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Quality of life of patients with terminal chronic renal failure on hemodialysis: about 289 patients in a wilaya of southern Algeria

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Abstract:

Prerequisites: Chronic hemodialysis imposes various limitations on the patient, with serious consequences on his life, felt as a social and professional handicap that can affect his quality of life. However, Algerian studies on this subject remain very rare.

Aim : Describe the quality of life of terminal chronic hemodialysis patients and contribute to the knowledge of the main factors correlated with an impaired quality of life in them. in the Wilaya of Laghouat

Method: We conducted, during the month of July 2021 to July 22, a cross-sectional study of 289 patients on chronic hemodialysis at the four hemodialysis centers of the Wilaya of Laghouat. The measurement of quality of life was carried out by self-administration and oral administration of the questionnaires adapted and validated in French (SF36 and KDQoL). Other data already collected as part of the study were necessary to meet the objectives: sociodemographic data, as well as clinical data, replacement treatment and at the time of the survey, available in patient files.

Results : The overall mean score of the KDQOL-SF36 was 51.18 ± 7.98; that of the SF-36 was 39.34 ± 10.55 with an alteration of the quality of life in 90% of hemodialysis patients, referring to the threshold value of 66.7 of Lean et al. The analysis of the scores of the 8 dimensions of the SF-36 scale showed that all the dimensions of this scale were altered. A bivariate analysis, three variables (Comorbidity, time of hemodialysis session, depression) are significantly associated with all the Dimensions (physical, mental, renal) of the QOL.

Conclusion : Our study highlights the importance of systematically assessing the quality of life in chronic hemodialysis patients, in whom it is very frequently impaired. It also shows the importance of action on modifiable factors correlated with impaired quality of life, including the spread of depression, management of comorbidity and the creation of new hemodialysis centers.

Keywords : Quality of life, IRCT, hemodialysis, KDQoLSF36

Context:

Terminal chronic insufficiency has a severe impact on the lives of patients: limitations of activities, restrictions of social participation, constraints induced by the need for substitution treatment with multi- weekly recourse to the health care system. It also represents a significant burden for society due to the high cost of these treatments and the growing number of patients affected. Indeed, the number of elderly people is increasing and it is now possible to offer substitution treatment to increasingly elderly people.

It is currently estimated that 6 million Algerians suffer from CKD, of which 1.5 million suffer from IRC requiring the initiation of replacement treatment. In 2017, in the Wilaya of Laghouat, 99.9% of IRCTs are treated by hemodialysis, i.e. a prevalence of 381 pmh which continued to increase.

The hemodialysis patient faces several challenges; social, relational, family, financial, and psychological distress, the most significant of which is depression

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High prevalence of depression in hemodialysis patients, Which is underestimated, unrecognized and undiagnosed, coexistence of depression in hemodialysis patients, Its severe nature pushes the patient to commit suicide, Increases the potential for mortality, it is an additional burden for hemodialysis patients, which reduces their QoL

In Algeria, these problems are still little studied, in hemodialysis patients, in current medical practice due to an underestimation, or even a lack of knowledge, a hesitation to approach them with the patient, the difficulty of their evaluation in relation to the delimitation of the concept of QoL. In our country there is a lack of real data in this area, we know little about the QoL of our patients suffering from terminal chronic renal failure under hemodialysis.

Due to the chronic and irreversible nature of renal failure, the study of quality of life is of great importance. Many authors are interested in the quality of life of patients with terminal chronic renal failure. Comparison with controls shows that the quality of life of patients with renal failure is impaired, particularly in its physical and general component, unlike the mental component [1]. The DOPPS (Dialysis Outcomes and Practice Patterns study) has followed, since 1996, in seven countries and prospectively patients treated by hemodialysis in order to determine the treatment practices associated with good health outcomes for patients [2]. Another objective was to measure the quality of life in these patients in order to determine the levels of quality of life and the factors associated with variations in these levels. Thus, quality of life predicts the subsequent occurrence of adverse events such as death or hospitalization: the lower the quality of life, the higher the risk of occurrence of these events [3]. This association has also been found by others [4,5]. Similarly, biological and clinical characteristics such as the presence of comorbidities, as well as therapeutic characteristics such as treatment modalities and medication intake are associated with quality of life [6,7,8,9]

Improving the quality of life of patients with renal failure is therefore a major issue in modern societies. The French state has included it as one of the hundred objectives of the 2004 public health law [10] and has planned the implementation of a specific "quality of life" plan for all chronic diseases [11]. However, the objectives of our study were to assess the QoL of patients with chronic renal failure on hemodialysis and to identify factors correlated with impaired QoL in them.

