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Research Article

Quality of Life and Risk of Depression in Patients with End-Stage Renal Disease from a Second Level Hospital in Tijuana, Mexico

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Abstract

Background: Depression is the most common psychiatric problem among patients with End-Stage Renal Disease (ESRD) who receives Hemodialysis (HD); however, it is an underdiagnosed disease and is associated with decreased quality of life, increased risk of death, hospitalization and treatment abandonment.

Aim: The purpose of this study is to identify the relationship between quality of life and risk of depression in patients with End-Stage Renal Disease of the Hemodialysis department of General Regional Hospital #1 at Tijuana, Mexico.

Design and Setting: Analytic cross-sectional study.

Methods: Analytical cross-sectional study in 72 ESRD patients receiving HD. The Depression Screening Scale (CES-D) and the Quality of Life questionnaire for patients with kidney disease (KDQOL-36) were applied. The quantitative variables were expressed as mean and standard deviation; qualitative variables with frequencies and percentages. The Kolmogorov-Smirnov test was used to determine the distribution of the data. The comparative analysis of the variables was carried out with the Student T test for independent samples and the Mann-Whitney U test, with 95% confidence intervals; $p < 0.05$ was considered significant.

Results: The prevalence of risk for depression was 50%. There is a significant difference when comparing the quality of life scores of the group of patients at risk and without risk of depression, it is seen that those at risk have lower scores in all dimensions of quality of life ($p = 0.001$).

Conclusion: The quality of life in patients with ESRD is lower in those at risk of depression. The intervention of a multidisciplinary team and the systematic use of instruments to assess quality of life and screening for depression can help medical personnel to identify patients who require diagnostic confirmation in a timely manner.

Keywords: Depression; End-Stage Renal Disease; Quality of life

Introduction

Depression is the most common psychiatric problem among patients with End-Stage Renal Disease (ESRD) receiving Hemodialysis (HD). The relationship between both diseases is direct, since physical problems can exacerbate depression symptoms and depression can negatively affect the course of physical pathology [1]. The gold standard for establishing the diagnosis of depression is the structured clinical interview, however, several studies have validated self-administered questionnaires as screening tools for the detection of depressive symptoms in patients with ESRD, including the CES-D Scale (Center for Epidemiologic Studies Depression Scale), it is an instrument that identifies high levels of depressive symptoms in people without a clinical diagnosis [2].

High scores on screening instruments indicating symptoms of depression are significantly associated with an increased risk of death, hospitalization and abandonment of renal replacement therapy [3-4]. The prevalence of depression among ESRD patients receiving dialysis is 39% when assessed by screening instruments, and 23% when assessed by clinical interview [5]. Health-related quality of life is a multidimensional index of patient well-being and functioning, which is a more critical concern for HD patients than survival [6]. It is considered a quality indicator and a fundamental axis for decision-making; it is directly related to morbidity and mortality [7]. The "Kidney Disease Quality of life" questionnaire (KDQOL), has a generic component and a specific component for patients with kidney disease, it is one of the tools most used internationally in multicenter studies. The "Kidney Disease Quality of Life-36 items" (KDQOL-36™), is an abbreviated version, which reduces the interview time and improves its acceptance [8].

Assessing quality of life means knowing the impact of a disease and its treatment on the perception of each patient. Every disease has a psychic and somatic impact for the individuals who suffers it and

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Table 1: Quality of life (KDQOL-36™) and risk of depression (CES-D) in patients with End-Stage Renal Disease on Hemodialysis.

		Descriptive statistics				T-test to compare independent samples				
		mean	*SD*	*min*	*max*	t	*p*	Mean differences	95% CI	
									min	max
Symptoms/problems	DR	52.08	11.98	33.33	87.5	-6.85	0.001	-18.28	-23.61	-12.96
	NDR	70.37	10.64	45.83	91.67					
Effects of kidney disease	DR	28.64	13.37	6.25	68.75	-5.39	0.001	-16.32	-22.35	-10.28
	NDR	44.96	12.28	21.88	78.13					
	NDR	45.63	9.5	29.4	62.6					

DR: Depression Risk; NDR: Non-Depression Risk; SD: Standard Deviation; min: Minimum; max: Maximum; p= t student; CI= Confident Interval.

repercussions for the family members; one of the first consequences of any disease is the effect on quality of life. Therefore, the main objective of our research was to identify the relationship between quality of life and risk of depression in patients with End-Stage Renal Disease of the Hemodialysis department of General Regional Hospital #1 at Tijuana, Mexico.

