Original Article

Health Related Quality of Life in Patients Receiving Continuous Ambulatory Peritoneal Dialysis

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ABSTRACT

Background: *Health related quality of life (HRQoL) covers the impact of the disease or medical actions on the physical symptoms, functional status, and mental and social functioning. The KDQOL is a kidney disease–speciûc HRQoL instrument used in research.*

Objective: *To observe the quality of life parameters in patients on continuous ambulatory peritoneal dialysis (CAPD).*

Methods: *This cross-sectional study was carried out in three tertiary renal care hospital. Total 40 CAPD patient were selected as cases and 40 healthy individuals were included as controls. A semi-structured questionnaire was developed in English and translated to Bangla. The questionnaire contained questions related to: 1) KDQoL-36 developed by RAND; 2) Clinical and 3) laboratory parameters. Different clinical and laboratory parameters were evaluated. Quality of life (QOL) parameters were assessed by KDQOL-SF-36(V-1.3) questionnaire. The scoring procedure for the KDQOL-SF-36 first transforms the raw precoded numeric values of items to a 0-100 possible range. Higher transformed scores better quality of life.*

Results: *Mean age of the study subjects was 55±11and control 56±11years (p=.0.664). They were also matched for sex and BMI. The main primary disease responsible for ESRD was diabetic nephropathy (57.5%), followed by glomerulonephritis and hypertensive nephropathy. Mean haemoglobin of the study subjects was 8.1±1.4 g/dl, albumin 3.1±1.4 g/dl and Kt/V 1.8±0.3. Mean physical composite score (PCS) calculated by KDQOL-SF-36 in CAPD and control group were 44±15 and 79±12 (p<0.001) and mean mental composite score (MCS) were 45±17 and 80±10 (p<0.001). When QOL parameters were compared between two groups according to Kt/V d"1.7 and >1.7 showed most of the scores were higher in Kt/V >1.7.*

Conclusion: *Quality of life parameters among patients on CAPD were good; hence, it can be a viable option for ESRD patients in Bangladesh.*

Keywords*: Mental composite score, physical composite score, quality of life, continuous ambulatory peritoneal dialysis, end stage renal disease*

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INTRODUCTION

Chronic kidney disease (CKD) is a common deadly disease contributing to significant morbidity and mortality. Chronic dialysis imposes a considerable burden on patients and families. While previous interest focused mostly on medical and technical aspects of dialysis care, psychosocial aspects are now increasingly explored, among them quality of life (QoL).[1]

Quality of life is a multidimensional concept. The WHO defines it as: "the perception that individual makes about his position in life, within its cultural context and value system, and related to its goals and vital objectives."[2] Perhaps the clear definitions referred to QoL is "the measure resulted from the physical, mental, and social well-being, such as is perceived by each individual."[3] CKD is inversely associated with HRQoL. There is a correlation between the magnitude of the effect on HRQoL and glomerular filtration rate.

Among the studies, the NECOSAD Study Group,[4] as they analyzed the effect of starting dialysis with haemodialysis or peritoneal dialysis modalities on survival adjusted for quality of life, the meta-analysis. of Cameron et al.[5] which studied HRQoL of patients undergoing different types of renal replacement therapy and the report of Diaz-Buxo et al.[6] that analyzed quality of life in hemodialysis and peritoneal dialysis patients.

The application of quality-of-life score is useful to predict the risk of death. For example, Mapes et al.[7] found that patients who had dropped 10 points in the Physical Composite Score (PCS) in the short form (KDQOL-SF) were associated with a 25% increased risk of death.

The KDQOL is a kidney disease-speciûc HRQoL instrument. At present, the KDQOL-SF v.1.3 has been developed known as the KDQOL-36 questionnaire. The KDQOL-36 consists of the SF-12, which measures physical and mental functioning, Burden of Kidney Disease subscale, Symptoms and Problems subscale, and Effects of Kidney Disease on Daily Life subscale. The scores of the KDQOL-36 questionnaire are transformed into 0 to 100, with higher scores reûecting better quality of life. Scale scores are computed with the KDQOL-36TM scoring Program.[8] The present study aims to observe the quality of life parameters in patients on continuous ambulatory peritoneal dialysis (CAPD) by using KDQOL SF-36 questionnaire.

MATERIALS AND METHODS

This observational study was conducted in the Department of Nephrology, Sir Salimullah Medical College & Mitford Hospital, National Institute of Kidney Diseases and Urology (NIKDU) and Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorder (BIRDEM) from January to December of 2015. Diagnosed case of end stage renal disease (ESRD) receiving continuous ambulatory peritoneal dialysis (CAPD) for at least 3 months as study group and healthy individual: Individual with no diabetes mellitus, hypertension, CKD, ischaemic heart disease and any other chronic disease as control were enrolled. Each group had 40 subjects.

