CHAPTER 4: QUALITY OF LIFE AND REHABILITATION OUTCOMES OF DIALYSIS PATIENTS IN MALAYSIA

Summary of the report

- The aims of this analysis are (i) to examine the trends of and (ii) to identify the risk factors for quality of life scores and work related rehabilitation among 6908 dialysis patients entering dialysis in year 1997-2002.
- In both HD and CAPD patients commencing dialysis from 1997 to 2002, the median QoL-index score ranged between 9 and 10
- Amongst dialysis patients the quality of life outcome was positively influenced by various factors including male gender, younger age, starting of dialysis in 2001-2002, CAPD, BMI > 25 kg/m^2, albumin of at least 30 g/L, serum cholesterol of >3.2 mmol/L, haemoglobin at least >10 g/dL, and intact PTH of 100-250 ng/L.
- The work rehabilitation outcome was enhanced by male gender, younger age, starting of dialysis in 2001-2002, CAPD, BMI > 25 kg/m^2, albumin of at least 30 g/L, haemoglobin at least >10 g/dL and intact PTH of >100 ng/L.
- Diabetes and haemodialysis modality, which constituted 40% and 90% of our dialysis population respectively, negatively influenced both the patients' quality of life and work rehabilitation outcome.
- Future research to ascertain and to minimize the impact of these risk factors will be beneficial.

Introduction

The provision of dialysis treatment in any country is historically driven by its life saving capability. This remains the fundamental reason for providing dialysis even today. It is increasingly realized that such large investments in resources that benefits relatively few patients should show not just gross outcomes such as survival but also the quality of life (QoL) and rehabilitation potential of these individuals. The vocational and functional rehabilitation of these patients are important to the patient and his family, the healthcare provider and also the community at large. Dialysis treatment does have considerable impact on patients' lifestyle. The treatment is time consuming and is not without adverse effects. The fluid and dietary restrictions required of patients on dialysis further impact on their QoL.

There is increasing interest in the determinants of QoL and work related rehabilitation on dialysis. Outcome of such studies, especially of treatment modifiable factors, has obvious potential to change clinical and dialysis practices to improve patients' QoL and rehabilitation.

A number of factors have been associated with QoL and rehabilitation outcomes. Increasing age [1-4], anaemia [1, 5-7] , nutritional status as evaluated by its markers like BMI, serum albumin [1, 6, 8-10] and cholesterol have strong and predictable adverse effect on patients' QoL and rehabilitation, while the effect of gender was not consistent [6, 8, 11-13]. Whether treatment modality i.e. HD or CAPD has differing effect on QOL and rehabilitation however remains controversial [4, 14].

The National Renal Registry (NRR) has been collecting data on patients' QoL and work rehabilitation status since 1994. The instrument used for measuring QoL, the Spitzer QL index, contains five items. Each item measures a different dimension of quality of life. The 5 dimensions covered are activity level, activities of daily living, feeling of healthiness, social support and psychological outlook. Each dimension is scored on a scale from 0 (worst health) to 2 (best health). The 5 scores are summed to give a total ranging between 0 and 10. The instrument was administered by a staff of each dialysis centre. All staff has received prior training and instruction on how to use the instrument. The instrument has previously been validated in the same dialysis population [15]. A staff also interviews patients to determine whether patients have been able to return to part or full time paid employment, and if not whether this is due to ill health.

In this chapter, we describe the QoL and work related rehabilitation outcomes of patients on HD and CAPD in this country. We also examine the influence of various patient and treatment characteristics on these outcomes. Analysis is confined to the inception cohort consisting of 6908 HD and CAPD patients who commenced dialysis between 1997 and 2002.

Part A shall focus on QoL outcome while Part B is on work related rehabilitation.

Results and Discussion

Part A: Quality of Life Outcome on Dialysis

In both HD and CAPD patients commencing dialysis from 1997 to 2002, the median QL-index score ranged between 9 and 10 (Table 4.1 and 4.2, Figure 4.1 and 4.2). There is an obvious age trend in QOL outcome as expected, with older patients having poorer QoL (Table 4.3 and Figure 4.3). Male patients appeared to do better on dialysis than their female counterparts (Table 4.4 and figure 4.4), and predictably, diabetic subjects did worse (Table 4.5 and figure 4.5). Table 4.6 (Figure 4.6) shows the differences in QOL outcomes between HD and CAPD, with apparent superior outcome for CAPD.

We examine the effects of all these factors and more on QoL outcome using an ordinal regression model. As shown in Table 4.7, adjusted for all other covariates in the model, the analysis confirmed that female patients did have poorer QoL outcome, they were 23% less likely to have a better QoL outcome than men, which is in keeping with other reports [8, 11-13]. Similar findings were also shown in Mittal's [1] group of HD patients who had lower physical component score (SF-36 QoL questionnaire) among females than males. Kalantar-Zadeh et al [6] using a similar instrument but only on 65 patients, did not detect a QoL difference between gender. The reasons for differences between gender seen in this report remained speculative and include biological factors or cultural conditioning or biases in the provision of care according to sex.