Material and Methods

Study Design and Population

An analytical cross-sectional study was carried out in the hemodialysis department of General Regional Hospital #1 in Tijuana, Baja California, Mexico, among the months of August and November 2019. Patients with the following characteristics were included: ≥ 18 years of age, diagnosis of ESRD (glomerular filtration rate ≤ 15 ml/min/1.73 m^2) with at least 3 months of replacement therapy before the start of the study and those who signed the informed consent. Patients with diagnosis of acute renal failure, renal treatment different to hemodialysis, history of psychiatric illness and an altered state of consciousness (severe cognitive impairment) were excluded and the ones with incomplete information were eliminated.

Variables

The collection of sociodemographic variables was made with a standardized data form, including sex, age, marital status and occupation. For the risk of depression, the CES-D scale of 20 items was used, with a cut-off point of 18 points (Cronbach's alpha 0.8), and to assess health-related quality of life, the KDQOL-36 short version questionnaire was used (Cronbach's alpha 0.87).

Statistical analysis

Descriptive and inferential statistics were used; for quantitative variables we apply mean and standard deviation, in qualitative variables, frequencies and percentages. For the normality of the data, the Kolmogorov-Smirnov test was applied. The comparative analysis between the quantitative variables with normal distribution was performed with the Student-t test and the Mann-Whitney U test for abnormal distribution. The results were evaluated with a 95% confidence interval, considering p <0.05 as significant. For data analysis, the statistical program IBM SPSS, version 21 in Spanish was used.

Results

The initial population was 89 patients, 17 were excluded; 12 were hospitalized and 5 refused to participate in the study. The final sample was 72 patients. 60% (n= 43) were women and 40% (n= 29) men, of which 29% (n= 21) were 18 years to 38 years old, 44% (n= 32) 39-59 years, 25% (n= 18) 60-80 years and 2% (n= 1) older than 81 years. The mean age of the sample was 48 years, with an age range of 19 years to 89 years. The most prevalent marital status was married with 51% (n= 37), followed by single 28% (n= 20), concubinage 10% (n= 7), widowed 6% (n= 4) and divorced 6% (n= 4). Most of the participants were unemployed 46% (n= 33), 36% retired (n= 26), 15% employed (n= 11) and 3% students (n= 2).

Table 2: Mann Whitney U test in patients at risk and without risk of depression in the five dimensions of quality of life (KDQOL-36™).

Mann-Whitney U test for independent samples			
	Burden of kidney disease	PCS	MCS
Mann-Whitney U	303.5	441.5	150.5
Z	-3.924	-2.326	-5.603
P value	0.001	0.02	0.001

PCS: Summary of the Physical Component; MCS: Summary of the Mental Component; p= Mann-Whitney U.

In the depression risk screening scale (CES-D), it was found that 50% (n= 36) are at risk of depression. In order to know the Health-Related Quality of Life (HRQL), the results of the five dimensions of the "Kidney Disease Quality Of life-36" (KDQOL-36), represented in a score from 0 to 100, were divided into quartiles and percentiles for description. 75% of the sample obtained a score ≤ 72.92/100 points in the dimension of "Symptoms/Problems"; in "Effects of Renal Disease" ≤ 46.09/100 points; "Burden of Renal Disease" ≤ 31.25/100 points; "Summary of the Physical Component (PCS)" ≤ 38.69/100 points and "Summary of the Mental Component (MCS)" ≤ 44.03/100 points; these results show a low perception of HRQL in the last four dimensions with the lowest score in "Burden of Renal Disease" dimension.

Table 1 shows the comparative analysis of the variables quality of life and risk of depression, using the student t test for independent samples in those with normal distribution, we found that in the dimension of quality of life "Symptoms/Problems" there is a difference between the mean of the group at risk of depression (52.08) and the mean of the group without risk (70.37), a statistically significant result was found [t= -6.85; -18.28 95% CI -23.61 to -12.96, p= 0.001]. Similarly, in the dimension "Effects of Renal Disease" a significant difference is observed in the mean of the group with risk of depression (28.64) and the group without risk of depression (44.96) [t = -5.39; -16.32 95% CI -22.35 to -10.80, p= 0.001], it was observed that the highest means in quality of life are found in the group of patients without risk of depression. For the other dimensions, "Burden of

Renal Disease", "PCS" and "MCS", Mann Whitney's U was used for independent samples due to abnormal distribution, statistically significant differences were found between the medians of the risk groups, with p= 0.001, p= 0.020 and p= 0.001, respectively, therefore, in the group of patients with risk of depression, the quality of life scores were significantly lower (Table 2).