Methods:

ur study was cross-sectional, in the form of a survey that was carried out during the period from July 2021 to July 2022, among renal failure patients treated in periodic chronic hemodialysis at four hemodialysis centers in the wilaya of Laghouat. The patients solicited had to be over 18 years old and have been on hemodialysis for more than 6 months. Out of 292 patients meeting the required criteria, 2 refused to participate in the study, which then involved 289 cases.

We established an epidemiological form to collect sociodemographic, clinical and . QoL was assessed using the Kidney Disease Quality Of Life Short-Form (KDQOL-SF36). This is a specific self-questionnaire developed by the team of Hays et al. in 1994 [12,13] and then translated from its original form in English to Arabic. It includes a total of 79 items and combines a generic module, the Short-Form (SF-36) composed of 36 questions grouped into eight dimensions and a specific module adapted to renal pathology comprising 43 items divided into eleven dimensions. The SF-36 version that we used has not been validated in Algeria. The answers to the questions are rated from 0 to 100. A mean score is calculated for each dimension (SMD) to identify the most affected dimensions and thus draw up a profile for each patient. In addition, a global mean score (GMS) is obtained by calculating the average of the ratings; the higher this score, the better the QoL. Furthermore, in order to better interpret our results, we chose, with regard to the GMS of the SF-36 (first module of the KDQOL-SF36), the threshold value of 66.7 proposed by Lean et al. [14] below which the QoL is considered impaired. For the same purpose, we opted on the one hand for a standardization of the initial

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SMDs of the SF-36 to a mean of 50 and a standard deviation of 10 in accordance with the general population study "USA 98" and, on the other hand, for a distribution of the eight dimensions into two main components, a physical component (CPH) and a psychological component (CPS) [15-16] Statistical analyses were performed using SPSS20 software. The results of the descriptive study were expressed as frequencies, means and standard deviations.

In order to determine the factors associated with impaired QoL in our study population, the SMDs of the KDQOL-SF36 were subjected to a bivariate analysis by crossing with the sociodemographic, clinical and , variables, using each time, for statistical comparisons, the Chi-square test (χ^2). The significance threshold retained was 5%.

Adm Introduction of the questionnaire: KDQOL-SF36

After consent from the participants, two methods of administering the questionnaire are possible:

Self-administration of the questionnaire during the hemodialysis session: when patients are able to read the questionnaire alone.

Oral administration during a hemodialysis session: most of our patients are unable to read and complete the questionnaire (illiterate or low level of education, blindness) The interview was then conducted by an interviewer trained to read the questionnaire and aware of the rules imposed by the KDQOL concerning the interview procedures

The interview was conducted by the investigator during the dialysis session. The conditions to be respected by the investigator are as follows:

He must read the items and the different answers proposed in their entirety, even if he is interrupted by the patient.

In no case should it influence the patient's response. If the patient gives an answer that does not correspond to the proposals in the questionnaire, the investigator must reread the different proposals.

Results:

Descriptive study (demographic and clinical characteristics)

289 met the inclusion criteria; Among them there were 57.1% men and 42.9% women which corresponds to a sex ratio of 1.33 with a mean age of 52.38 ± 17.13 years, with extremes ranging from 18 to 91 years, the mean duration of hemodialysis was 8 years and 2 months and 4 days, 56% had an average standard of living, 58.1% had completed their primary education, 56.1% were married, neo less kidney disease causes a limitation in the exercise of activities, most of the patients 90% were inactive, most of them or 74.7%, had followed hemodialysis treatment for more than 5 years, the majority or 69.6% had a distance of less than 50 km from the hemodialysis center to home, almost all 90% had benefited from social support and 58.1% lived in an urban environment , 46% had comorbidity such as diabetes and HBP distributed equally. In addition, the majority 58% had fistula as vascular access and, 92% did their sessions regularly and 3 times a week and 56.7% had frequent dialytic incidents. The prevalence of EDC was 76.5% in the hemodialysis population of the wilaya of Laghouat, among them 48.8% had mild depression, 27.7% mild to moderate depression, 23.5% moderate to severe depression.

