 2000), the Stroop Color and Word Test (Stoelting 2002), the Hopkins Verbal Learning Test - Revised (HVLT-R) (Brandt and Benedict 2001), and the Dementia Rating Scale-2 (DRS-2) (Mattis 2004). The results of this screening evaluation (Table 1) indicate that the patient demonstrated relative strengths in attention, constructional ability, and conceptualization ability. Mild impairments were observed on measures of executive function and memory. These observed cognitive deficits, in conjunction with a review of functional status, were consistent with a diagnosis of mild cognitive impairment. They did not warrant a DSM-IV diagnosis of dementia since these cognitive deficits were mild and did not significantly impair social functioning. Nonetheless, these impairments had the potential of limiting the effectiveness of psychotherapy, as psychotherapy

Table 1 Results of cognitive screening evaluation

Measure	%ile
Mini Mental State Exam	25/30[a]
Dementia Rating Scale -2	
Attention	19–28
Initiation/perseveration	6–10
Construction	41–59
Conceptualization	19–28
Memory	6–10
DRS total score	6–10
Stroop Test Color-Word Score	3
Wisconsin Card Sorting Test (64 Card)	
Categories completed	6–10
Total errors	4
Perseverative errors	1
Hopkins Verbal Learning Test	
Acquisition	1
Long delay free recall	7
Long delay cued recall	25

[a]raw score.

involves learning new skill sets, remembering information from previous sessions, problem solving, and planning abilities.

Measures of depression severity

The Hamilton Depression Rating Scale (Hamilton 1960) is a 17-item instrument yielding scores from 0 to 34; high scores indicate greater severity of depression. The HDRS is an interviewer-rated instrument shown to be sensitive to change over time and has been shown to be a be a valid measure of depressive symptoms with Parkinson's patients (Leentjens et al 2000; Burn 2002).

The Montgomery Asberg Depression Rating Scale (MADRS) (Montgomery and Asberg 1979) is a commonly used measure of severity of depressive symptoms (Zimmerman et al 2004) which has been validated with Parkinson's patients (Leentjens et al 2000; Burn 2002).

Intervention

The psychotherapeutic intervention consisted of 12 one-hour sessions with a licensed therapist following a structured PST protocol. The patient did not utilize antidepressant medications during the course of this treatment or the subsequent follow-up period. PST for older adults with executive dysfunction was developed by Areán (Alexopoulos et al 2003) to specifically accommodate cognitive problems commonly experienced among older depressed adults. The premise of the intervention is that depression is caused, in part, by difficulty coping with psychosocial problems (Nezu and Perri 1989). The therapy is designed to help individuals overcome depression by teaching them a systematic way of solving these problems while accommodating mild cognitive impairments. The major components of the therapy include 8 stages: 1) Selecting and defining problems, 2) Establishing realistic goals, 3) Generating alternative solutions to meet stated goals, 4) Implementing decision making guidelines, 5) Evaluating and choosing solutions, 6) Implementing the preferred solution, 7) Evaluating the outcome, and 8) Activity scheduling.

During the first session of PST with PK, the therapist explained the rationale for PST and emphasized the relationship between depression and problem solving skills. During this session, the therapist and patient created an extensive list of psychosocial problems the patient was experiencing. PK's initial problem list consisted of problems such as "I feel lonely," "I'm bored," "I'm too dependent on others". The therapist then helped the patient to select and define her most significant problem ("worrying about my health"). For the remainder of the session this problem was focused on as a way of introducing the remaining 7 stages–steps of PST. After defining her chosen problem and establishing realistic goals, the patient was encouraged to generate alternative solutions and implement decision-making guidelines to choose her best solution. In the subsequent session, PK was able to report that she was able to implement and evaluate the outcome of her preferred solution.