Discussion

In Northwest Mexico, Villagomez et al. [9], conducted a cross-sectional study in a sample of 225 patients, reported a global prevalence of depression in patients with ESRD on HD of 47%; similar results to Murillo-Zamora et al. [10]; both studies agree with the information found in our investigation. The findings in our research agree with Esquivel-Molina et al, who studied the quality of life and depression in patients with ESRD in HD, who found that the quality of life in this population is less than 50% in the physical and mental categories; depression coexisted in 54% of patients [11].

Palmer et al. [5], reported that the prevalence of depression among ESRD patients receiving dialysis was 39% [5], discordant with the results of our study since the prevalence of depression in our sample was higher (50%). In 2015, Barros-Higgins et al. [12] conducted a cross-sectional study on HRQL in 80 patients with chronic kidney disease, they found low averages in the dimensions "Burden of Kidney Disease" (40.3), "Physical Health" (33.4) and "Mental Health "(43.5), similar results to our study in the dimensions of "Physical Health"(33.63) and "Mental Health" (39.84), however it differs in the dimension "Burden of Renal Disease", since in our study was significantly lower (21.35), this can be explained because the subscale evaluates the perceptions of frustration and interference of the disease in the life of each individual.

García-Llana et al. [13], measured the effects of depression, anxiety, stress and adherence to treatment on HRQL in dialysis patients. In their systematic review they found 16 studies that evaluate the effect of depression on HRQL, in all 16 samples, the prevalence of depression is in a range between 26% and 68%, parallel to our results, where we obtained a 50% risk of depression with the CES-D screening instrument. Depression decreases HRQL in both the physical and mental dimensions, therefore, depression seems to act as a risk variable for HRQL, as in our results, where the subscales "Symptoms/Problems", "Effects of Kidney Disease", "Burden of Kidney Disease", "PCS "and" MCS" of the KDQOL-36, have lower scores in patients at risk of depression. Untas et al. [14], carried out a cohort study in 32,332 dialysis patients where they confirmed that depression is conceptualized as a risk factor for low physical and mental HRQL (p = 0.001).

The increase in the incidence of ESRD secondary to diabetic nephropathy (the most frequent kidney disease in Mexico), together with the increase in the prevalence of depression, are positioned as a public health problem in our country. Currently, the impact that depression generates in this population is widely known, associated with functional deterioration, less compliance with treatment, poor quality of life, greater comorbidity, greater risk of hospitalization and mortality. One strategy to prevent these events is to apply screening tools for depression through two strategies, the first with a conservative approach, is to evaluate only patients with signs of depression (social isolation, changes in mood or physical functioning) and the second, a more aggressive strategy, is to periodically screen all new patients with chronic kidney disease or ESRD every 6 months to 12 months.

Conclusion

Patients with positive screening for depression should be evaluated by a qualified professional to confirm the diagnosis by clinical interview and subsequently receive timely treatment, either through cognitive behavioral therapy or pharmacological management, depending on the severity. Because psychosocial support and adherence to treatment are associated with a reduction in mortality in chronic hemodialysis patients, group or individual psychotherapy can be an important component of treatment. In the same way, ESRD should be part of the daily practice of health personnel, emphasizing the importance of evaluating the impact that the disease has on the quality of life of patients; the KDQOL-36 test is a valid and reliable tool to be applied regularly in the population. The systematic use of these instruments can help medical personnel to identify patients who require special attention to improve their quality of life, integrating the medical care of the patient with nephropathy.

Ethics

The study was approved by the Local Committee for Health Research (CLIES) and the Local Committee for Research Ethics (CLEI), with institutional registration number R-2019-204-023 and the authorization of the patients with the signature of informed consent. The research was carried out under the General Health Law on Health Research, the Declaration of Helsinki and the Bioethical Principles.

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