Developing an intervention for depressed, chronically medically ill elders: a model from COPD

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SUMMARY
Background Geriatric depression preferentially afflicts individuals with chronic medical illnesses. Disability, hopelessness, lack of acceptance of antidepressant treatment, and limited problem-solving skills contribute to poor treatment adherence, compromised outcomes, and chronically experienced adversity.

Methods This paper uses depression comorbid with chronic obstructive pulmonary disease (COPD) as a model entity to develop an approach for integrating treatment components essential for improving treatment adherence and outcomes.

Results The behavioral inertia of depression and its coexisting cognitive problems reduce adherence to the sustained and complex demands of the COPD rehabilitation regimen and antidepressant treatment. An intervention identifying reasons for poor treatment adherence and offering direct instructions for addressing them can be combined with problem-solving therapy to target treatment adherence, depressive symptoms, and disability.

Conclusions An intervention focusing on treatment adherence and problem-solving skills development may serve as the platform for administering specific treatments to address the interacting problems of depressed medically ill patients.

INTRODUCTION
Geriatric depression preferentially afflicts individuals with chronic medical illnesses. Major depression afflicts 1–2% of community residing elderly (NIH Consensus Development Panel on Depression in Late Life, 1992), while 6–8% of elderly primary care patients and 12–22.4% of long-term care residents suffer from major depression (Burrows et al., 1995; Katz et al., 1995). Safe and effective antidepressant treatments are available. Yet, their effects may be slow to occur and remission is often incomplete and unstable, necessitating a long-term treatment approach (Alexopoulos, 2005).

Several interacting factors compromise treatment effectiveness in depressed elderly patients with chronic medical illnesses. Physical disability originating from medical illness and exacerbated by depression is a barrier to treatment adherence. Demoralization resulting from the hopelessness of depression and the experience of disability and chronic adversity further contribute to resignation. Poor problem-solving skills resulting from inactivity, and cognitive problems co-existing with depression and medical illness add a disability component that extends from everyday life activities to treatment adherence.

The clinical complexity of depression in the chronically medically ill requires a treatment approach that addresses their interacting problems. This paper uses depression comorbid with chronic obstructive pulmonary disease (COPD) as a model to develop a treatment platform through which specific treatments can be administered. COPD lends itself for this...
purpose because of the chronic disability it confers, the demanding treatment it requires, and the high comorbidity with depression (Borson et al., 1998; Yohannes et al., 2000; Aydin and Ulusahin, 2001; Alexopoulos and Latoussakis, 2004; Wong et al., 2006). At least 20% of COPD patients have one or more episodes of major depression, frequently of long duration (Yohannes et al., 2003). Depression adds to the functional impairment of medical patients in general (Oxman and Hull, 2001) and COPD patients in particular (Leidy, 1995). Furthermore, depression is a stronger determinant of functional capacity than physiological indicators (Beck et al., 1988; Weaver and Narsavage, 1992; Graydon and Ross, 1995). The combination of depression and disability can have an especially negative impact on patients’ quality of life (Anderson, 1995).

NEED FOR A BEHAVIORAL APPROACH

Respiratory rehabilitation improves functional exercise capacity and health-related quality of life (Lacasse et al., 1997). A comprehensive inpatient rehabilitation program (15-day median length of stay) led to decreases in depressive symptomatology and disability in patients suffering from severe COPD and major depression, although most did not achieve remission (Alexopoulos et al., 2006). Behavioral activation (i.e. positively reinforced activity) and psychosocial support may have been the main contributors to the efficacy of the program in improving depression since exposure to antidepressants, in those who received them, was likely too brief to bring about an antidepressant response. Depression and disability did not further improve 6 and 14 weeks after discharge. Inadequate antidepressant treatment and difficulty adhering to demanding treatment regimens, including daily exercise, oxygen use, and attendance at multiple medical visits may each have contributed to lack of further improvement.

Efficacy and limitations of antidepressants in COPD patients

The efficacy of antidepressants in depressed COPD patients has been inadequately investigated. Two placebo-controlled studies noted that doxepin and desipramine had no advantage over placebo in improving mood among COPD patients (Gordon et al., 1985; Light et al., 1986). A 12-week study of COPD patients with major depression or dysthymia demonstrated that nortriptyline was superior to placebo in improving depressive symptoms, anxiety, respiratory symptoms, physical comfort, and day-to-day function (Borson et al., 1992). Similar results were obtained by a study comparing paroxetine with placebo, although the small sample and high drop-out rate (34.7%) limit its conclusions (Lacasse et al., 2004).