The analysis also confirmed the predictable relationship between age and QoL (Table 4.7, Figure 4.7a) [3, 4]. If the cumulative odds ratio is taken as 1 for the age group 20-39 years, there is a consistent decline for the age groups 40-54 years and that greater than 55 years. However, the age group (age <20) had an apparent worse QoL than the reference age group (age 20-39 years) but this difference did not reach statistical significance. It is possible that the impact of end stage renal failure on QoL is less in elderly patients who were more satisfied with their life on dialysis and accepted the limitations better than younger patients [2]. Patients who are less than twenty years old are relatively less equipped with coping skills than older adults and may therefore find dialysis a struggle.

Amongst different primary renal diseases, diabetics had the lowest chance of achieving better QoL scores, having a 69% reduced chance compared to those with unknown aetiology. Mittal et al found diabetics obtained poorer QoL than non-diabetics in all age groups and in all health dimensions [1]. Similarly, the USRDS Annual Report 2003 showed diabetics have lower QoL score in the general health domains than non-diabetics.

Patients starting on dialysis in 2001-2002 (Figure 4.7b) performed better than those in 1997-1998 a 23% higher chance of reporting better QoL scores. Such benefit can be attributed to continuing improvement of technology in dialysis and nursing care or the lack of dialysis related complications in the later cohort.

Being on HD was associated with a 50% lower probability of achieving a higher QoL score as compared to CAPD. Bairardi et al [4] found CAPD patients enjoyed a greater well being in four components of the SF-36 (physical functioning, bodily pain, general health and vitality) than HD patients. Diaz-Buxo et al using the same instrument on 18,015 dialysis patients however found no difference between the two groups [16]. CAPD being a home based therapy offers less disruption to individual's lifestyle. In addition, pain during needling, intradialytic symptoms and stringent fluid and dietary restrictions were common issues affecting HD patients.

There is a consistent trend of worsening QoL outcome with decreasing BMI (Table 4.7), serum albumin (Table 4.7, Figure 4.7c), cholesterol (Table 4.7) and haemoglobin (Table 4.7, Figure 4.7d). These are markers of nutritional status, which can influence QoL. A number of studies have shown both haemoglobin [1, 6, 7] and albumin [1, 6, 8,9,10] correlated well with QoL. However, a study using SF-36 QoL questionnaire [6], showed that the level of cholesterol was not related to the QoL score.

Diastolic blood pressure of greater than 90mmHg (Table 4.7) conferred a reduction of 31% probability in achieving a better QoL scores compared to 70-90mmHg. This may indicate underlying poorly controlled blood pressure with its associated end organ damage and adverse effects of polypharmacy which can lower QoL.

Intact parathyroid hormone (iPTH) levels of 100-250 ng/L was associated with a 34% increased chance of a better QoL outcome compared to those of <100 ng/L. Those with >250 ng/L did not show significant advantage presumably due to the associated bone pain in high bone turnover state. Other authors did not find correlation between iPTH and QoL [6].

The measure of dialysis adequacy Kt/V did not have an impact on QoL scores among HD patients (Figure 4.7e). Moreno et al [13], Morton et al [17] and Kalantar-Zadeh et al [6] all reported similar findings. Spitzer's QoL total score has been reported to be skewed to the right, indicating poor discrimination among well outpatient HD patients [15], especially those with Kt/V >1.2. In addition, in this report those with a Kt/V <1 group (n= 331) involved a relatively small number of patients compared to the other subgroups (n >900). Such biases may confound the impact of Kt/V. Whether Asian haemodialysis patients tolerate a lower threshold of Kt/V remains uncertain and will need further investigations.

Table 4.1 Cumulative distribution of QL-Index score in relation to Year of entry, HD patients 1997-2002

Year of Entry	1997	1998	1999	2000	2001	2002
Number of patients	714	778	976	1143	1188	1000
Centile						
0	0	0	0	0	0	0
0.05	4.6	5	4.5	4.5	5	4
0.10	5.8	6	5.5	5.7	5	5
0.25 (LQ)	8	7.8	7.3	7.3	7	7
0.5 (median)	9.5	9.4	9.3	9	9	9
0.75 (UQ)	10	10	10	10	10	10
0.90	10	10	10	10	10	10
0.95	10	10	10	10	10	10
1	10	10	10	10	10	10

Figure 4.1 Cumulative distribution of QL-Index score in relation to Year of entry, HD patients 1997-2002