QoL measurement:

LThe overall mean KDQOL-SF36 scores of all patients ranged from 28.5 to 65.2 with a mean of 51.18 and a standard deviation of 7.98.

The distribution of mean scores by dimension of the KDQOL-SF 36 of hemodialysis patients is specified in Table 2. The rate of those who had an impaired QoL (score < 66.7) was 90%. Standardization of the initial SMDs of the SF-36 showed that all dimensions of the SF-36 were impaired with, in decreasing order:

mental health (28.5), limitation due to physical condition (29.3), vitality (29.4), physical functioning (31.3), limitation due to mental

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condition (36.6), physical pain (38.4), life and relationships with others (43.2) general health.

Tab.1 Distribution of mean scores by dimension of the KDQoL SF36 of patients in hemodialysis

SF36			
The dimensions of quality of life	**Number**	**Median**	**Average and standard deviation**
PF (Physical Operation)D1	289	25	31.3±8.4
RP (Limitations due to physical condition)D2	289	22	29.3±10.1
BP (Physical Pain)D3	289	32	38.4±8.8
GH (General Health)D4	289	40	47.2±10.3
VT (Vitality)D5	289	20	29.4±14.9
SF (Life and relationships with others)D6	289	30	43.2±16.5
MH (Mental Health)D7	289	24	28.5±6.3
RE (Limitations due to mental state)D8	289	31	36.6±8.9
Pcs (Physical Health Component)CPH	289	41	53.6±16.5
MCS (Mental Health Component)CPC	289	57	55.9±4.8
KDQoL			
(Burden of Kidney Disease)	289	67	65.2±2.6
Symptoms/Problems	289	62	62.1±0.8
Effect of kidney disease	289	62	61.8±2.0

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Analytical study:

L'Bivariate analysis showed a correlation between the occurrence of an alteration in the dimensions of QoL of all variables except the following: sex, family status, level of education, length of time on hemodialysis, the three variables retained were, according to the number of dimensions affected, in decreasing order: comorbidity, hours of hemodialysis session, depression score (linked to 5 dimensions), number of sessions, type of vascular access, disorder related to hemodialysis (linked to 3 dimensions), living environment, socio-economic level, professions, frequent dialysis incident (linked to 2 dimensions), marital status (linked to one dimension) table n°2

Discussion:

In our work, we used the KDQoL-SF36 which includes, in addition to the generic module that is the SF-36, a specific module adapted to renal pathology not yet validated in the Algerian population; which constitutes one of the limitations of our study. Another limitation is the threshold score from which we can estimate that a person has or does not have an alteration of QoL, also the population of our study is not representative of all hemodialysis patients in Algeria, since we limited ourselves to 4 hemodialysis centers.

The SMG of our study population for the KDQoL-SF36 (51.18) was close to that of the Tunisian studies of Nasr et al. (51.4) and Perneger et al (52.8).

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. Referring to the cut-off value of 66.7 of Lean et al., 90% of our patients had impaired QoL. Nasr et al. objectified a SMG of 51.4 ± 24.3 with impaired QoL in 65% of patients. Gataa et al noted impaired QoL in 75.2% of their patients with a SMG of 55.1 ± 11.7. Forty-five percent of our patients had a score below the cut-off value of 66.7.