There are reasons to expect that antidepressants have limited efficacy in depressed COPD patients. First, even among non-COPD depressed patients, only 35% achieve remission while another 20% derive partial benefit from antidepressants (Thase et al., 2001). Second, antidepressant efficacy may be even lower in COPD patients experiencing continuous physical discomfort, and exposed to chronic psychosocial adversity (ACCP/AACVPR, 1997). Third, many COPD patients have cognitive impairments associated with limited response to antidepressants. Specifically, perceptual learning–problem solving, alertness–psychomotor speed and simple motor functions are impaired in COPD patients (Grant et al., 1987). Many COPD patients have executive dysfunction resulting in inability to think flexibly, perform complex perceptual–motor maneuvers, and engage in perceptual discrimination (Fix et al., 1982; Grant et al., 1982; Incalzi et al., 1993; ACCP/AACVPR, 1997; Favalli et al., 2007). Impairment in some executive functions predicts poor or slow response to antidepressant treatment (Kalayam and Alexopoulos, 1999; Alexopoulos et al., 2004; Potter et al., 2004), as well as early relapse and recurrence of geriatric depression (Alexopoulos et al., 2005). Furthermore, indices of fronto-striato-limbic dysfunction (microstructural abnormalities lateral to the anterior cingulate gyrus (Alexopoulos et al., 2002) and high amplitude of the frontal error negative wave induced by probes of the anterior cingulate) were associated both with executive dysfunction and poor response to citalopram (Kalayam and Alexopoulos, 2003; Alexopoulos et al., 2007). Approximately 54% of patients with major depression and severe COPD have abnormal Initiation/Perseveration scores (one standard deviation below the mean of normal elders), indicating executive dysfunction (Alexopoulos and Latoussakis, 2004). Depressive symptomatology interacts with executive dysfunction and contributes to disability in depressed elderly patients (Kiosses et al., 2001).

Patient reluctance to receive antidepressants further reduces their impact. One study showed that 72% of depressed elderly COPD patients refused antidepressants, and only 50% of those agreeing to treatment completed a trial of fluoxetine (Yohannes et al., 2001). Limited efficacy and poor acceptance of antidepressants suggests that psychosocial interventions may
play an important role in the treatment of these patients.

The role of psychosocial interventions in depressed COPD patients

Cognitive-behavioral interventions may reduce depression and anxiety in COPD patients (Kunik et al., 2001; de Godoy and de Godoy, 2003). However, to our knowledge, there are no psychotherapy studies in COPD patients with major depression. Nonetheless, various psychotherapies are effective in elderly patients (Niederehe, 1994, 1996) and community-residing elders with major depression (Charney et al., 2003). Reminiscence therapy (Goldwasser et al., 1987), brief psychodynamic therapies (Steuer et al., 1984; Thompson et al., 1987), behavior therapy (Gallagher and Thompson, 1982), cognitive therapy (Thompson et al., 1987), and social problem-solving therapy (Areán et al., 1993) are effective in reducing depressive symptoms. Moreover, older adults, minority groups and primary care patients with depression prefer psychotherapy over pharmacotherapy (Areán et al., 2005).

ADHERENCE-ENHANCEMENT INTERVENTION IN DEPRESSED COPD PATIENTS

The ACCP/AACVPR Pulmonary Rehabilitation Evidence-Based Guidelines (1997) state: ‘... the most important behavioral aspect of pulmonary rehabilitation is the extent to which patients comply with the exercise program or with other medical therapies’. Despite its importance, treatment adherence remains a significant problem among COPD patients. Approximately 50% of COPD patients do not take their medications as prescribed (James et al., 1985), and a similar percentage use oxygen below minimal levels of clinical efficacy or fail to pursue walking exercises (Kaplan et al., 1990).

Depression further adds to treatment adherence problems. Compared to non-depressed patients, depressed medical patients are three times more likely to be noncompliant with prescribed medications, exercise, diet, health related behavior, vaccination, and appointments (DiMatteo et al., 2000). Poor adherence to medical regimens has a consistently negative effect on treatment outcomes (DiMatteo et al., 1993; Alexopoulos et al., 2006). Thus effective interventions for depressed COPD patients must directly address adherence to medical and rehabilitative care and also reduce depression, since this condition contributes to poor treatment adherence.

We developed a multi-level intervention to increase patient adherence to treatments for COPD and depression (Sirey et al., 2007). The intervention used trained care managers to: (1) evaluate reasons for poor treatment adherence in each patient; (2) offer education pertinent to each patient’s barriers to treatment adherence, depression and disability; and (3) provide direct recommendations on ways to improve adherence to rehabilitation regimens and antidepressant treatment.

THE NEED FOR INTEGRATED TREATMENT

The above review suggests that pharmacotherapy, psychotherapy, and interventions aimed to increase treatment adherence can be helpful in depressed COPD patients. However, administered alone, each approach offers limited long-term benefits in reducing depression and disability.