A semi-structured questionnaire had been developed in English and translated to Bangla. The questionnaire contained questions related to:1) KDQoL-36 developed by RAND, 2) clinical, and 3) laboratory parameters. The KDQOL is a kidney disease–speciûc health related quality of life instrument. The KDQOL-SF v.1.3, which contains the SF-36 with 36 items and 43 kidney disease-speciûc items. The scoring procedure for the KDQOL-SF-36 first transforms the raw precoded numeric values of items to a 0-100 possible range. Higher transformed scores better quality of life.[8]

Blood pressure, height, weight, presence or absence of anaemia are recorded as clinical parameters.

Complete blood count, Serum urea, serum creatinine, serum albumin, serum total protein, serum potassium, serum glucose, serum calcium, serum phosphate, dialysate urea and creatinine were measured as laboratory parameters. Statistical analyses were done using SPSS version 16.0 for windows. Student's t-test, z-test and Chi- square test were done wherever applicable. Before the commencement of the study, the protocol of the study was approved by Ethical Review Committee of respective institutions.

RESULTS

A total of 40 persons on CAPD for at least 3 months were enrolled as cases, while 40 healthy individuals were included as controls. Most of the patients (57.5%) had diabetic nephropathy followed by glomerulonephritis (22.5%), hypertensive nephropathy (12.5%), obstructive nephropathy (5.0%) and others (2.5%) (Fig. 1).

Table I: Descriptive Statistics of clinical, laboratory parameters of CAPD patient (n=40).

Variables	Mean±SD
Demographic data	
Age (years)	55 ± 11
CKD duration(years)	4.4 ± 2.2
Systolic BP (mmHg)	142 ± 25
Diastolic BP (mmHg)	77 ± 9
Duration of CAPD (months)	17.8 ± 9.2
EPO n (%)**Laboratory parameters:**	12 (30.0)
Haemoglobin (g/dl)	8.1 ± 1.4
Creatinine (mg/dl)	7.7 ± 1.8
Kt/V	1.8 ± 0.3
S. Albumin (g/dl)	3.1± 0.4
S. K^+ (mmol/l)	3.4 ± 0.4
S. Ca^{+2} (mmol/l)	6.8 ± 0.8
S. PO_4^{-3} (mmol/l)	5.7 ± 0.6

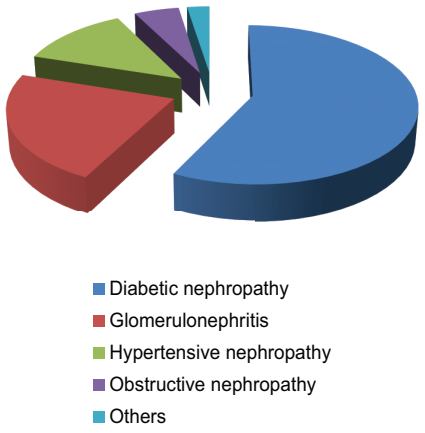

Figure 1:*Distribution of patients according to primary disease*

Table-II: *Comparison of clinical, biochemical and quality of life scores of CAPD patient with control group (n=40).*

Variables	Case	Control	p-value
Demographic data			
Age (years)	55 ± 11	56 ± 11	0.664
Gender			
Male	24 (60%)	19 (47%)	0.262
Female	16 (40%)	21 (53%)	
BMI (kg/m^2)	25 ± 3.5	25 ± 2.5	0.536
Systolic BP (mmHg)	142 ± 25	127 ± 13	0.002
Diastolic BP (mmHg)	77 ± 9	78 ± 8	0.704
Haemoglobin (g/dl)	8.1 ± 1.4	12.25 ± 1.87	<0.001
Creatinine (mg/dl)	7.7 ± 1.8	0.98 ± 0.23	<0.001
Quality of life score			
Physical functioning	52 ± 17	80 ±12	<0.001
Role-physical	34 ± 17	85± 20	<0.001
Pain	51 ± 16	75 ±13	<0.001
General health	49 ± 15	75± 13	<0.001
Emotional well-being	52 ± 15	81± 10	<0.001
Role – emotion	46 ± 20	90 ± 15	<0.001
Social function	52 ± 21	73 ± 12	<0.001
Energy/fatigue	49 ± 17	76 ± 10	<0.001
PCS	44 ± 15	79 ± 12	<0.001
MCS	45 ± 17	80 ± 10	<0.001

Table-III: *Comparison of quality of life scores of CAPD patient in DM and non DM:*

