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Original article

Prevalence of depression and anxiety in end-stage renal disease: A survey of patients undergoing hemodialysis

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ABSTRACT

Background: Dialysis is a lifelong treatment required by end stage renal disease patients who are not able to undergo renal transplantation. Dialysis impacts the patients' quality of life drastically, increasing the risk of mortality. Depression and anxiety are commonly reported among dialysis patients, but their prevalence and correlates vary by sociocultural context.
Objective: The aim of this study is to examine the prevalence of anxiety and depression and associated factors among patients receiving hemodialysis at a major tertiary referral medical center in Lebanon that receives patients from all over the country.
Design: A cross-sectional, descriptive design was used.
Methods: Ninety patients receiving hemodialysis were targeted using convenience sampling, with a final sample size of 83 patients. The patients were interviewed while undergoing their dialysis session using the Hospital Anxiety and Depression Scale, and asked demographic and clinical questions.
Results: The majority of participants were married men over 60 years of age; 48% achieved high school education. Depression was prevalent in 40.8% and anxiety in 39.6%, with 20 patients (24.1%) having both conditions. Although 24.1% self-reported anxiety symptoms, only 2.4% were taking anxiolytics. Illiterate patients had significantly higher depression scores than those with higher levels of education ($p = 0.021$). Patients who were living with their family had higher anxiety scores than those living alone ($p = 0.014$).
Conclusion: Anxiety and depression are underdiagnosed and undertreated in Lebanese dialysis patients. Screening and appropriate referral to mental health specialists are needed.

1. Introduction

"End-stage renal disease (ESRD) is defined as kidney failure sufficiently severe to require maintenance dialysis or kidney transplantation to maintain health or life" (Feroze, Martin, Reina-Patton, Kalantar-Zadeh, & Kopple, 2010, p.173). Maintenance dialysis includes two main types: hemodialysis (HD) and peritoneal dialysis (PD). As the disease progresses to requiring dialysis, patients start experiencing multiple losses including their kidney function, primary role in their family and job, physical function and mobility, tolerance to activities, and others. This change in the patients' way to control their life was found to predict depression (Cvengros, Christensen, & Lawton, 2005). Also, patients start experiencing multiple stressors like dietary limitations, recurrent hospitalizations, short life span confrontation, burden of debilitating illness (like anemia, bone disease, and others…) and treatment dependence (Chilcot, Wellsted, Da Silva-Gane, & Farrington, 2008; Feroze et al., 2010; Ma & Li, 2016; Mitema & Jaar, 2016). Moreover, patients with ESRD experience many debilitating symptoms, including fatigue, pruritus, insomnia and cramps, which affect adversely their quality of life (Bossola, Di Stasio, Giungi, Rosa, & Tazza, 2015; Ma & Li, 2016; Moledina & Perry Wilson, 2015; SuSeł, Batycka-Baran, Reich, & Szepietowski, 2014). This combination of stressors and symptoms, in addition to the workload that the ESRD patients usually bring to their family and friends, can all be major contributors to increased rates of depression and anxiety (Cukor et al., 2008).

The literature on depression and anxiety in the general population is much more than what is found in patients with renal disease. Studies in Lebanon about the prevalence of depression and anxiety in ESRD patients are scarce. Although HD is the most commonly used treatment modality for ESRD patients, with an increase by 33% over 5 years (Lebanese Kidney Registry, 2013), only one published study on hemodialysis patients was identified (Macaron et al., 2014). The authors

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reported that 45% of the 51 patients undergoing hemodialysis had anxiety symptoms and 50% had depression symptoms. The hospital where the study was conducted was proposing to have a mental health professional on board with their team of nephrologists and other interdisciplinary health care members, so this study was planned to provide the necessary evidence to support the need of an expert in this field.

Depression is a worldwide illness affecting almost 350 million people (WHO Fact Sheet, 2016). The prevalence of major depression was 9.9% in a sample of 3000 civilians in Lebanon (Karam et al., 2008), with a prevalence of 14.6% documented in a more recent study (Farhood, Fares, Sabbagh, & Hamady, 2016). Reliable data that can be used to compare the prevalence of depression between hemodialysis patients and the general population are still lacking given the different tools used to measure depression in the various studies (Ma & Li, 2016). Palmer et al. (2013) reported in a recent meta-analysis that the prevalence of depression differed depending on the methodology used to diagnose it, from 22.8% when using an interview-based diagnosis to 39.3% when using a self-administered scale.

Depression is considered one of the most common complications of ESRD because of its association with increased mortality and decreased quality of life (Farrokhi, Abedi, Beyene, Kurdyak, & Jassal, 2014; Teles et al., 2014). Depression was found to be an independent predictor of prolonged hospital stay, morbidity, and mortality in ESRD patients (Farrokhi et al., 2014; Hedayati et al., 2008) and of nonadherence to treatment in patients on maintenance dialysis (Cukor, Rosenthal, Jindal, Brown, & Kimmel, 2009).

The etiology of depression in ESRD patients is suggested to be associated with the elevated levels of pro-inflammatory cytokines, particularly tumor necrosis alpha and interleukin IL-6, which might be linked to cardiovascular side effects speeding the progression of the disease and the initiation of dialysis at a higher estimated glomerular filtration rate (eGFR) (Chilcot et al., 2008; Farrokhi et al., 2014; Kimmel, Emont, Newmann, Danko, & Moss, 2003; Sonikian et al., 2010; Taraz, Taraz, & Dashti-Khavidaki, 2015; Tsai et al., 2012).

