Quality of life as outcome predictor and as dependent variable

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Introducton:

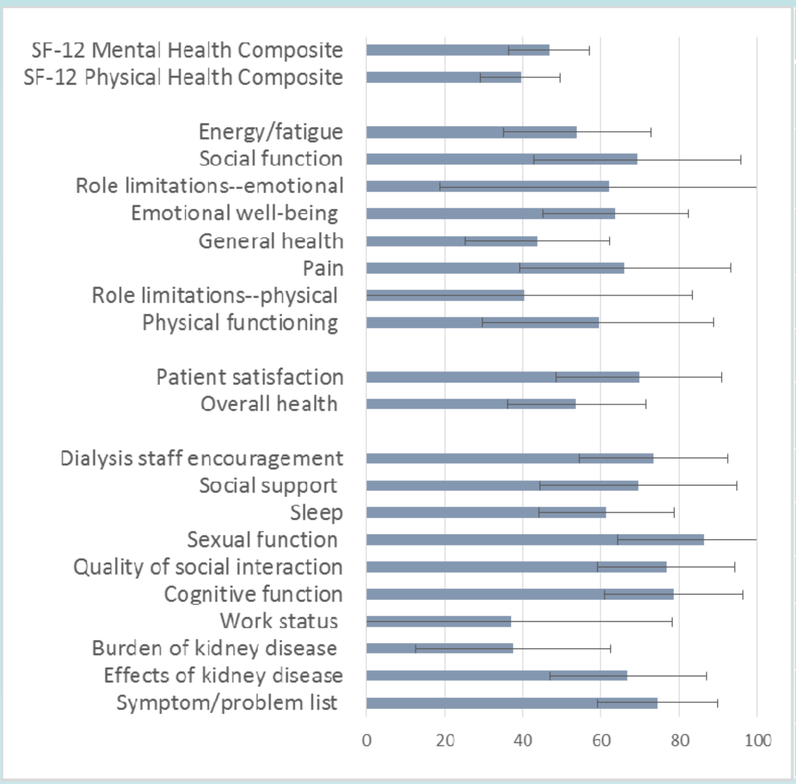
The quality of life parameters can significantly influence the hard outcomes including survival of hemodialysis patients. The association of quality of life and several unmodifiable factors (gender, age, diabetes status) was demonstrated in many studies. In the pilot stage of prospective study we evaluated what parameters were more important and which modifiable factors including key performance indicators of quality care control were associated with this parameters in real contemporary practice.

Methods:

In 272 unselected prevalent patients with duration of dialysis treatment >12 months the results of KDQoL-SF (1.3) questionnaire were analyzed. The routine clinical and laboratory monitoring were performed on monthly (quarterly) basis according to quality care control program. The patients` age was 56±15 years; median for dialysis duration was 43 months (IR 19÷95). 11% had diabetes, 19% were treated with hemodiafiltration.

Results I:

Mean follow-up period since KDQoL assessment was 25±19 months; the two-years survival was 84±6%. The baseline results of QoL parameters evaluation as well as its influence on survival in uni- (significant regression noted by symbol *) and multivariate (noted **) Cox regression analysis are presented in tables. Adjustments were made for gender, age, diabetes status and dialysis vintage.



KDQoL-SF scale	M±SD	KDQoL-SF scale	M±SD
S1 Symptom/problem list **	74±15	U1 Physical functioning **	59±30
S2 Effects of kidney disease *	67±20	U2 Role limitations-physical	40±43
S3 Burden of kidney disease	38±25	U3 Pain	66±27
S4 Work status	37±41	U4 General health *	44±19
S5 Cognitive function	79±18	U5 Emotional well-being	64±19
S6 Quality of social interaction	77±18	U6 Role limitations-emotional	62±43
S7 Sexual function	86±22	U7 Social function	69±26
S8 Sleep *	61±17	U8 Energy/fatigue	54±19
S9 Social support	70±25	Composite Scales SF-12	
S10 Dialysis staff encouragement	74±19	PCS Physical Health **	39±10
S11 Overall health	54±18	MCS Mental Health	47±10
S12 Patient satisfaction	70±21		

