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Anxiety and Depression in Maintenance Dialysis Patients: Preliminary Data of a Cross-sectional Study and Brief Literature Review

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Background: Anxiety and depression affect the quality of life of maintenance dialysis (MD) patients. There is little information concerning the extent to which the experience of individual hemodialysis treatments engenders anxiety in this patient population. This preliminary study examined the prevalence and severity of anxiety and depression in MD patients and the incidence of anxiety related to dialysis treatment.

Methods: One hundred seventy patients, 155 undergoing maintenance hemodialysis and 15 undergoing chronic peritoneal dialysis, were examined. Inclusion criteria included dialysis vintage of at least 6 months. Patients completed the Beck Anxiety Inventory and Beck Depression Inventory and questionnaires that examined their feelings of anxiety related to individual hemodialysis sessions.

Results: Patients' mean age was $56 \pm$ standard deviation of 16 years; dialysis vintage, 55 ± 48 months; 46% were female. The data confirmed a high prevalence of anxiety and depression in MD patients. Many MD patients become anxious, often severely, by merely going for routine hemodialysis treatment and also owing to such common events as being connected to the hemodialyzer by a new person or on hearing their hemodialyzer alarm sound.

Conclusion: Anxiety and depression are common in MD patients. Many patients who are well established on MD experience anxiety during individual maintenance hemodialysis treatments.

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ALTHOUGH MAINTENANCE DIALYSIS (MD) is a lifesaving therapy for people with end-stage renal disease (ESRD), evidence

clearly indicates that MD patients often have a poor quality of life. As an example, a high prevalence of anxiety and depression has been repeatedly observed in these individuals.^{1,2} In the general population, the prevalence and lifetime incidence have been reported to be about 18%³ and 25% to 29%,⁴ respectively, for anxiety and 2% to 9%⁵ and 12% to 20%, respectively, for depression.⁴ Women are generally reported to be at the higher end and men to be at the lower end of these rates. By contrast, in MD patients, the prevalence rates for anxiety and depression are much higher, about 30% to 45%^{1,2,6} and 20% to 30%,⁷⁻⁹ respectively (Table 1). The reported prevalence clearly depends on the tools used to measure these disorders, the cutoff points within these tools for people to be assigned these diagnoses, and possibly such other factors as age, race, and ethnicity.^{11,12}

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Table 1. Prevalence of Anxiety and Depression in Dialysis Population and General Population

	Maintenance Dialysis Population	General Population
Lifetime prevalence of anxiety	-	25%-29% ⁴
Lifetime prevalence of depression	-	12%-22% ¹⁰
Point prevalence of anxiety	30%-45% ^{1,2,6}	18% ³
Point prevalence of depression	20%-30% ⁷⁻⁹	2%-9% ⁵

Given the perspective that people with anxiety or depression suffer discomfort that is analogous to that suffered by people with physical pain, it can be argued that it is an oversight for health care workers to not devote more effort to the diagnosis and relief of these affective disorders. It has been the observation of one of the authors (J.D.K.) that many maintenance hemodialysis (MHD) patients become anxious before and when they are receiving a hemodialysis treatment. Such anxiety was not uncommonly observed among patients who have been receiving MHD for many months or years.

We have begun to examine mood and anxiety disorders in MD patients. One of the foci of our investigations is the incidence of anxiety that is associated with an individual hemodialysis treatment. A series of psychological scales were administered to 170 ESRD patients undergoing MHD (n = 155) or chronic peritoneal dialysis (CPD) (n = 15). Among the inclusion criteria were an age range of 18 to 95 years and at least 6 months of MD therapy immediately before entering the study. Most of the patients belonged to 1 of 3 mutually exclusive racial/ethnic groups (Hispanic, African American, or non-Hispanic Caucasian). After obtaining informed consent, demographic data were obtained on each patient, and they were asked to complete a series of questionnaires. These included the Beck Anxiety Inventory, the Beck Depression Inventory, and a series of questions that were specifically designed to assess their anxiety levels in relation to events that occur commonly in association with an individual hemodialysis treatment. Most of the 15 patients who were undergoing chronic CPD also

answered the hemodialysis questionnaires, presumably drawing on memories from their experience when they were undergoing MHD.

Mean age of the patients was $56 \pm$ standard deviation of 16 years. The Caucasian patients were significantly older than the African American or Hispanic patients. Dialysis vintage was 55 ± 48 months. Forty-six percent of the patients were female. Twenty-four percent of the patients were married at the time of study.

