Factors Affecting Quality of Life in End Stage Renal Disease Patients Undergoing Hemodialysis in Indonesia

Akhil Deepak Vatvani[1], Kalis Waren[1], Karunia Valeriani Japar[1], Prio Wibisono[1], Prisca Yaputri[1], Theo Audi Lemuel[2]

[1]Faculty of Medicine, Universitas Pelita Harapan, Tangerang, Indonesia; [2]Department of Internal Medicine, Universitas Pelita Harapan, Tangerang, Indonesia.

Background

Quality of life (QOL) is an important indicator to measure the effectiveness of medical care that patients receive. It is common for End Stage Renal Disease (ESRD) patients to have poorer QOL than their age matched with general population. In developing countries like Indonesia, the information about factors affecting QOL in ESRD patients is very limited.

Objectives

This aim of this study is to identify the factors affecting QOL in ESRD patients undergoing hemodialysis in Indonesia.

Methods

- This is a cross sectional study that took place in four hemodialysis clinics in Jakarta.
- QOL was measured using WHOQOL-BREF, which contains 4 domains (physical health, psychological, social relationships and environmental).
- Symptom burden, depression, anxiety and sleep quality were assessed using Dialysis Symptom Index (DSI), Beck Depression Inventory (BDI), Generalized Anxiety Disorder (GAD-7) and Pittsburg Sleep Quality Index (PSQI) respectively. Higher PSQI scores indicate worse sleep quality.
- Peripheral Arterial Disease (PAD) was diagnosed by Ankle Brachial Index (ABI) and by history of intermittent claudication. Patient was categorized as having PAD if ABI < 0.9.
- Peripheral neuropathy was assessed using 128Hz tuning fork and a positive result is when the patient cannot feel the vibration at least 8 seconds in 2 or more locations.
- Correlation analysis was done using Pearson or Spearman test.
- Analysis to find the difference in mean QOL scores between 2 groups was done using Students' T-test.

Results

- A total of 138 patients were included in our study, out of which 86 (62.3%) were male.
- Median age of the patients was 54 (25 - 84) years.
- Baseline characteristics of patients is shown in Figure 1.
- The mean value for physical health, psychological, social relationship and environmental domains of QOL were 56.6 (±16.8), 66.4 (±17.5), 61.7 (±18.2) and 64.0 (±14.3) respectively.
- The factors affecting QOL is shown in Figures 2 and 3.

Table 1. Baseline Characteristics (n = 138)

Variable	
Age (years) [Median (Min-Max)]	54 (25 - 84)
Duration of Hemodialysis (months) [Mean (SD)]	38.6 (± 36.3)
Hemoglobin (mg/dL) [Median (Min-Max)]	8.3 (1-11.8)
Gender	
Male	86 (62.3%)
Etiology of CKD	
Hypertension	78 (56.5%)
Diabetes	41 (29.7%)
Others	19 (13.8%)
BMI	
<18.5kg/m^2	13 (9.4%)
>25 kg/m^2	23 (16.6%)
Diabetes	46 (33.3%)
Hypertension	106 (76.8%)
Hyperlipidemia	24 (17.3%)
Peripheral Arterial Disease (PAD)	58 (42.0%)
Peripheral Neuropathy	84 (60.9%)

Corresponding Author:
Akhil Deepak Vatvani
akhilvatvani@gmail.com

Table 2. Factors Correlating with Quality of Life (QOL)

Variable	Physical Health r	Psychological r	Social Relationships r	Environmental r
Age	- 0.061	- 0.076	- 0.056	0.037
BMI	0.275*	0.102	- 0.021	0.128
Duration of HD	- 0.054	0.087	- 0.085	0.015
Hemoglobin	- 0.074	0.119	0.153	0.155
Albumin	0.075	0.085	0.273	0.128
Calcium	- 0.121	- 0.182	- 0.287*	- 0.262
BDI	- 0.434**	- 0.448**	- 0.259*	- 0.293**
GAD	- 0.396**	- 0.370**	- 0.153	- 0.225*
DSI	- 0.240*	- 0.214*	- 0.154	- 0.054
Sleep Quality Index	- 0.496**	- 0.316**	- 0.235*	- 0.242*