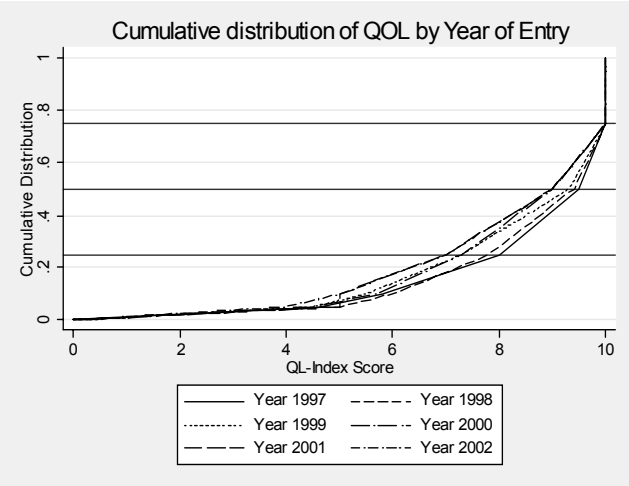


Table 4.2 Cumulative distribution of QL-Index score in relation to Year of entry, CAPD patients 1997-2002

Year of Entry	1997	1998	1999	2000	2001	2002
Number of patients	156	113	159	177	251	253
Centile						
0	0	0	0	0	0	0
0.05	5	5	4.5	5	5	5
0.10	6	6	5	6	6	6
0.25 (LQ)	7.5	8	7	8.5	8	8
0.5 (median)	9.5	9.8	9.3	10	10	10
0.75 (UQ)	10	10	10	10	10	10
0.90	10	10	10	10	10	10
0.95	10	10	10	10	10	10
1	10	10	10	10	10	10

Figure 4.2 Cumulative distribution of QL-Index score in relation to Year of entry, CAPD patients 1997-2002

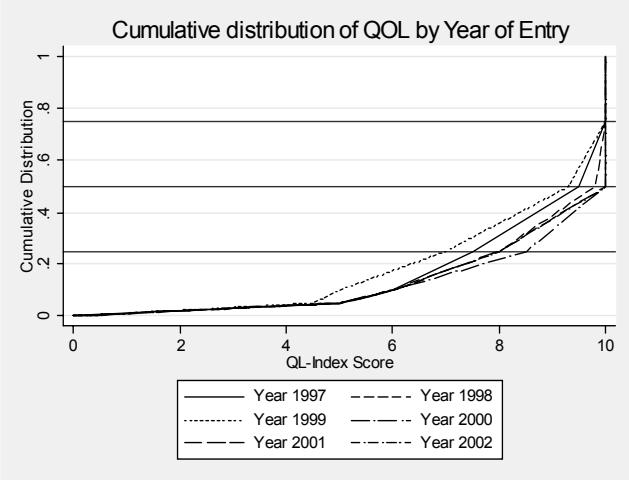


Table 4.3 Cumulative distribution of QL-Index score in relation to Age, All dialysis patients 1997-2002

Age group	<20	20-39	40-59	>=60
Number of patients	313	1397	3413	1785
Centile				
0	0	0	0	0
0.05	7	7	5	4
0.10	8	8	6	5
0.25 (LQ)	9	9	8	6
0.5 (median)	10	10	10	8
0.75 (UQ)	10	10	10	9
0.90	10	10	10	10
0.95	10	10	10	10
1	10	10	10	10

Figure 4.3 Cumulative distribution of QL-Index score in relation to Age, All Dialysis patients 1997-2002

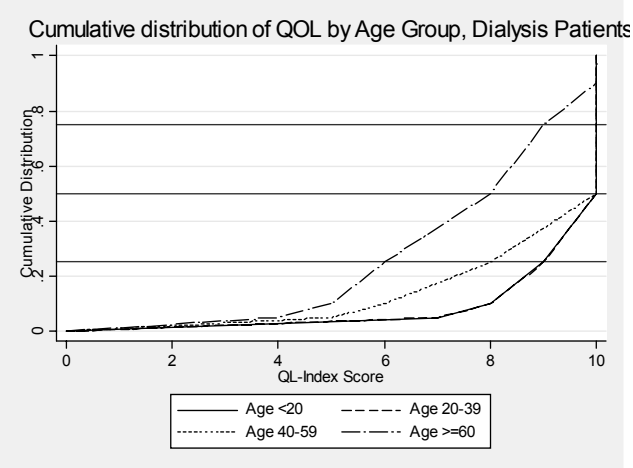


Table 4.4 Cumulative distribution of QL-Index score in relation to Gender, All Dialysis patients 1997-2002

Gender	Male	Female
Number of patients	3836	3072
Centile		
0	0	0
0.05	5	4
0.10	6	5
0.25 (LQ)	8	7
0.5 (median)	10	9
0.75 (UQ)	10	10
0.90	10	10
0.95	10	10
1	10	10

Figure 4.4 Cumulative distribution of QL-Index score in relation to Gender, All Dialysis patients 1997-2002

