

Clinical and Psychosocial Factors predicting Quality of Life in Hemodialysis Patients



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Background

- A number of patients with End-stage Renal Disease (ESRD) have significant impairment in quality of life. Most of previous studies focused on clinical factors, although this could be derived from psychosocial factor as well.
- The aim of the current study was to identify the possible predictors of quality of life in clinical and psychosocial factors in hemodialysis (HD) patients.

Method

- Study design:** single-center, cross-sectional study
- Study period:** Sep. 2013 ~ Oct. 2013
- Inclusion**
 - Hemodialysis patients of ESRD in single center (n=103)
 - Age ≥ 20
- Exclusion**
 - acute kidney injury
 - Duration of HD < 3 months
- Quality of life**
 - Euro quality of life questionnaire 5-dimensional classification (EQ-5D)
- Psychosocial factors**
 - Hospital anxiety and depression scale (HADS)
 - Multidimensional scale of perceived social support (MSPSS)
 - Montreal cognitive assessment (MCS)
 - Pittsburgh sleep quality index (PSQI)
- Clinical factors**
 - hemoglobin, vitamin D (25(OH)D, 1,25(OH)2D3), albumin, ferritin
 - Kt/V (a marker of dialysis adequacy)
 - normalized protein catabolic rate (nPCR)
 - bone mass index (BMI)
 - Duration of HD

Results

Table 1. Demographics of Patients with End-Stage Renal Disease on Hemodialysis(N=103)

Variables	Mean±SD or n (n of patients = 103)
Age, years	57.3±12.1
Male : Female (%)	56 (54.4) : 47 (45.6)
Height, cm	162.7±8.3
Body Weight, kg	58.7±10.2
BMI, kg/m ²	22.0±3.0
Duration of HD, months	35.7±36.0
Cause of CKD (%)	
DM	53 (49.5)
HTN	23 (21.5)
CGN	13 (12.1)
others	14 (16.9)

n: number of patients, BMI: body mass index, HD: hemodialysis, DM: diabetes mellitus, HTN: hypertension, CGN: chronic glomerulonephritis

Table 2. Psychosocial parameters of hemodialysis patients

Variables	Mean±SD, score (n of patients = 103)
EQ-5D	0.702±0.19
HADS_Anxiety	6.11±4.16
HADS_Depression	9.60±3.95
HADS_Total	15.72±6.88
MSPSS_Family	15.09±3.74
MSPSS_Friend	10.69±4.60
MSPSS_Medicine	11.01±4.15
MCS	19.94±6.96
PSQI	8.39±4.61

Table 3. Clinical laboratory parameters of hemodialysis patients

Variables	Mean±SD or n (n of patients = 165)
SBP/DBP, mmHg	143.3±22.4/78.6±14.3
Kt/V	1.43±0.57
URR, %	66.9±11.9
nPCR	0.81±0.18
WBC, g/dL	6,100.9±1,844.2
Hemoglobin, g/dL	10.1±1.0
Protein/Albumin, mg/dL	6.8±0.5/3.9±0.3
Calcium/Phosphate, mg/dL	8.9±0.7/5.4±1.9
Fe, µg/dL	70.3±23.3
TIBC, µg/dL	262.7±64.6
Ferritin, ng/mL	243.3±223.6
Intact PTH, pg/dL	335.2±264.3
25(OH)D, ng/mL	16.4±8.9
1,25(OH) ₂ D, pg/mL	7.3±3.6
Total cholesterol/TG, mg/dL	137.1±33.0/122.6±66.0
LDL/HDL, mg/dL	83.2±28.5/41.8±12.2
CRP, mg/L	4.3±9.6

n: number of patients, SBP: systolic blood pressure, DBP: diastolic blood pressure, Kt/V: K-dialyzer clearance of urea, t-dialysis time, V-volume of distribution of urea, URR: urea reduction ratio, nPCR: normalized protein catabolic rate, TIBC: total iron binding capacity, PTH: parathyroid hormone, TG: triglyceride, LDL: low density lipoprotein, HDL: high density lipoprotein, CRP: C-reactive protein

Table 4. Pearson's Correlation Coefficient

	EQ-5D	Age	Anxiety	Depres	Sup_F	Cog_F	Insom	Dur_HD	Alb
EQ-5D	1								
Age	-0.345**	1							
Anxiety	-0.346**	-0.023	1						
Depres	-0.381**	0.114	0.407**	1					
Sup_Fr	0.370**	-0.134	-0.304**	-0.231*	1				
Cog_F	0.227*	-0.434**	0.008	-0.183	0.121	1			
Insom	-0.181*	0.027	0.328**	0.398**	-0.152	0.084	1		
Dur_HD	-0.207*	0.185	-0.081	0.180	-0.170	-0.214*	-0.020	1	
Alb	0.175*	-0.262*	0.120	-0.034	0.072	0.092	0.030	-0.106	1
BMI	0.188*	0.031	0.080	0.229*	0.134	0.076	0.109	0.207*	0.083

** : p < 0.01, * : p < 0.05
 Depres: depression, Sup_Fr: support from friends, Cog_F: cognitive function, Insom: insomnia, Dur_HD: duration of HD, Alb: albumin, BMI: bone mass index

Table 5. Multivariate analysis of risk factors for Quality of life (EQ-5D)

	95% CI	P value
Age	-0.008 ~ -0.002	0.003
Anxiety	-0.027 ~ -0.007	<0.001
Cognitive function	0.000 ~ 0.012	0.049
BMI	0.000 ~ 0.024	0.026

Conclusions

This study explored the determinants of high susceptibility to the impaired quality of life in HD patients. We found that the impaired quality of life is associated with the age, anxiety, cognitive function and BMI. We should consider psychosocial factors as well as clinical ones for improving the quality of life in HD patients.

