

Quality of Life in relation to Nutritional Status of Haemodialysis (HD) and Peritoneal Dialysis (PD) patients



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Introduction and Objectives

Quality of life (QoL) becomes a crucial issue among patients with chronic renal failure who permanently undergo dialysis. Therefore, the objective of this cross-sectional study was to assess QoL among end stage renal disease (ESRD) patients undergoing haemodialysis (HD) or peritoneal dialysis (PD).

Methods

A cross-sectional descriptive study was conducted among 56 patients (32 male, 24 female), 46 undergoing HD and 10 undergoing PD. All participants underwent nutritional assessment [anthropometry, handgrip strength (HGS), body composition through bioimpedance analysis (BIA), Mediterranean diet (MD) adherence and biochemical analysis]. Dietary habits was assessed by using Food Frequency Questionnaire (FFQ). Health Related Quality Of Life was evaluated using a standardized scale of Kidney Disease Quality of Life-Short Form (KDQOL-SF). All instruments have been translated and validated in Greek.

Results

The sociodemographic characteristics, clinical and laboratory parameters are shown in **Table 1**. According to the KDQoL, 10.7% of patients self-rated their overall health status as bad, 46.4% as average and the remaining 42.9% as good. The sample's mean KDQOL-SF scales scores were: Physical Functioning 61.78±29.56, Role Physical 55.80±43.16, Pain 68.12±33.55, General Health 41.69±23.26, Emotional Well Being 66.14±22.22, Role Emotional 69.04±42.09, Social Function 73.21±31.20, Energy/Fatigue 52.58±24.45 and Overall Health 1.32±0.66 (**Table 2**). Physical Functioning of participants demonstrated a weak negative correlation to vintage ($r=-0.354$, $p=0.007$) and positive ones to HGS ($r=0.470$, $p=0.000$), Body Fat Mass (BFM%) ($r=0.383$, $p=0.004$), Body Fat Free Mass (BFFM%) ($r=0.383$, $p=0.004$) and MD adherence ($r=0.335$, $p=0.012$). The domain of Physical abilities was negatively correlated to the Body Mass Index ($r=-0.328$, $p=0.014$) and BFM% ($r=-0.320$, $p=0.017$) and positively to BFFM% ($r=0.320$, $p=0.017$). General Health was relevant to MD adherence ($r=0.327$, $p=0.014$), while

Emotional Well Being was positively correlated with the female sex ($r=0.267$, $p=0.047$), BFFM% ($r=0.429$, $p=0.001$) and MD ($r=0.286$, $p=0.032$) and negatively to the BFM% ($r=-0.429$, $p=0.001$). The Emotional domain correlated positively with the BFFM% ($r=0.320$, $p=0.001$) and negatively with the BFM% ($r=-0.320$, $p=0.001$). Social Function was reversely related to the BFM% ($r=-0.285$, $p=0.035$) and positively to the BFFM% ($r=0.285$, $p=0.035$) and MD adherence ($r=0.278$, $p=0.038$). Energy/Fatigue was positively correlated to the BFFM% ($r=0.313$, $p=0.020$) and negatively to the BFM% ($r=-0.313$, $p=0.020$). Finally, Overall Health was correlated positively to the female sex ($r=0.274$, $p=0.041$) and MD adherence ($r=0.414$, $p=0.002$) (**Table 3**). KDQoL parameters were not associated to any biochemical markers.

Table 1. Sociodemographic characteristics, clinical & laboratory parameters of ESRD patients

	Haemodialysis (HD) patients	Peritoneal Dialysis (PD) patients	Total
Age	62.67 ± 13.93	58.20 ± 16.03	61.87 ± 14.27
Gender			
Male	28 (60.9%)	4 (40.0%)	32 (57.1%)
Female	18 (39.1%)	6 (60.0%)	24 (42.9%)
BMI	25.89 ± 4.18	24.08 (4.18)	25.57 ± 4.20
Vintage (years)	6.28 ± 6.28	6.00 ± 4.76	6.23 ± 5.99
HGS	22.82 ± 10.64	23.05 ± 9.11	22.86 ± 10.30
FFM%	67.94 ± 10.25	74.70 ± 7.61	69.04 ± 10.13
FM%	32.05 ± 10.25	25.30 ± 7.61	30.95 ± 10.13
MD Score	28.67 ± 5.56	30.80 ± 4.21	29.05 ± 5.37
Cholesterol	163.19 ± 33.77	176.00 ± 41.30	165.48 ± 35.17
Albumin	4.09 ± 0.26	3.57 ± 0.35	4.00 ± 0.34
Urea	132.13 ± 34.79	110.80 ± 31.51	128.32 ± 34.94
Creatinine	8.48 ± 2.43	9.70 ± 2.58	8.70 ± 2.48
Na	138.15 ± 2.29	139.30 ± 3.46	138.35 ± 2.54
K	5.38 ± 0.65	4.87 ± 1.11	5.29 ± 0.77
Ca	8.99 ± 1.00	8.64 ± 0.87	8.93 ± 0.98
P	5.23 ± 1.55	5.25 ± 1.38	5.23 ± 1.51
CRP	1.06 ± 1.17	0.329 ± 0.003	0.747 ± 0.94
Ferritin	445.66 ± 492.17	178.74 ± 132.37	415.33 ± 472.27
PTH	537.41 ± 642.52	437.66 ± 523.78	519.28 ± 619.37

HGS = Handgrip strength; BMI = Body mass index; FM = Fat Mass; FFM = Fat Free Mass; MD = Mediterranean Diet

Table 2. Patients' KDQOL-SF scales scores

SF-36	Haemodialysis (HD) patients	Peritoneal Dialysis (PD) patients	Total
Physical Functioning	60.21±29.88	69.00±28.36	61.78±29.56
Role Physical	57.06±43.35	50.00±44.09	55.80±43.16
Pain	64.51±34.79	84.75±21.35	68.12±33.55
General Health	39.78±23.40	50.50±21.53	41.69±23.26
Emotional Wellbeing	64.26±22.79	74.80±17.89	66.14±22.22
Role Emotional	73.18±40.13	50.00±47.79	69.04±42.09
Social Function	72.55±32.12	76.25±27.91	73.21±31.20
Overall Health Rating	1.26±0.68	1.60±0.51	1.32±0.66

Table 3: Correlations of KDQoL scales scores with nutritional parameters

	Sex	HGS	Vintage	BMI	FFM%	FM%	MD score
Physical Functioning	-.062	0.470**	-.354**	-0.128	.383**	.383**	.335*
Role Physical	-0.066	0.163	0.053	-.328*	.320*	-.320*	0.063
Pain	-0.139	0.198	-0.165	0.113	0.168	-0.168	0.2
General Health	-0.035	0.249	-0.142	-0.03	0.118	-0.118	.327*
Emotional WellBeing	.267*	0.147	-0.002	-0.213	.429**	-.429**	.286*
Role Emotional	0.042	0.219	-0.117	-0.144	.423**	-.423**	0.206
Social Function	0.224	0.193	0.088	-0.156	.285*	-.285*	.278*
Energy Fatigue	0.095	0.241	-0.147	-0.146	.313*	-.313*	0.251
Overall Health Rating	.274*	0.041	0.079	-0.081	0.174	-0.174	.414**

*p < 0.005, **p < 0.001

Conclusion

In this study, better QoL of ESRD patients was associated with female sex, adherence to Mediterranean Diet and markers of adequate nutritional status, like increased Handgrip Strength and fat free mass. Education programmes for improvement of Mediterranean Diet adherence and body muscle stores, could possibly lead ESRD patients to a higher sense of life satisfaction and wellbeing.

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