**. Significant at 0.001 level
*. Significant at 0.05 level

Table 3. Factors Associated with Quality of Life (QOL)

Variable	Physical Health Mean (SD)	Psychological Mean (SD)	Social Relationships Mean (SD)	Environmental Mean (SD)
Gender				
Male	57.0 (±15.2)	65.6 (±19.0)	59.3 (±17.7)*	63.4 (±14.1)
Female	56.5 (±17.8)	67.6 (±14.5)	66.1 (±18.3)*	64.9 (±14.6)
Hypertension				
Yes	54.8 (±16.9)*	65.2 (±17.6)	60.9 (±17.2)	62.5 (±14.1)*
No	61.5 (±15.4)*	70.0 (±16.8)	64.7 (±20.7)	68.4 (±14.0)*
Diabetes Mellitus				
Yes	54.9 (±17.8)	66.2 (±19.7)	64.7 (±16.4)	66.1 (±15.0)
No	57.7 (±15.2)	66.4 (±16.7)	60.7 (±19.0)	62.9 (±14.0)
Frequency of Hemodialysis				
2 times/week	56.1 (±16.2)	66.2 (±16.7)	62.4 (±17.8)	62.7 (±12.7)
3 times/week	57.7 (±16.6)	67.4 (±17.1)	61.6 (±17.3)	66.6 (±13.1)
Peripheral Arterial Disease				
Yes	53.0 (±16.1)	65.3 (±19.0)	59.2 (±16.8)	62.2 (±14.3)
No	59.6 (±18.1)	66.5 (±17.8)	64.6 (±17.7)	64.2 (±14.8)
Peripheral Neuropathy				
Yes	52.5 (±16.5)*	62.9 (±18.3)	59.4 (±16.9)	62.3 (±14.9)
No	62.5 (±16.5)*	69.9 (±16.2)	65.4 (±16.7)	65.1 (±13.8)

*. Significant at 0.05 level

Discussion

- This study provided a comprehensive analysis of QOL among ESRD patients undergoing HD in Indonesia from 4 HD clinics.
- Patients with poor sleep quality or depression or both poor sleep quality and depression will surely have poor QOL in all domains. We are very sure that patients poor sleep quality and depression will surely have poor QOL
- The presence of three or more comorbidities had a negative impact on the domains physical functioning. This also occurs in psychological domain. Hypertension, depression, anxiety and poor sleep quality has also been associated with low QOL. Similar associations were observed in previous studies. Some limitations of the present study are the relatively small sample size to detect significant differences between the stages of CKD and the difficulties we encountered in recruiting subjects in the initial stages of the disease.
- The cross-sectional design of the study only permitted us to determine associations between variables and not causal relationships. Thus, longitudinal studies that take into account qualitative assessments should be conducted to seek a better understanding of the influence of the progression of CKD on QOL

Conclusion

BMI, symptoms burden, depression, anxiety, sleep quality, calcium, male gender, hypertension and peripheral neuropathy are the factors affecting quality of life in ESRD patients. Physicians should pay attention at these modifiable factors to improve the QOL in hemodialysis patients.

References

1. Parthasarathi G, Narahari M, Gurudev K, Sathvik B. An assessment of the quality of life in hemodialysis patients using the WHOQOL-BREF questionnaire. Indian Journal of Nephrology. 2008;18(4):141.
2. Zyoud S, Daraghmeh D, Mezyed D, Khdeir R, Sawafta M, Ayaseh N et al. Factors affecting quality of life in patients on haemodialysis: a cross-sectional study from Palestine. BMC Nephrology. 2016;17(1).
3. Kamal N, Kamel E, Eldessouki K, Ahmed M. Health-related quality of life among hemodialysis patients at El-Minia University Hospital, Egypt. Journal of Public Health. 2012;21(2):193-200.