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Quality of Life in Chronic Hemodialysis Patients

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Abstract		Original Research Article

***Background and objectives*:** This study was conducted to measure the level of health-related quality of life (HRQOL) and to determine the variables associated with poor scores. ***Methods*:** Cross-sectional cohort of 100 maintenance hemodialysis patients in the Marrakesh area. Quality of life was assessed through the KDQOL SF-36 tool. Univariate and multivariate analyses were performed to determine the variables associated with the quality of life scores. ***Results*:** The mean scores obtained in the KDQOL-SF 36 were 39,77±10,41 for physical component summary (PCS) ; 45,01±13,11 for mental component summary (MCS) ; 46,91±26,69 for symptoms and problems score ; 52,7±28,76 for burden of kidney disease score and 63,86±29,61 for effects of kidney disease on daily life score. PCS score was independently associated with age of 60 years or more (OR=6,294 [1,281-30,919], *p=0,024*) and educational level (OR=0,328 [0,124-0,869], *p=0,025*). ***Conclusion*:** Many factors impact quality of life of hemodialysis patients. Effective assessment of HRQOL allows adequate interventions to improve patient satisfaction and to reduce morbidity and mortality.
Keywords: Hemodialysis, quality of life, KDQOL-SF 36.

INTRODUCTION

Alteration of health-related quality of life (HRQOL) in patients under dialysis is well known [1].

As more and more people are requiring renal replacement therapy, a multidimensional approach is necessary to assess both the functional status of the patients and the perception of their own health. HRQOL represents the physical, psychological and social domains of health that are influenced by a person's experience, beliefs, expectations and perceptions [2].

Physical, mental and social well-being are important components of therapeutic management of dialysis patients due to the number and complexity of stressors faced by these patients.

It is therefore important to assess the impact of interventions by measuring HRQOL in order to improve patient satisfaction and outcome [3].

This global concept of health encouraged the use of HRQOL tools. Optimal HRQOL measurement instruments evaluate all aspects of the impact of the disease and its treatment on the physical, emotional, social and mental dimensions of an individual [4].

Multiple different instruments have been developed, most of them use a psychometric approach which is based on the item measure theory [5].

The Kidney Disease Quality of Life (KDQOL) instrument was designed for use in hemodialysis patients. It uses the Medical Outcomes Study Short- Form 36 (also abbreviated as SF-36) as its core and represents a reliable and valid global generic assessment tool in hemodialysis patients.

The purpose of our study is to evaluate HRQOL in chronic hemodialysis patients based on a Moroccan translated version of KDQOL-SF36 [6].

PATIENTS & METHODS
Population

We conducted a multicenter cross-sectional study between March and May 2019, recruiting all adult patients aged more than 18 years and undrgoing hemodialysis for more than 3 months in two different urban dialysis centers in Marrakesh, Morocco.

Exclusion criteria were: inability to answer the questions, previous diagnosis of psychotic disorders, refusal to participate to the study and a recent history of hospitalization during the last 3 months.

We obtained demographic (age, gender, amount of education, profession, social conditions, tobacco use and drinking habits) and medical data (initial kidney disease, co-morbid conditions, number of years of dialysis and number of hospitalizations during the last year). Dialysis parameters (dialysis dose, dry weight, interdialytic weight gain and vascular access) and biological parameters (serum levels of hemoglobin, C-reactive protein, albumin, protids, triglycerids,

cholesterol, parathyroid hormone (PTH), calcium, phosphorus and fasting blood glucose) were recorded at the moment of their inclusion in the study.

HRQOL was measured in all patients through a validated translation version of the KDQOL-SF 36 test in Moroccan dialect [6].

Statistical Analysis

Statistical analysis was performed using SPSS, version 22. Quantitative variables were reported as mean±SD or median (min-max), and quantitative variables as percentage. The level of significance was set at p<0,05. The KDQOL-SF 36 scores were calculated based on the recommendations and tables provided by the KDQOL Working Group [7]. Patients with scores closer to 100 in the KDQOL-SF 36 have higher levels of quality of life.

RESULTS

A total of 100 patients were screened for the study. The meanage of the participants was 49,71±15,20 years, and 53% were male. Most patients had elementary (19%) and secondary (15%) education; 70% lived with their spouses and/or children, 54% were no longer working; and 35% benefited from healthcare for low-income while 63% had health insurance.

Demographic, clinical and laboratory characteristics of the patients are presented in Table-1.

The mean scores obtained in the KDQOL-SF 36 were 39,77±10,41 for physical component summary (PCS) ; 45, 01±13,11 for mental component summary (MCS) ; 46,91±26,69 for symptoms and problems score ; 52,7±28,76 for burden of kidney disease score and 63,86±29,61 for effects of kidney disease on daily life score. Table 2 shows the mean scores in each category (Table-2).

A PCS score of < 51 was found in 59,6% of patients, a MCS score < 43 was found in 62,6% of patients and 38,4% of patients had both PCS and MCS scores under 51 and 43 respectively.

The scores were analyzed against age, sex, social conditions, education level, health care insurance, comorbidities (arterial hypertension, cardiovascular disease, diabetes mellitus, anemia and hyperparathyroidism), number of years of dialysis, dialysis dose and number of days of hospitalization.

The evaluation of KDQOL-SF 36 scale scores by demographic and clinical factors showed that there was no significant association of all quality of life dimensions with sex, marital status and the presence of diabetes and hypertension.

Patients aged 60 or more had poorer PCS score (p=0,001). Patients' educational level had a significant influence on PCS score (p=0,006) but not on MCS score. To be employed tended to be associated with better MCS score (p=0,05). Dialysis dose was positively associated with PCS score (p=0,002) and a PTH rate of more than 300pg/ml was negatively associated with PCS score (p=0,023).