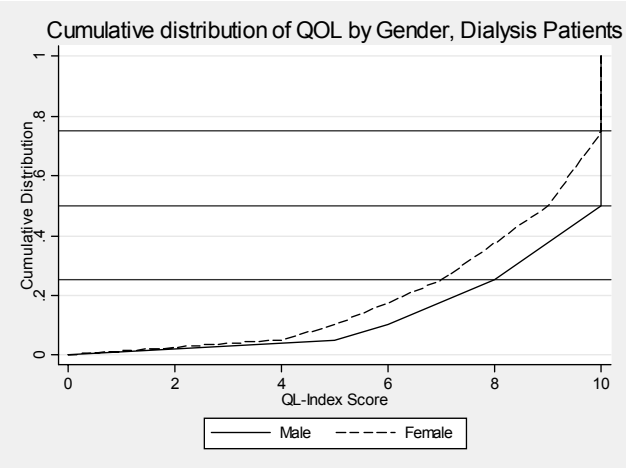


Table 4.5 Cumulative distribution of QL-Index score in relation to Diabetes mellitus, All Dialysis patients 1997-2002

Diabetes mellitus	No	Yes
Number of patients	4159	2749
Centile		
0	0	0
0.05	6	4
0.10	7	5
0.25 (LQ)	9	6
0.5 (median)	10	8
0.75 (UQ)	10	10
0.90	10	10
0.95	10	10
1	10	10

Figure 4.5 Cumulative distribution of QL-Index score in relation to Diabetes mellitus, All Dialysis patients 1997-2002

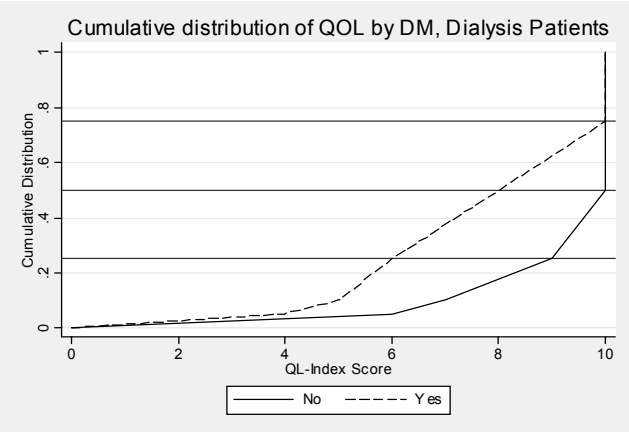


Table 4.6 Cumulative distribution of QL-Index score in relation to Dialysis modality, All Dialysis patients 1997-2002

Dialysis modality	CAPD	HD
Number of patients	1109	5799
Centile		
0	0	0
0.05	5	5
0.10	6	6
0.25 (LQ)	8	7
0.5 (median)	10	9
0.75 (UQ)	10	10
0.90	10	10
0.95	10	10
1	10	10

Figure 4.6 Cumulative distribution of QL-Index score in relation to Dialysis modality, All Dialysis patients 1997-2002