As therapy progressed PK became more familiar with the steps of PST and reported that she felt progressively "more in control" of her health. By session #7, she reported that she was able to apply her problem solving approach independently in many situations, such as finding a safe and effective method of transferring herself from her wheelchair to the toilet in order to void independently, as well as identifying the need for, and steps to obtain, an amplified phone. She utilized these successes to develop increased activity planning, such as participating more consistently in daily activities offered at her residential facility including yoga and art classes, and reconnecting with friends by phone.

PK completed 12 sessions of PST and at the conclusion of her treatment she no longer met criteria for major depressive disorder based on DSM-IV criteria (assessed by a licensed therapist with a structured clinical interview). Assessments of depression severity at 1-month and 6-months post treatment indicated treatment gains were maintained. Depression severity scores for the intervention and follow-up period are shown in Figure 1. Qualitatively, PK attributed improvements in mood status to learning that even "big problems can be broken down into more workable pieces".

Discussion

Given the prevalence of MDD and MCI in individuals with PD, there is a surprising lack of evidence-based research on psychotherapeutic interventions for these individuals. This is particularly relevant due to concerns regarding the efficacy and safety of pharmacological interventions for MDD among individuals with PD, and the efficacy of PST in the treatment of depression in older adults who are medically frail and/or have mild cognitive impairments. We presented this case study to raise awareness that PST may be an effective treatment for MDD with PD and concurrent MCI. Additionally, although formal measures of disability were not administered, PK reported that PST had the added

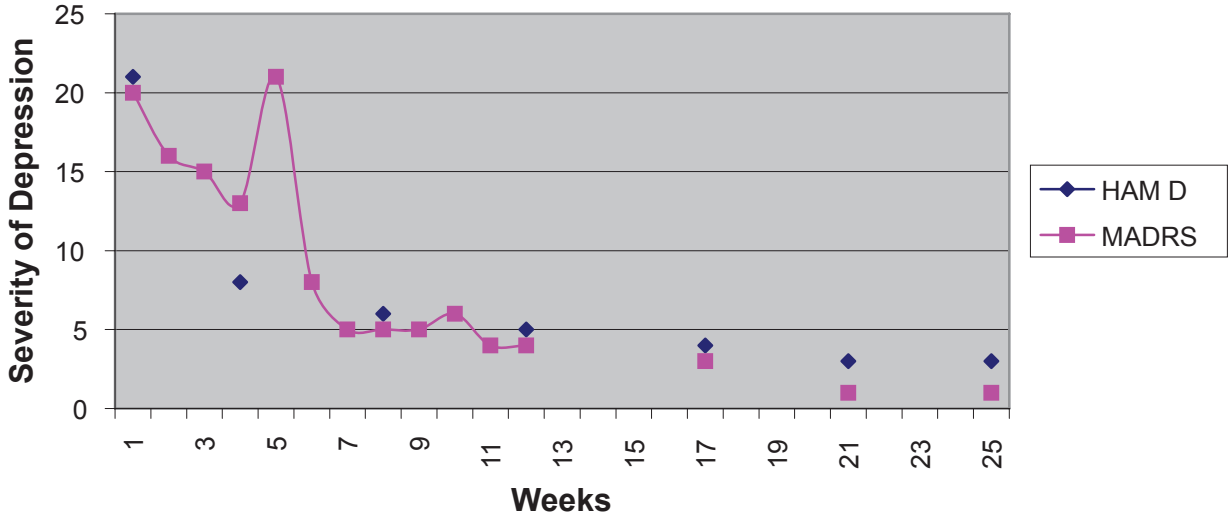

Figure 1 Depression severity for 12 weeks of therapy and 6-month follow-up
Abbreviations: HAM D, Hamilton Depression Rating Scale; MADRS, Montgomery Asberg Depression Rating Scale.

benefit of minimizing disability; a finding not traditionally associated with pharmacological interventions alone.

Conclusions

This case study suggests that PST holds promise for treating depression among PD patients with MCI and may also be helpful in decreasing disability for these individuals. Randomized clinical trials should be conducted to evaluate the effectiveness of structured psychotherapeutic interventions for the treatment of MDD among patients with PD and MCI to determine the generalizability of these findings.

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