The preliminary analyses of the Beck Anxiety Inventory indicated that 53% of patients had some degree of anxiety. About 28% of these 53% of patients had moderate or sometimes severe anxiety. Thirty-six percent of patients had at least some degree of depression. About 21% of these 36% of the patients had moderate or severe depression. These values for the prevalence of anxiety and depression are slightly higher but essentially similar to the results of previous studies of MD patients (Table 1). Of particular concern was the finding that many patients experienced anxiety when they came to their dialysis clinic to receive an individual hemodialysis treatment. About half of the patients described some degree of anxiety when coming for a hemodialysis treatment, with the severity of the anxiety ranging from "a little bit" to "extreme."

Anxiety was also engendered when a new staff person or a person unknown to the patient connected the patient to the dialysis machine, when the patient heard the alarm sound on the dialysis machine, saw paramedics in the dialysis unit, and had other similar types of experiences in the dialysis unit. Many patients reported that the anxiety in response to these events ranged from "a little bit" to "extreme," whereas most patients who described anxiety described it as "a little bit," more severe forms of anxiety were not uncommonly reported.

These preliminary findings confirm previous observations concerning the high prevalence of anxiety and depression in MD patients. The findings also provide strong and rather novel evidence that anxiety is engendered in MD patients by merely coming to the hemodialysis clinic for a routine hemodialysis treatment and also by common events experienced during hemodialysis treatment, such as being connected to the hemodialyzer by a new person or hearing the alarm sound during hemodialysis treatment. What makes these findings of even greater concern and clinical relevance is that our study subjects were

all prevalent chronic dialysis patients; that is, they were not allowed into the study unless they had been undergoing MD for at least 6 months, and the average dialysis vintage of the patients was 55 months. Thus, the chronic anxiety and depression of the patients and, most strikingly, the anxiety of the patients related to a single dialysis treatment cannot be ascribed to the novel experience of ESRD or MD therapy or to the patients needing more time for adjustment to their condition.

The fact that the anxiety and depression that MD patients experience are common and are often severe provides a strong justification for committing substantial resources to reduce the incidence and severity of these disorders. More research is needed to examine the causes and the potential methods for the prevention and treatment of these affective disorders. To a substantial extent, the realities of the patients' life situation may contribute to their anxiety and depression. For instance, patients may have substantial comorbidities or feel chronically ill or experience chronic pain. They may lead constricted lives because of their infirmities and may no longer experience the satisfactions from occupational work. Social isolation is common among dialysis patients. The threat of further supervening debilitating illnesses or death is very real. We view these very real challenges as not an argument for accepting the status quo but as a rationale for the conduct of further research as to how anxiety and depression can be prevented and treated in the context of very real, debilitating, and life-threatening medical illnesses.

A related problem is the cost of treating such highly prevalent psychological disorders. In this regard, it would be helpful to assess whether newer psychotropic medicines that are shown to be effective at treating anxiety or depression in the non-renal failure population will be of value for treating anxious or depressed chronic dialysis patients. Cognitive behavioral therapy (CBT)¹³ and symptom-targeted intervention (STI)¹⁴ should be evaluated for the treatment of anxiety and mood disorders in MD patients. If these therapies are effective, they may prove to be a rather economical way to alleviate depression in some patients, particularly if they can be conducted in group treatment or possibly in brief therapeutic sessions. An advantage of treating MHD patients with CBT and STI is that these therapies can be conducted in the hemodialysis unit before, during, or possibly after individual hemodialysis sessions.

Thus, logistical problems associated with transportation of the patient to the therapist on separate days or times may be avoided.

With regard to the hemodialysis procedure itself, it would seem of value to examine whether modifications in the conduct of dialysis might reduce some anxiety during dialysis treatments. For example, it would be of interest to know whether changing the sound or the amplitude of the dialysis alarm would relieve anxiety. It may be helpful to expose patients to sufficient numbers of different dialysis personnel so that they are rarely, if ever, treated by health care workers who are unfamiliar to them. Importantly, CBT or STI may be considered as a relatively inexpensive and potentially effective treatment for both anxiety and depression.¹⁴ The effectiveness and safety of each of these approaches, as well as others not mentioned, will need to be tested before they can be accepted as routine treatments for mood and anxiety disorders in MD patients.

Practical Applications

Chronic anxiety and depression are common complications in patients with end-stage renal failure who are undergoing maintenance hemodialysis or chronic peritoneal dialysis therapy. The hemodialysis sessions in themselves are commonly associated with acute feelings of anxiety. Given the high prevalence of these mood disorders, there is a great need for the development of methods for the prevention and treatment of these conditions for maintenance dialysis patients.

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