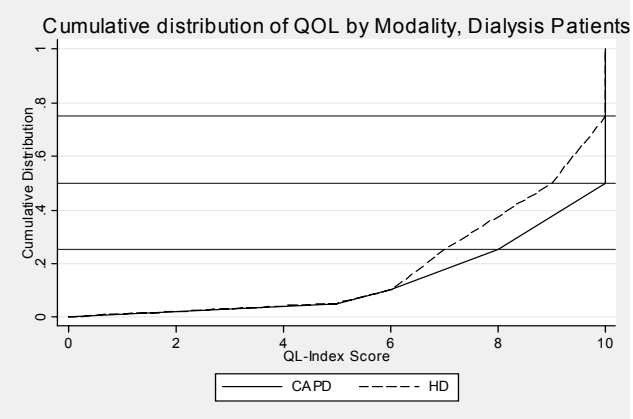


Table 4.7 Risk factors for QOL outcome, All dialysis patients 1997-2002

Factors	N	Cumulative OR	95% CI	P value
Gender:				
Male (ref.*)	3836	1.00		
Female	3072	0.77	(0.67,0.89)	0.000
Age:				
<20	313	0.72	(0.49,1.05)	0.088
20-39 (ref.*)	1397	1.00		
40-54	3413	0.61	(0.50,0.75)	0.000
>=55	1785	0.22	(0.18,0.28)	0.000
Primary diagnosis:				
Unknown (ref.*)	2104	1.00		
Diabetes Mellitus	2685	0.31	(0.26,0.37)	0.000
GN / SLE	840	1.35	(1.07,1.71)	0.013
Polycystic kidney	111	1.33	(0.72,2.45)	0.357
Obstructive nephropathy	316	1.13	(0.82,1.55)	0.460
Others	850	1.01	(0.81,1.26)	0.953
Year start dialysis				
1997-8 (ref.*)	1761	1.00		
1999-2000	2455	0.96	(0.82,1.13)	0.631
2001-2002	2692	1.23	(1.03,1.46)	0.021
Modality:				
CAPD (ref.*)	1109	1.00		
HD	5799	0.50	(0.41,0.62)	0.000
BMI:				
<18.5(ref.*)	997	1.00		
18.5-<25	3366	1.29	(1.06,1.57)	0.010
≥25	1400	1.84	(1.46,2.31)	0.000
Sr. albumin				
<30(ref.*)	461	1.00		
30-<35	1175	1.81	(1.37,2.57)	0.000
35-<40	2762	3.11	(2.29,4.23)	0.000
≥40	2084	5.05	(3.64,7.00)	0.000
Serum cholesterol:				
<3.2(ref.*)	178	1.00		
3.2-<5.2	2899	1.67	(1.12,2.48)	0.012
≥5.2	2444	1.96	(1.31,2.95)	0.001
Diastolic BP:				
<70	745	0.88	(0.71,1.09)	0.243
70-90(ref.*)	4655	1.00		
>=90	1324	0.69	(0.57,0.83)	0.000
Hemoglobin:				
<8	1441	0.53	(0.43,0.65)	0.000
8-<10	3371	0.75	(0.63,0.88)	0.001
10-<12(ref.*)	1558	1.00		
≥12	218	1.03	(0.67,1.58)	0.900
Intact PTH:				
<100(ref.*)	2849	1.00		
100-250	864	1.34	(1.13,1.60)	0.001
>=250	498	1.10	(0.88,1.38)	0.388
KT/V (HD patients only):				
<1	331	1.15	(0.76,1.74)	0.511
1-1.2	913	1.22	(0.94,1.58)	0.144
1.2-1.4(ref.*)	1198	1.00		
1.4-1.6	999	0.99	(0.77,1.28)	0.946
>=1.6	1162	1.08	(0.81,1.43)	0.597

ref: Reference group

Figure 4.7a. Cumulative probability of better QoL outcome in different age groups (years) of dialysis patients, entering in 1997-2002.

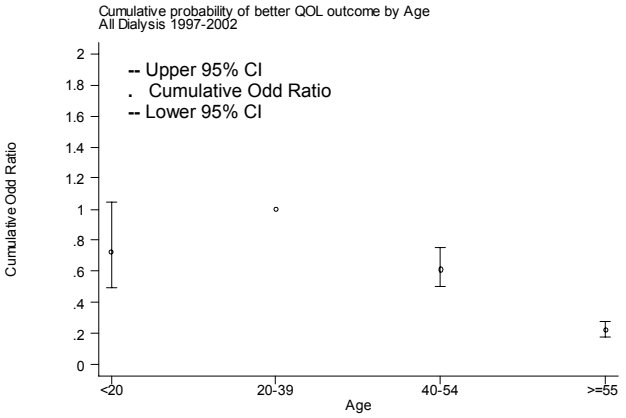


Figure 4.7b. Cumulative probability of better QoL outcome in dialysis patients entering in different year.

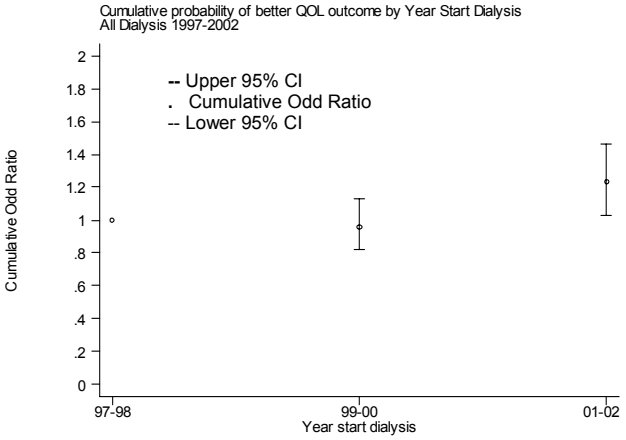


Figure 4.7c. Cumulative probability of better QoL outcome according to different albumin (g/L) levels in dialysis patients, entering in 1997-2002.

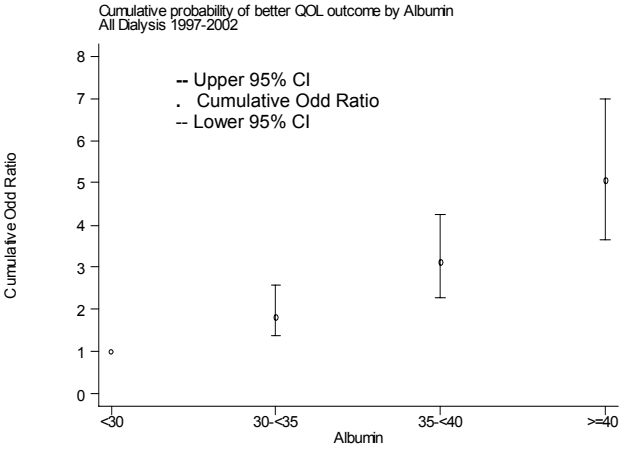


Figure 4.7d. Cumulative probability of better QoL outcome according to different haemoglobin (g/dL) levels in dialysis patients, entering in 1997-2002.

