

Hemodialysis Compared with Peritoneal Dialysis

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A comparative study to assess the quality of life among end-stage renal disease patients on hemodialysis and continuous ambulatory peritoneal dialysis in a selected hospital of Delhi and to identify factors associated with the quality of life.

A study was undertaken to compare the quality of life among end-stage renal disease patients on hemodialysis and continuous ambulatory peritoneal dialysis and to identify factors associated with quality of life.

The objectives of the study were:

- ♦ To assess the quality life of end-stage renal disease patients on hemodialysis and continuous ambulatory peritoneal dialysis.
- ♦ To compare the quality of life of end-stage renal disease patients on hemodialysis with those on continuous ambulatory peritoneal dialysis.
- ♦ To identify factors associated with poor quality of life among ESRD patients HD and CAPD.
- ♦ To seek the relationship between patient demographics, clinical and dialysis-related characteristics and quality of life among ESRD patients on HD and CAPD.

End-stage renal disease is the last stage in the course of chronic renal diseases. Patients need dialysis or transplantation to survive. Dialy-

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"For mere living is not a good, but living well. Accordingly the wise man will live as long as he ought, not as long as he can..... He always reflects concerning the quality not the quantity of his life. As soon as there are many events in his life that give him trouble and disturb his mind, he sets himself free..... It is not a question of dying earlier or later, but of dying well or ill. And dying well means escape from the danger of living ill".

Seneca

sis patients lead a highly abnormal life. Those undergoing continuous cycler assisted PD or nocturnal peritoneal dialysis are tethered to a machine to a large extent. Those treated by CAPD are bound to a repetitive daytime ritual of solution changes. All dialysis patients find themselves objectively dependent on a procedure, medical facility or a group of medical personnel and are exposed to a number of limitations. Advances in technology have contributed to long term survival of ESRD patients, but the concern has now turned from mere survival of dialysis patients to the improvement of quality of life at a level close to normal life. Quality of life (QOL) is an outcome measure

worth considering for achieving holistic approach to measure the impact of treatment.

Orem's self care theoretical framework was adopted to compare the quality of life of ESRD patients on hemodialysis and continuous ambulatory peritoneal dialysis and to find its relationship with selected factors.

The research approach adopted was comparative survey with co-relational design. The sample consisted of 30 hemodialysis patients from Dialysis Unit, Nephrology Department, AIIMS and 30 CAPD patients in their home setting availing CAPD package from Baxter Health Care Engineering Company. Convenient sampling was employed to select the sample subjects.

A structured interview schedule was developed for data collection. It consisted of three parts. Part IA dealt with the demographic characteristics of the respondents. Part I B dealt with the dialysis related characteristics of the respondents. Part II pertained to information regarding the various dimensions (physical functioning, general health, social functioning, cognitive, sexual life employment and economics) of QOL.

Part III consisted of symptom related QOL items. All items had three responses

which reflected the degree of QOL.

Nine experts ensured content validity of the structured interview schedule. Try-out was done on five HD and five CAPD patients in similar setting to test feasibility and sensitivity of the tool. Reliability was established by cron-bach alpha and the tool was found to have a reliability of 0.95. The data collected was analysed using descriptive and inferential statistics.

Major Findings of the Study

Description of sample characteristics

- ♦ The maximum number of ESRD patients on HD (67 percent) were below 40 years of age whereas 63 percent CAPD patients were above 60 years of age.
- ♦ A majority of HD patients 83.3 percent were males whereas only 50 percent CAPD patients were males.
- ♦ A majority of the HD patients family income was below 10,000 whereas in CAPD group 83.3 percent, patients family income was above 20,000.
- ♦ In the HD group a majority of the patients were working whereas in CAPD group 50 percent were housewives and 46.7 percent were retired.

Description of dialysis characteristics

- ♦ Majority i.e. 86.7 percent of HD patients had dialysis biweekly and their HD access was AV fistula.

- ♦ Majority of the CAPD patients i.e. 73.3 percent performed three exchanges per day and majority were on CAPD for more than 6 months.
- ♦ In HD group 56.6 percent of patients had partially adequate dialysis and 16.7 percent had adequate dialysis whereas in CAPD group 36.6 percent have partially adequate dialysis and 46.7 percent had adequate dialysis.
- ♦ Majority of the HD patients 56.6 percent had normal body mass index and 6.7 percent were obese whereas in CAPD group 43.3 percent had normal and 43.3 percent were obese. Majority of CAPD patients had better nutritional status than HD group patients.

Comparison of QOL scores, demographic characteristics and dialysis characteristics in HD and CAPD group

- ♦ A significant difference was observed in the age, sex, family income and occupation of ESRD patients on HD and CAPD.

adequacy of dialysis and duration of dialysis among ESRD patients on HD and CAPD.