Uni-variable Cox regression analysis (the risk of death for any reason)

	b	SE (b)	Wald	df	p	Exp(B)	95,0% CI for Exp(B) low	high
Symptom/problem list (per 10 units) *	-0,253	0,116	4,757	1	**0,029**	**0,776**	0,619	0,975
Effects of kidney disease (per 10 units) *	-0,153	0,066	5,374	1	**0,020**	**0,858**	0,754	0,977
Sleep (per 10 units) *	-0,365	0,186	3,857	1	**0,050**	**0,694**	0,482	0,999
Physical functioning (per 10 units) *	-0,283	0,141	4,028	1	**0,045**	**0,754**	0,572	0,993
General health (per 10 units) *	-0,223	0,111	4,036	1	**0,045**	**0,800**	0,644	0,995
PCS Physical Health (per 5 units) *	-0,283	0,109	6,741	1	**0,009**	**0,754**	0,609	0,933
Age (per year) *	0,024	0,012	4,033	1	**0,045**	**1,024**	1,001	1,049
Gender (male) *	0,558	0,226	6,096	1	**0,014**	**1,747**	1,122	2,721
Diabetes melitus *	0,934	0,458	4,159	1	**0,041**	**2,545**	1,037	6,244
RRT duration (per month)	0,021	0,011	3,501	1	0,061	1,021	0,999	1,044
Hemoglobin (per 1 g/dl)	-0,753	0,631	1,424	1	0,233	0,471	0,137	1,622
Phosphate (per 0.3 mmol/l)	0,734	0,277	7,022	1	**0,008**	**2,083**	1,211	3,586
PTH			5,012	2	0,082			
PTH (reference category 151-600 pg/ml)						1,0		
PTH (Category <150 pg/ml)	0,218	0,119	3,356	1	0,067	1,244	0,985	1,570
PTH (Category >600 pg/ml)	0,035	0,024	2,127	1	0,145	1,036	0,988	1,085

Multivariable Cox regression analysis (the risk of death for any reason linked with KDQoL scales corrected for gender, age, diabetes status and dialysis vintage)

		b	SE (b)	Wald	df	p	Exp(B)	95,0% CI for Exp(B) low	high
Step 6	Symptom/problem list (per 10 units)	-0,233	0,109	4,569	1	0,033	0,792	0,640	0,981
	Diabetes melitus	0,913	0,444	4,228	1	0,040	2,492	1,044	5,949

		b	SE (b)	Wald	df	p	Exp(B)	95,0% CI for Exp(B) low	high
Step 5	Physical functioning (per 10 units)	-0,312	0,146	4,567	1	0,033	0,732	0,550	0,974
	Diabetes melitus	0,991	0,505	3,845	1	0,050	2,694	1,000	7,254
	Age (per year) *	0,023	0,011	4,409	1	0,036	1,023	1,002	1,046

		b	SE (b)	Wald	df	p	Exp(B)	95,0% CI for Exp(B) low	high
Step 5	PCS Physical Health (per 5 units)	-0,291	0,114	6,516	1	0,011	0,748	0,598	0,935
	Diabetes melitus	0,998	0,494	4,081	1	0,043	2,713	1,030	7,144
	Age (per year) *	0,021	0,010	4,451	2	0,108	1,021	1,002	1,042

Results II:

On the other hand, only several scales were linked to the modifiable dialysis-related variables.

Higher level of phosphate (by 0.3 mmol/l) was associated with lower level of:

S1 Symptom/problem list (by 6 units),
S2 Effects of kidney disease (by 9 units),
U1 Physical functioning (by 13 units).

Higher hemoglobin level (by 1 g/dl) was linked to higher level of:

S1 Symptom/problem list (by 7 units),
S8 Sleep (by 9 units),
U1 Physical functioning (by 19 units),
U4 General health (by 11 units),
PCS Physical Health (by 6 units).

The links between PTH level and some KDQoL scales were quadratic with higher levels at PTH 150-600 pg/ml and lower – at PTH level out of this range.

S1 Symptom/problem list,
S2 Effects of kidney disease,
U1 Physical functioning,
PCS Physical Health.

Conclusions:

Survival in dialysis patients is linked with several quality of life scales most of which are associated with modifiable CKD-related factors.

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