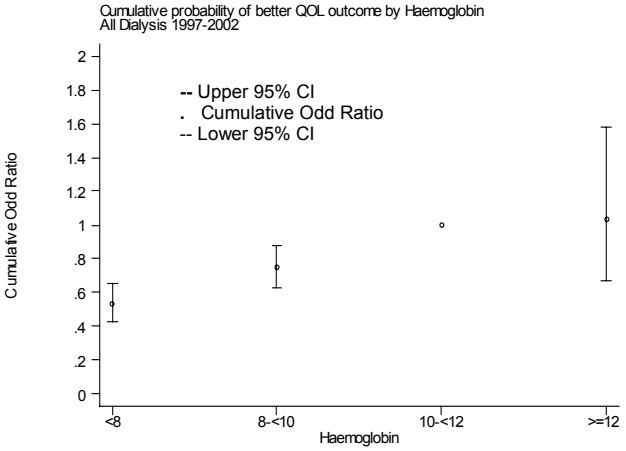
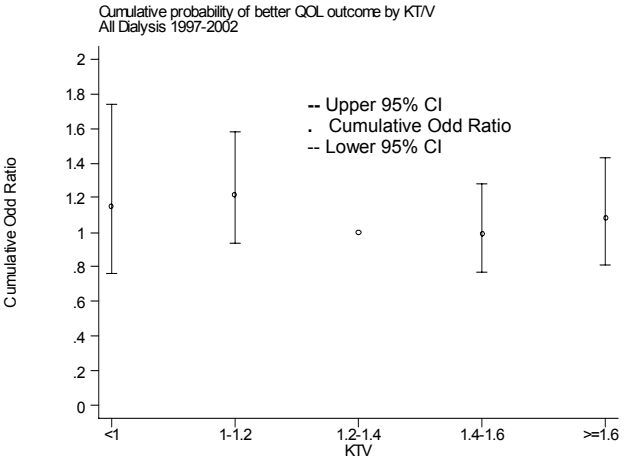


Figure 4.7e. Cumulative probability of better QoL outcome according to different Kt/V levels in dialysis patients, entering in 1997-2002.



Part B: Work related Rehabilitation Outcome on Dialysis

All dialysis patients (HD: n=2183, CAPD: n=294) of the age 21-55 years old inclusive who entered dialysis between 1997-2002, were included for analysis. For the purpose of our analysis, students, housewives, and retirees were excluded. Patients who reported to be able to work but not working due to non-health reasons were not considered in view of ambiguity of their potential vocational status. Proportion of those being employed ranged from 75-81%(HD) (Table 4.8) and 71-94%(CAPD) (Table 4.9) respectively, with no specific trend over the six year period.

An analysis looking at seven variables including age, gender, diabetic status, modality of RRT, haemoglobin, albumin and Kt/V (only HD patients) was done on all working or unemployed individuals because of ill health. They were 2477 patients, between the ages 21-55 years old inclusive who entered dialysis between 1997 to 2002. With increasing age, the proportion of patients employed decreased from 90% amongst 21-35 age-group to 64% amongst 46-55 age group. (Table 4.10) Less females (72%) compared to males (80%) were employed. (Table 4.11) Poor physical function which is usually related to advancing age [18] and female gender [1], has been shown to predict unemployment.

More diabetics (45%) than non-diabetics (11%) were not employed because of ill health. (Table 4.12) The USRDS 2003 reported a similar trend: of dialysis patients aged 18-54 years old, 20% diabetics compared to 36% non-diabetics claimed to be able to work. There was no difference in terms of proportion of patients working between HD (78%) and CAPD (81%) (Table 4.13).

Higher haemoglobin (Table 4.14) and higher albumin (Table 4.15) concentrations were consistently associated with a higher proportion of patients on employment. Correction of haemoglobin with erythropoeitin has been shown to improve cognitive function, physical symptoms, exercise tolerance and socialization, all of which can facilitate employment [5]. Kt/V at different levels did not show an impact on employment.(Table 4.16)

Using logistic regression analysis we studied the effects of 12 covariables of gender, age, primary renal disease, year of starting dialysis, modality of RRT, BMI, albumin, haemoglobin, intact PTH, Kt/V (only for HD patients) on the rehabilitation outcome of 2477 dialysis patients (Table 4.17) between 1997-2002.

Female patients were 40% less likely to return to employment compared to male patients. One possible explanation is that the female role as homemaker is still prominent in our society. Patients who were 40-55 years old had a 54% lower probability to return to work than those who were 21-35 years old (Figure 4.17a).

Diabetics had the least prospect of gaining employment: 86% lower chance than those with unknown aetiology of primary renal disease. The USRDS 2003 reported similar trend: of dialysis patients aged 18-54 years old, 20% diabetics compared to 36% non-diabetics claimed to be able to work. Multiple diabetic complications e.g. visual impairment and peripheral vascular diseases with limb amputations are potential limitations jeopardizing employment.

Those patients starting dialysis in year 2001-2002 had 63% higher chance of gaining employment than those starting in 1997-1998. (Figure 4.17b). Holley [19] reported that those patients who worked were on shorter duration of dialysis compared to nonworking patients. Better nursing care and dialysis technology, less development of dialysis related complications for the cohort starting in 2001-2002 era may improve employment opportunities.