Variables	Group		p value
	DM (n=23) Mean±SD	Non DM (n=17) Mean±SD	
ESRD Targeted areas			
Symptom/problem list	63 ± 11	66 ± 12	0.421
Effects of kidney disease	52 ± 11	57 ± 19	0.268
Burden of kidney disease	25 ± 16	26 ± 17	0.887
Work status	100 ± 0	100 ± 0	
Cognitive function	57 ± 21	65 ± 16	0.184
Quality of social interaction	61 ± 19	68 ± 16	0.244
Sexual function	72 ± 12	54 ± 20	0.160
Sleep	59 ± 10	64 ± 16	0.217
Social support	64 ± 27	54 ± 26	0.253
Dialysis staff encouragement	65 ± 17	70 ± 15	0.330
Patient satisfaction	50 ±10	50 ± 13	0.965
36-item health survey (SF-36)			
Physical functioning	50 ± 18	53 ± 16	0.618
Role-physical	33 ± 12	35 ± 22	0.696
Pain	51 ± 19	51 ± 14	0.991
General health	50 ± 17	49 ± 14	0.771
Emotional well-being	51 ± 15	54 ± 16	0.494
Role - emotion	44 ± 17	48 ± 23	0.617
Social function	54± 21	50 ± 23	0.574
Energy/fatigue	46± 15	54 ± 18	0.134

In ESRD targeted area and in SF-36 there was no significant difference in quality of life in any domain between two groups

Table-IV: *Comparison of quality of life parameters in relation to Kt/V (≤1.7 and >1.7) (Mean ± SD):*

Variables	Kt/V		p value
	≤1.7(n=14) [1.42±0.07]	>1.7(n=26) [2.11±0.24]	
ESRD Targeted areas			
Symptom/problem list	60 ± 9	66 ± 12	0.094
Effects of kidney disease	47 ± 15	58 ± 14	0.026
Burden of kidney disease	17 ± 12	31 ± 16	0.014
Work status	100 ± 0	100 ± 0	
Cognitive function	52 ± 14	64 ± 20	0.048
Quality of social interaction	54 ± 20	70 ± 15	0.008
Sexual function	54 ± 31	64 ± 13	0.463
Sleep	54 ± 9	65 ± 13	0.005
Social support	49 ± 25	65 ± 26	0.062
Dialysis staff encouragement	64 ± 14	68 ± 18	0.470
Patient satisfaction	43 ± 10	53 ± 10	0.006
36-item health survey (SF-36)			
Physical functioning	44 ± 13	56 ± 18	0.036
Role-physical	25 ± 00	38 ± 19	0.109
Pain	41 ± 14	56 ± 16	0.005
General health	43 ± 12	53 ± 16	0.049
Emotional well-being	46 ± 12	56 ± 16	0.041
Role – emotion	33 ± 0	50 ± 21	0.060
Social function	39 ± 19	58 ± 20	0.009
Energy/fatigue	40 ± 16	54 ± 16	0.011
PCS	35 ± 9	48 ± 16	0.007
MCS	34 ± 13	51 ± 17	0.002

Physical composite scores (PCS)and Mental composite scores (MCS) were significantly higher in higher (>1.7) Kt/V group (p=0.007)and (p=0.002) respectively.

DISCUSSION

In the present study, health-related quality of life of CAPD patients were evaluated by using KDQOL-SF-36 questionnaire. In this study, most of the patients were above 50 years (Mean age 55±11 years), which were similar to CAPD population in Asian community.[9,10] A study done by Ross et al. found mean age of the CAPD patients was 77 years that indicates Asian CKD patients progress to ESRD early.[11] Most common primary disease leading to ESRD in the present study was diabetic nephropathy which is consistent with another study previously done in our country.[12]

In the presenting study, most of our CAPD patients achieved target Kt/V of at least 1.7 (KDIGO). This finding is consistent with the study done previously in Bangladesh.[12] The mean physical composite score (PCS) in present study was low (44±15). A study done by de Wit et al. found lower score specially in PCS (38±11).[13] Lower PCS also found in some other study on PD patients like Ross et al.[11] and Kim et al.[14] where the PCS were observed 35 and 39 respectively. Our study was also nearly to the scores of a meta-analysis conducted by Liem et al.[15], where the scores of different domains of SF-36 were around 50.

The Dialysis Outcomes and Practice Pattern Study (DOPPS) on HD patients showed that QoL score was around 60 for Japan, USA and Europe.[16] In Bangladesh, another report on HD patients showed mean QoL score was less than 50;[17] our mean QoL in

PD is comparable to that of haemodialysis subjects of Bangladesh in that previous study. Physical composite score (PCS) of control group was near eighty in this study. A previous study by de Wit et al. found PCS of 50±10 in healthy subjects;[13] that was much lower and not consistent with our study. Among the QOL scores there were no significant difference between diabetic and non-diabetic group in our study.

Chen et al. showed in their study that more components of the SF-36 were influenced by Kt/V values with higher scores found in higher Kt/V.[18] Similarly in the present study when the two-group divided by total Kt/V (d"1.7and>1.7) had significant difference with higher values in higher Kt/V group in almost all domains of QOL parameters (p<0.001-0.049). Therefore, our study is consistent with the above-mentioned study in this regard.

CONCLUSION

Quality of life parameters among patients on CAPD were good. Although the scores were lower than healthy individual, it can be a viable option for ESRD patients in Bangladesh.

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