The small impact of current treatment approaches is hardly surprising given the clinical context of patients with severe COPD and depression. First, these patients live with daily physical discomfort and are forced into a compromised lifestyle. Second, they are demoralized knowing that their disease has an inescapable deteriorating course. Third, depressive symptoms, including hopelessness and helplessness, lead to resignation. Fourth, executive dysfunction and other cognitive limitations often accompanying COPD reduce patients’ ability to develop strategies to address their treatment needs and life problems. These problems are compounded by demanding COPD treatments that require active patient participation. The last thing that a depressed, demoralized, cognitively-compromised and physically weak patient wants to do is pursue a consistent exercise program, go to doctors and treatment centers, and reengineer social aspects of his/her life.

A TREATMENT MODEL FOR DEPRESSION, DISABILITY, AND TREATMENT ADHERENCE

The above literature suggests that depression, disability, and poor treatment adherence interact and contribute to behavioral and physical deterioration of COPD patients. Problem-solving therapy (PST) integrated with our adherence-enhancement approach may target the triad of depression, disability, and adherence to COPD treatment, interrupt the spiral of
deterioration, and improve quality of life. This assertion is based on findings documenting that: (1) PST reduces depressive symptoms and disability in various populations with major depression; (2) PST has been appropriately modified and found effective in reducing depression and disability in depressed elders with cognitive abnormalities similar to those of COPD patients; and (3) PST can be integrated with the adherence-enhancement intervention.

PST for depression and disability

PST targets depression by teaching patients skills for improving their ability to deal with everyday problems and major life events. PST reduces depressive symptoms and disability in major depression of younger patients (Nezu, 1986; Nezu and Perri, 1989), older adults (Areán et al., 1993), and medical patients (Mynors-Wallis, 1996; Mynors-Wallis et al., 1997; Mynors-Wallis et al., 2000). While PST and antidepressants were of comparable effectiveness in primary care patients (Mynors-Wallis et al., 2000), to our knowledge, no studies have compared these treatments in patients with chronic diseases. Depressed older adults, who improved from major depression after receiving PST, had increased problem-solving skills, less disability, and greater life satisfaction (Areán et al., 1993; Alexopoulos et al., 2003).

PST in Patients with Executive Dysfunction

Although PST has not been studied in depressed COPD patients, there is evidence that, when appropriately modified, PST can improve the function of populations with cognitive impairment similar to or greater than that of COPD patients. PST improves initiation and completion of tasks in schizophrenic patients, a population with significant executive dysfunction (Tarrier et al., 1993; Heinssen et al., 2000). Training in problem-solving improves social adjustment, lowers relapse rates and improves quality of life compared to programs that do not employ this type of skills-training (Liberman and Corrigan, 1993; Liberman, 1994; Liberman et al., 1998; Leclerc et al., 2000). Problem-solving methods have been so successful in the rehabilitation of schizophrenics that they have become a staple of many social skills training programs (Liberman et al., 1998).

PST modified to address behavioral limitations resulting from cognitive impairment was found to be more effective than supportive therapy in decreasing depression and disability in non-demented depressed elders with executive dysfunction (Alexopoulos et al., 2003). Improvement of depression and disability occurred even though executive dysfunction persisted throughout treatment. Thus, while executive dysfunction is associated with poor and unstable response to antidepressants drugs, it may not influence response to PST. While PST may not have altered executive dysfunction, it improved problem-solving ability and thus reduced depressive symptoms and disability.

PST Integrated with Adherence Enhancement Techniques

PST is well-suited for integration with adherence enhancement interventions in targeting the triad of depression, disability, and treatment adherence. PST focuses on identification and management of problems contributing to chronic life adversity. Critical among these problems are barriers to COPD treatment adherence. The adherence enhancement protocol can guide the care manager in problem identification as it provides a structured approach to evaluate areas of inadequate adherence and their underlying reasons. Some adherence problems may respond to simple interventions provided by the adherence enhancement protocol, including clarification, education, and direct instruction. Others may require development of behavioral skills through PST. As most depressed COPD patients have many reasons for poor treatment adherence, the two approaches act in synergy to address a broad range of adherence problems. The intervention consists of ten weekly sessions followed by four monthly sessions. The first two sessions occur while participants are still hospitalized and introduce the rationale of treatment, assess participants’ needs and potential barriers to adherence to treatment of depression and COPD, and form a treatment plan. The subsequent eight sessions are administered weekly at participants’ homes or the care manager’s office depending on ability to travel. Four additional sessions are administered monthly and are intended to reinforce skills and behaviors imparted during the first ten sessions.