Haemodialysis modality conferred a disadvantage of 70% lower chance of returning to work compared to CAPD. Haemodialysis schedule of three times a week is a genuine problem if the employer does not allow flexibility in working hours. In addition, those who are receiving invalidity pension from Social Security Organisation (SOCSO) are not allowed to work even though they are healthy enough to do so. Policy makers do need to evaluate such restriction which is against the rehabilitative goals of renal replacement therapy.

There is an increasing chance of gaining employment for patients with BMI of >25 (24% increase above those with BMI of <18.5). Similarly higher albumin concentration of >40 g/L (Figure 4.17c) led to at least an 11 fold increase in the chance of gaining employment compared to the level <30 g/L). Patients with haemoglobin < 8 g/dL (Figure 4.17d) had 47% less chance of working compared to those at 10-12 g/dL. These three nutritional markers reflect health status, stamina for work as well as energy levels. Those with iPTH of <100 ng/L had the least chance of working compared to others with iPTH >100 ng/L. It is not clear why such association existed. The number of patients in each iPTH subgroup are skewed to the <100ng/L group and may confound the analysis. As with the QoL outcome analysis, Kt/V levels among HD patients, did not have an influence on employment outcome. (Figure 4.17e)

Table 4.8 Work related rehabilitation in relation to Year of entry, HD patients 1997-2002

Year of Entry	1997		1998		1999		2000		2001		2002	
Number of patients	336		356		427		436		365		263	
	N	%	N	%	N	%	N	%	N	%	N	%
Able to return to Full or Part time for pay*	272	81	281	79	338	79	337	77	273	75	198	75
Unable to work for pay	64	19	75	21	89	21	99	23	92	25	65	25

* Exclude patients unable to find employment for non-health related reasons

Table 4.9 Work related rehabilitation in relation to Year of entry, CAPD patients 1997-2002

Year of Entry	1997		1998		1999		2000		2001		2002	
Number of patients	59		34		44		45		56		56	
	N	%		%	N	%	N	%	N	%	N	%
Able to return to Full or Part time for pay*	46	78	32	94	33	75	32	71	49	88	45	80
Unable to work for pay	13	22	2	6	11	25	13	29	7	13	11	20

* Exclude patients unable to find employment for non-health related reasons

Table 4.10 Work related rehabilitation in relation to Age, Dialysis patients 1997-2002

Age Group	21-35		36-45		46-55	
Number of patients	607		835		1035	
	N	%	N	%	N	%
Able to return to Full or Part time for pay*	545	90	726	87	665	64
Unable to work for pay	62	10	109	13	370	36

* Exclude patients unable to find employment for non-health related reasons

Table 4.11 Work related rehabilitation in relation to Gender, Dialysis patients 1997-2002

Gender	Male		Female	
Number of patients	1814		663	
	N	%	N	%
Able to return to Full or Part time for pay*	1458	80	478	72
Unable to work for pay	356	20	185	28

* Exclude patients unable to find employment for non-health related reasons

Table 4.12 Work related rehabilitation in relation to Diabetes Mellitus, Dialysis patients 1997-2002

Diabetes mellitus	No		Yes	
Number of patients	1671		806	
	N	%	N	%
Able to return to Full or Part time for pay*	1489	89	447	55
Unable to work for pay (%)	182	11	359	45

* Exclude patients unable to find employment for non-health related reasons

Table 4.13 Work related rehabilitation in relation to Modality, Dialysis patients 1997-2002

Modality	CAPD		HD	
Number of patients	294		2183	
	N	%	N	%
Able to return to Full or Part time for pay*	237	81	1699	78
Unable to work for pay	57	19	484	22

* Exclude patients unable to find employment for non-health related reasons

Table 4.14 Work related rehabilitation in relation to haemoglobin, Dialysis patients 1997-2002

Haemoglobin (g/dl)	<8		8-<10		10-<12		>=12	
Number of patients	503		1186		605		89	
	N	%	N	%	N	%	N	%
Able to return to Full or Part time for pay*	364	72	926	78	504	83	77	87
Unable to work for pay	139	28	260	22	101	17	12	13

* Exclude patients unable to find employment for non-health related reasons

Table 4.15 Work related rehabilitation in relation to Albumin, Dialysis patients 1997-2002

Albumin (g/L)	<30		30-<35		35-<40		>=40	
Number of patients	125		304		957		976	
	N	%	N	%	N	%	N	%
Able to return to Full or Part time for pay*	57	46	190	63	743	78	864	89
Unable to work for pay	68	54	114	38	214	22	112	11

* Exclude patients unable to find employment for non-health related reasons

Table 4.16 Work related rehabilitation in relation to KT/V, HD patients only 1997-2002