We compared our results with those of studies that used the same scale to assess the QoL of hemodialysis patients (Table 3)

Table 3: Comparison of SF-36 SMDs from QOL studies

	D1	D2	D3	D4	D5	D6	D7	D8	CPH	CPS	SMG
Our series (285 hemodialysis patients)	31.3	29.3	38.4	47.2	29.4	43.2	36.6	28.5	53.6	55.9	51.18
Series of Zouari et al [17] (71 hemodialysis patients)	41.69	14.4	59.8	26.9	35.2	50.3	23.9	53	31.7	39	38.2
Series of Nasr et al [18] (168 hemodialysis patients)	50.7	40.7	55.3	29.5	39	71.2	68.5	65.5	44	58.5	51.4
Series of Gataa et al [19] (134 dialysis patients)	45.6	51.6	55.6	43.5	46.9	74	69.4	53.5	49.2	60.9	55.1
Series of Perneger et al [20] (83 dialysis patients)	53.7	38.5	58.3	44.4	43.1	66.8	51.4	66	48.7	56.8	52.8
Series of Md. Yusop et al [21] (90 hemodialysis patients) Series	61.6	30.3	66.9	43.3	50.8	66.8	49.3	63.7	39.6	45.0	54.1
of Mandoorah et al [22] (205 hemodialysis patients)	46.7	32.2	55.1	54.5	44.3	64.7	55.6	66.4	47	57	52

All dimensions of altered quality of life are correlated with the time of hemodialysis session This could be explained (table 2)

By the observation that the majority of patients who chose the 1st quarter (first connection) of dialysis lived in rural areas and lived further from the dialysis center, which can be explained by the notion of sleep deprivation which is until now the most possible explanation for this association, patients who live far away (rural area) get up early and take a long time to arrive at the center, they also wait longer to arrive at the center, they also wait for their session and arrive at their home, late and tired, which causes an alteration in their quality of life [23]

All dimensions of impaired quality of life are correlated with comorbidity (table 2)

The variable most consistently associated with QOL is the burden of comorbidity and multimorbidity. (Table 2) It is understandable that increasing the number of comorbidity (e.g. cardiovascular diseases, peripheral vascular diseases, hypertension and diabetes) negatively affects physical QOL [24] and may also affect QOL emotions [25]

Comorbidity with diabetes was, in our study, also correlated with the impairment of QoL, a result consistent with that of the study by Boini et al. [25] carried out on 3515 hemodialysis patients in 8 regions of France.

In this same context, Moreno et al. [26] and Khan et al. [27] found that the presence of comorbidity “high risk” especially diabetic increases the risk of hospitalization and mortality.

The coexistence of depression in hemodialysis patients, its severe nature pushes the patient to commit suicide, increases the potential for mortality and reduces their quality of life, it is an additional burden for hemodialysis patients. (table 2)

Conclusion:

Our study has shown that the quality of life in chronic hemodialysis patients is very impaired, underlines the interest of systematically evaluating them. Among the 13 variables strongly correlated with the impairment of QoL, 3 are correlated with the quality of life in all these dimensions. In particular: morbidities, and the time of the hemodialysis session, and depression, in this sense. it will be necessary to create other hemodialysis centers to allow patients not to move around the country and travel

long distance, ensuring quality management of comorbidities, which have a major impact on QoL, early onset of

depression, avenues of action for improving the quality of life of these patients.

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Table 2: Correlation between the studied variables and the SMD of the KDQoL-SF36 of our patients

	Medium of life	Socio-level economic	Sex	Support family	Status marital	level of study	occupation	Comorbidity	session hemodialysis	time of	Number of sessions	There	Disorders related to the hemodialysis	Seniority to hemodialysis	the approach vascular	incident dialytic frequent	Score of depression
score of the component of the physical health	0.025	<10-6	0.127	0.99	0.91	0.38	<10-6	<10-6	<10-6	0.003	0.030	0.001	0.373	<10-6	<10-6	<10-6	
score of the component of the mental health	0.054	0.057	0.409	0.394	0.671	0.368	0.426	0.001	0.021	0.387	0.469	0.335	0.189	0.194	0.177	0.003	
Burden of kidney disease	0.132	0.250	0.654	0.514	0.032	0.636	0.119	0.017	<10-6	0.011	0.556	0.013	0.298	0.002	0.121	0.003	
Symptoms problems	0.085	0.175	0.526	0.438	0.776	0.457	0.344	0.001	0.005	0.625	0.511	0.452	0.133	0.085	0.076	0.001	
Effect of kidney disease	0.006	<10-6	0.137	0.66	0.862	0.618	<10-6	<10-6	<10-6	0.006	0.020	0.004	0.254	<10-6	<10-6	<10-6	

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