Treatment adherence enhancement and PST are fully integrated. Since adherence to treatments for COPD and depression is central to the care of these patients, treatment starts by identifying treatment needs and barriers to adherence specific to the individual patient. Some of the barriers are addressed by clarification and education, while others require development of problem-solving skills. As a rule, a problem related to treatment adherence (e.g. adhering to a recommended exercise regimen or taking an antidepressant as prescribed) is the first target for
training patients in the problem-solving approach. While initial PST sessions target health-related behaviors, patients learn the PST approach and apply it to other life problems, including isolation, relationships with family and friends, etc. As patients become proficient in managing their illnesses, they develop a sense of empowerment. Mastering daily problems instills hope and increases the likelihood of managing problems as they arise, thus improving function. Since this intervention combines a targeted behavioral treatment with pharmacotherapy for depression (and even reinforces adherence to pharmacotherapy) it is consistent with practice guidelines (Alexopoulos et al., 2001), which recommend combination therapies in both mild and severe geriatric depression.

A CASE EXAMPLE

RY is a 74-year-old retired construction worker who lives with his wife. He was diagnosed with COPD eight years earlier, and was recently hospitalized for an exacerbation of dyspnea. Five days later, his blood gases improved and he was referred for inpatient pulmonary rehabilitation. After 1-week he requested to be discharged from the Rehabilitation Center indicating that little could make him well. He reported feeling useless and that he would be better-off dead. He had psychomotor retardation and reported fatigue and concentration difficulties. His physician started him on an antidepressant, although the patient insisted that his feelings were a logical consequence of his predicament and no improvement could be anticipated. He agreed to attend an outpatient program as a condition for his discharge, but failed to follow through with this recommendation.

The care manager first worked with Mr. Y in the Rehabilitation Center to identify barriers to psychiatric, medical, and rehabilitative treatment. These included: (1) limited exercise and inconsistent oxygen use; (2) the view that depression is an expected reaction to disability; and (3) hopelessness about the efficacy of treatment for both depression and COPD (‘Why bother with all of this?’). The care manager then offered education about the nature of depression and COPD, the role of antidepressant treatment, and how daily exercise could improve functioning. While validating that COPD is indeed a progressive illness that cannot be reversed, she emphasized that consistent exercise and oxygen use can improve symptoms and quality of life.

Following discharge, the care manager continued to reinforce treatment adherence and introduced PST. With her help, Mr. Y generated a list of problems he felt were contributing to his depression, i.e. difficulty with daily exercises, feeling ‘nagged’ by his wife to exercise, isolating himself from family and friends, and lack of pleasant activities. Mr. Y prioritized these problems, and chose difficulty with exercising as the first problem to focus on. Together, they established the goal of exercising daily for at least 20 minutes, and they developed a plan of specific exercises at specific times. Another of Mr. Y’s goals was to limit his wife’s reminders about exercising. With the care manager’s help, he brainstormed different solutions, including asking his wife not to nag, yelling back at her, sending her on errands to avoid her, keeping her aware of his exercise schedule, and/or inviting her to do the exercises with him. Under the care manager’s guidance, Mr. Y chose a combined solution, namely, to inform his wife of his plan to exercise daily before lunch, mark it on their calendar, and invite her to join him. Ongoing PST work focused on monitored the effectiveness of each of his chosen solutions, and targeted additional problems related to social activities and engaging in hobbies he had abandoned. At the end of treatment, Mr. Y’s depression was in remission, he felt confident in taking care of himself, and he enjoyed activities in which he was able to participate.

CONCLUSION

Developing an intervention that identifies and directly addresses barriers to treatment adherence and also imparts skills necessary for problem-solving can offer the behavioral platform through which specific treatments can be administered. The principal innovation of this approach is that it integrates two interventions (adherence enhancement and PST) with different theoretical, clinical, and implementation traditions into a single treatment for elders with depression and chronic disabling medical illnesses. Such integration is synergistic and potentially efficacious because of the conceptual affinity of direct adherence enhancement with skill development and the ability of each approach to target interacting problems experienced by these patients. Targeting distinct treatment adherence barriers and enriching patients’ behavioral repertoires with problem-solving strategies concurrently address factors that perpetuate inactivity, depression, and physical deterioration. Visiting nurse services and other organizations offering care to disabled and often homebound persons employ social workers and nurses with education and experience sufficient for learning such comprehensive interventions. As insurances reimburse services by these
professionals, training them may be feasible, and make such treatments available and affordable.

CONFLICT OF INTEREST
Conflict of interest was declared—Research grants were received from Cephalon and Forest. Consultants: Scientific Advisory Board of Forest, Sanofi-Aventis and Novartis. Speaker’s bureau comprised Cephalon, Forest, Lilly, Bristol Meyers Squibb, Glaxo, Pfizer and Janssen.

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