Anxiety was another common symptom observed among ESRD patients undergoing dialysis treatment, with a marked association with decreased QOL (Cukor, Ver Halen, & Fruchter, 2013; Kring & Crane, 2009; Macaron et al., 2014; Wang & Chen, 2012). A review of 55 research studies by Murtagh, Addington-Hall, and Higginson (2007) documented prevalence of anxiety symptoms in patients with ESRD between 12% and 52%. After 1 year, Cukor et al. (2008) reported a prevalence of 45.7%. However, data are still infrequent about the rates of anxiety in HD and PD and the impact of diagnosing it is still less studied among renal patients (Cukor et al., 2008; Kimmel, Cohen, Peterson, & Cukor, 2006; Turkistani et al., 2014; Wang & Chen, 2012).

Studies on depression comorbid with anxiety in the hemodialysis population were also rare, especially the ones examining their association with quality of life (Cukor et al., 2013; Preljevic et al., 2013). Preljevic et al. (2013) reported that 22% of their sample suffered from a current depressive disorder, 17% suffered from a current anxiety disorder, and 8.3% had depression with a comorbid anxiety disorder. Preljevic et al. (2013) found that both anxiety and depression were associated with diminished HRQOL, which in turn is also associated with mortality. Thus, both depression and anxiety disorders need to be addressed when treating dialysis patients (Preljevic et al., 2013).

Usually dialysis nurses and physicians fail to recognize symptoms of anxiety and depression and thus these problems remain undiagnosed (Feroze et al., 2010). Moreover, diagnosed ESRD patients were found to be undertreated (Cukor et al., 2007; Teles et al., 2014), possibly because physicians and other staff accept these disorders as part of a dialysis patient's experience with ESRD (Cukor et al., 2007). This situation puts hemodialysis patients at risk for further morbidity and reduced quality of life. The healthcare team in the dialysis unit should be able to identify high-risk patients in order to refer them to a specialist for formal assessment (Ma & Li, 2016).

In conclusion, it is essential to identify correctly the psychopathological state of dialysis patients so that appropriate treatment can be started (Cukor et al., 2008). Not treating these symptoms is a costly burden with negative impact at the physical and psychological levels (Chilcot et al., 2008). Feroze et al. (2010) supported this idea by stating that “a team approach that includes psychologists, psychiatrists, or social workers is generally needed in order to identify, comprehensively diagnose, and treat these illnesses” (p. 176). The current study is a first step in examining the problem of anxiety and depression among hemodialysis patients in Lebanon.

1.1. Study aims

The aims of the current study were to:

1. Determine the prevalence of depression and anxiety in the ESRD patients undergoing hemodialysis at a major tertiary center in Lebanon;
2. Examine associations between anxiety and select demographic and clinical variables;
3. Examine associations between depression and select demographic and clinical variables.

2. Methods

2.1. Design and sample

This study used a cross sectional descriptive design and was conducted in a major tertiary referral center that admits patients from all over Lebanon. Ninety patients who were currently receiving hemodialysis were targeted in the dialysis unit, using convenience sampling. All consecutive patients who fit the study eligibility criteria were recruited between March 21 and April 19, 2017. Inclusion criteria were: age above 18 years, Lebanese citizenship, diagnosis of end stage renal disease treated with chronic hemodialysis (i.e. at least one-month duration), and ability to understand English or Arabic. Exclusion criteria included: major hearing impairments, dementia or any other mental impairment that might hinder the patients' ability to answer the questions, diagnosis with acute renal failure undergoing temporary dialysis emergency dialysis cases. Of the 90 patients currently on hemodialysis, one had mental impairment, another was not Lebanese and three started dialysis treatment less than one month ago; thus 85 patients were eligible for inclusion in the study. Out of the 85 eligible patients who were approached, 2 refused participation in the study, leading to a final sample size of 83 patients; response rate 97.65%.

2.2. Measures

The gold standard for diagnosing psychiatric disorders remains the Structured Clinical Interview for DSM disorders (SCID), which is administered by an experienced psychiatrist. Nevertheless, in chronic medical diseases, brief screening tools are used in clinical practice and based on cut off scores patients are referred to mental health professionals for definitive diagnosis and treatment. In a study done by Preljevic et al. (2012), the Beck Depression Inventory (BDI), Hospital Anxiety and Depression Scale (HADS-D), and the Cognitive Depression Index (to a lesser degree), have shown acceptable performances as screening instruments for depression in dialysis patients. Also, HADS-A, which is the other part of the HADS, was found to be an acceptable tool for anxiety in dialysis patients. This instrument was translated into Arabic, French, German, Dutch, Hebrew, Italian, Swedish and Spanish. The Arabic version was found to be reliable and valid in Saudi Arabia and in the United Arab Emirates with a Cronbach alpha of 0.73 for HADS-A and 0.77 for HADS-D (Al Aseri et al., 2015; El-Rufaie & Absood, 1987; El-Rufaie & Absood, 1995; Terkawi et al., 2017).

Therefore, the HADS (Zigmond & Snaith, 1983) was used in this