- ♦ The overall QOL of CAPD patients was better than HD patients as indicated by the Mann Whitney U value significant at 0.0001 level.
- ♦ Compared to the HD sample, the CAPD group experienced better general health, physical functioning, social functioning, employment status, economic status, emotional role as well as sexual functioning. The CAPD group also had better symptom related QOL.
- ♦ Compared to the HD group, the CAPD group had better BMI as indicated by 't' value of 3.6 significant at 0.05 level.
- ♦ CAPD patients also had better hemoglobin level and cholesterol level as indicated by 't' value of 5.7 and 3.74 significant at 0.05 level. Serum albumin level in both groups were almost similar.

Table 1
Mann-Whitney U test for comparing the mean of total QOL scores in HD group and CAPD group

QOL	Range of scores	Mean	MD	SD	P value significance
HD (n=30)	66-119	91.8	22.1	15.1	0.0001
CAPD (n=30)	79-129	113.9		11.7	

A significant difference has also been observed in the body mass index,

Data in Table (1) shows that the mean QOL scores of ESRD patients on CAPD was

Table 2 Mann Whitney U test for comparing the means of QOL in HD group and CAPD group in terms of various dimension of QOL				
Variable	Maximum score	Group I (HD) (n=30)	Group II (CAPD) (n=30)	P value significance
General health				
Mean	12	6.70	9.83	P<0.001
Std. Deviation		1.64	2.00	S
Physical functioning				
Mean	21	15.07	16.10	NS
Std. Deviation		2.70	3.14	
Social functioning				
Mean	15	11.90	14.27	P<0.001
Std. Deviation		1.69	0.78	S
Employment				
Mean	9	4.77	6.73	P<0.001
Std. Deviation		1.69	1.31	S
Economics				
Mean	9	5.60	7.70	P<0.001
Std. Deviation		1.73	1.21	S
Emotional role				
Mean	15	8.23	13.07	P<0.001
Std. Deviation		2.19	2.02	S
Cognitive				
Mean	6	5.07	5.43	NS
Std. Deviation		1.17	0.82	
Sexual life				
Mean	6	3.13	4.10	P<0.001
Std. Deviation		0.97	0.4	S
Symptom related QOL				
Mean	42	31.33	36.70	P<0.001
Std. Deviation		6.35	4.74	S

higher than HD patients as shown by mean difference of 22.1. The significance is indicated by Mann Whitney U value significant at 0.0001 level.

Data in table (2) shows that ESRD patients on CAPD had better QOL in terms of

general health, social functioning, employment, economic status, emotional role, sexual life as well as symptom related QOL as indicated by Mann Whitney U test values as compared to patients on HD. Thus it is established that the difference

in QOL scores is a true difference and not by chance, indicating that the QOL of CAPD patients in terms of general health, social functioning, economic status, emotional role, sexual life as well as in symptoms was better. CAPD makes patient in-

dependent. Hence his emotional general and physical QOL score. He can tailor his CAPD according to his symptoms and hence symptoms score is better.

Relationship between QOL of ESRD patients and demographic characteristics, dialysis characteristics and clinical parameters

- ♦ Significant relationship was observed between age, education, family income, occupation and QOL of ESRD patients on HD and CAPD, as indicated by the chi-values of 15.4, 5.9, 13.1, 24.9 respectively significant at 0.05 level QOL was found to be independent of gender among ESRD patients.
- ♦ No significant relationship was seen between duration of dialysis and adequacy of dialysis but QOL was found to be associated with mode of dialysis.
- ♦ A significant relationship was observed between Hb levels and cholesterol levels and QOL of ESRD patients as indicated by 'r' values of 0.372 and 0.288 significant at 0.05 level.

Conclusions

On the basis of the results of the data analysis, the following salient conclusions were drawn:

- ♦ A majority of the HD sample subjects belonged to young age group (<40 years), majority were males, majority had a family income below 10,000 and majority

were working.

- ♦ A majority of the ESRD patients on CAPD were of older age group (>60 years), majority had a family income above 20,000 and majority were non-working.
- ♦ A majority of ESRD patients on HD had dialysis biweekly, majority had partially adequate dialysis, and majority had a normal body mass index.
- ♦ A majority of ESRD patients on CAPD performed three exchanges per day, majority had adequate dialysis and majority had normal body mass index.
- ♦ QOL was related to age, education, family income and occupation ESRD patients.
- ♦ QOL was also related to mode of dialysis and clinical parameters (hemoglobin and cholesterol).
- ♦ ESRD patients on CAPD group experienced better overall QOL as compared to HD group.

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