The presence of cardiovascular disease was significantly associated with worse score of symptoms/problems score (p=0,005) and MCS score (p=0,005).

In multivariate analysis, PCS score was independently associated with age of 60 years or more (OR=6,294 [1,281-30,919], p=0,024) and educational level (OR=0,328 [0,124-0,869], p=0,025).

Table-1: Characteristics of study subjects (N= 100)

Characteristics	Value
Age (mean value) years old	49,71
Males (%)	53
Sex ratio	0,9
Education level (%) :	
Illiterate	28
Elementary	19
Middle school	15
High school	20
Graduate studies	18
Employment status (%) :	
Unemployed	54
Casual employment	10
Official	14
Liberal profession	10
Retired	12
Marital status (%) :	
Maried	70
Causal nephropathy (%) :	
Glomerulonephritis	12
Hypertensive nephropathy	25
Interstitial nephropathy	3
Uropathies	3
Indetermined	57
Comorbities (%) :	
Arterial hypertension	73
Diabetes	12
Cardiovascular disease	19
Arteriopathies	5
Stroke	4
Neoplasia	2
Autoimmune diseases	3
Alcohol and drug addiction	4
Dialysis parameters :	
Dialysis duration (mean) years	8,34
Dialysis dose (mean KT/V)	1,39
BMI (Kg/m^2)	23,62
Biological data (mean values):	
Hemoglobin (g/dl)	10,82
Parathormon level (pg/l)	1143,29
Calcemia (mg/l)	88,71
Phosphoremia (mg/l)	52,14
Albuminemia (g/l)	42,91
LDL-cholesterol (g/l)	1,71
HDL-cholesterol (g/l)	0,78
Triglycerids (g/l)	1,64

Table-2: Mean KDQOL SF-36 QOL scores

Parameters	Mean scores
General health	
General health perceptions	42,5
Health- related limitations of activities :	
- Moderate activities	68,5
- Climbing several flights of stairs	68,68
Role limitations caused by physical problems :	
- Incompletly accomplished work	48
- Limited types of activities	18
Role limitations caused by emotional problems :	
- Incompletly accomplished work	60
- Limited types of activities	46
Pain interference with normal work	48
Well-being :	
- Feeling calm and peaceful	62
- A lot of energy	62
- Feeling down-hearted and blue	57
Physical health or emotional problems interference with social activities	67
Kidney disease	
Kidney disease interference with patient's life	41
Time spent by the patient to deal with kidney disease	37
Frustration caused by kidney disease	56
Feeling as a burden on patient's family	78
Symptoms and problems	
Sorness in muscles	35
Chest pain	33
Cramps	36
Itchy skin	32
Dry skin	61
Dyspnea	28
Faintness or dizziness	30
Luck of appetite	59
Tiredness	41
Numbness in hands or feet	41
Nausea	38
Problems with vascular access	67
Kidney disease consequences on daily life	
Fluid restriction	65
Dietary restriction	83
Ability to work around the house	47
Dependency on doctors and other medical staff	46
Stress or worries caused by kidney disease	62
Sex life	66
Personal appearance	71
	63

DISCUSSION & CONCLUSION

Little data is available concerning the quality of life (QOL) of Moroccan hemodialysis patients.

In this study, we measured the HRQOL of dialysis patients using the KDQOL-SF 36 tool. Compared to QOL results from other studies, our patients showed similar PCS, MCS and effects of kidney disease scores.

About 38% of hemodialysis patients in our study had both PCS and MCS scores lower than the critical scores, as established by Lowie et al [8] who showed that a PCS score < 43 and a MCS score < 51 were significantly associated with increased risk of death and hospitalization. In the other domains, we noted lower scores in symptom/problem list and higher scores in burden of kidney disease compared to other studies [9-11].

In our study, MCS scores of our patients were higher than PCS scores similarly to several other studies [12, 13]. This can be explained by dynamic adaptation of patients' expectations to their chronic illness [14, 15].

Early studies indicated that advanced age has a negative impact on the HRQOL [16-18].

In our study, subjects aged of more than 60 years had worse PCS score but similar MCS scores in comparaison with younger patients. In fact, elderly subjects tend to accept their limitations better than the younger ones [19-21].

Some subjects experience an improvement in HRQOL after the initiation of dialysis but it can be dependant on the coexistence of comorbidities, the quality of dialysis and the clinical complications of chronic kidney disease such as anemia [22, 23] and nutrition state [24].

In our study, cardiovascular disease negatively impacted symptoms/problems and MCS scores in univariate analysis. PCS score correlated positively with dialysis dose and negatively with a parathormone (PTH) rate than 300 pg/l. Despite that 38% of our patients had PCS and MCS scores lower than the critical scores associated with higher mortality [8], we reported high score in burden of kidney disease. This can be explained by sociocultural factors characterized by strong patient's family support in Moroccan people. The majority of our patients were living with their families. Therefore, families should be encouraged to actively participate in the health care of the hemodialysis patients [25] in order to enhance compliance to treatment as reported by oliviera's et al., [25] through the number of hemodialysis sessions missed by the patient.

Higher socioeconomic, education and employement levels generally are associated with a greater QOL [26, 27].

In our study, unemployed subjects tended to have lower PCS scores and in multivariate analysis, higher educational level was associated with better physical and functional status.

It is well known that assessing the HRQOL of dialysis patients reflects not only patients' satisfaction, but it is independently correlated with morbidity and mortality of this population [28].

This implies that high treatment satisfaction can improve patients' compliance and control disease more effectively. Therefore, patients with lowest PCS and MCS scores in our study might benefit from rehabilitation programmes in order to reduce their morbidity and mortality risks.

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