KT/V	<1		1-<1.2		1.2-<1.4		1.4-<1.6		>=1.6	
Number of patients	148		382		430		353		358	
	N	%	N	%	N	%	N	%	N	%
Able to return to Full or Part time for pay*	122	82	292	76	332	77	282	80	274	77
Unable to work for pay	26	18	90	24	98	23	71	20	84	23

* Exclude patients unable to find employment for non-health related reasons

Table 4.17 Risk factors for Rehabilitation outcome, All dialysis patients 1997-2002

Factors	**N**	**Odd Ratio**	**95% CI**	**P value**
Gender:				
Male (ref.*)	1814	1.00		
Female	663	0.60	(0.42,0.85)	0.004
Age (years):				
21-35(ref.*)	607	1.00		
36-44	835	1.04	(0.63,1.72)	0.889
45-55	1035	0.46	(0.29,0.73)	0.001
Primary diagnosis:				
Unknown (ref.*)	799	1.00		
Diabetes Mellitus	783	0.14	(0.09,0.22)	0.000
GN / SLE	379	1.22	(0.66,2.23)	0.528
Polycystic kidney	47	2.77	(0.35,21.9)	0.335
Obstructive nephropathy	116	0.46	(0.22,0.96)	0.038
Others	353	0.74	(0.42,1.30)	0.294
Year start dialysis				
1997-8 (ref.*)	785	1.00		
1999-2000	952	1.28	(0.90,1.82)	0.170
2001-2002	740	1.63	(1.07,2.47)	0.022
Modality:				
CAPD (ref.*)	294	1.00		
HD	2183	0.30	(0.18,0.52)	0.000
BMI (kg/m^2):				
<18.5(ref.*)	303	1.00		
18.5-<25	1284	1.42	(0.88,2.28)	0.146
≥25	548	2.24	(1.31,3.84)	0.003
Sr. albumin (g/L)				
<30(ref.*)	125	1.00		
30-<35	304	3.61	(1.71,7.65)	0.001
35-<40	957	6.21	(2.98,12.93)	0.000
≥40	976	11.72	(5.40,25.42)	0.000
Haemoglobin (g/dL):				
<8	503	0.53	(0.33,0.85)	0.009
8-<10	1186	0.69	(0.47,1.03)	0.072
10-<12(ref.*)	605	1.00		
≥12	89	0.80	(0.30,2.15)	0.656
Intact PTH (ng/L):				
<100(ref.*)	1097	1.00		
100-250	389	1.94	(1.29,2.92)	0.002
>=250	194	1.99	(1.10,3.59)	0.022
KT/V (HD patients only):				
<1	148	1.09	(0.49,2.43)	0.826
1-1.2	382	1.49	(0.86,2.60)	0.156
1.2-1.4(ref.*)	430	1.00		
1.4-1.6	353	1.52	(0.85,2.70)	0.158
>=1.6	358	1.15	(0.59,2.22)	0.688

ref: Reference group

Figure 4.17a. Probability of returning to work according to different age groups (years) in dialysis patients, entering in 1997-2002

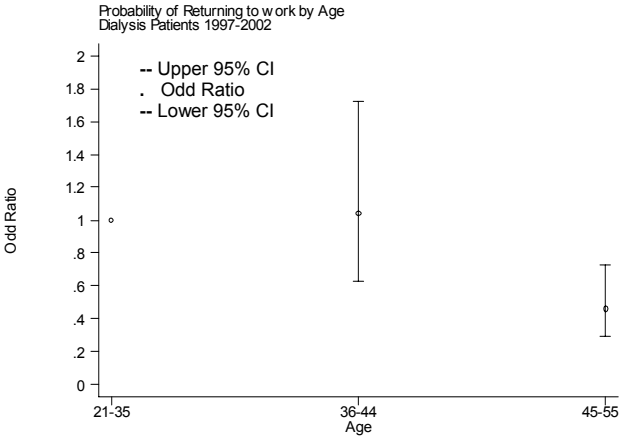


Figure 4.17b. Probability of returning to work according to year of entering dialysis between 1997-2002

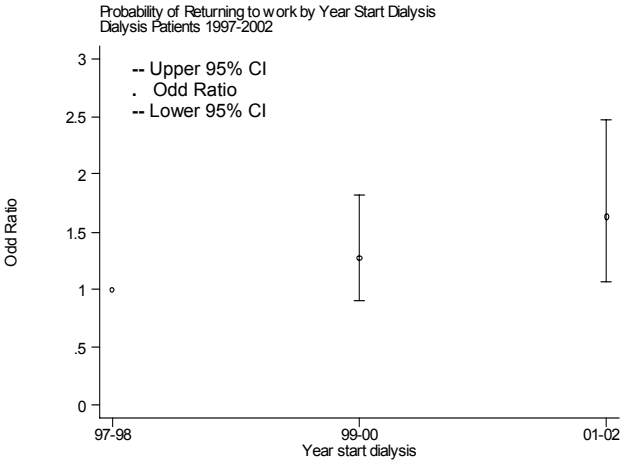


Figure 4.17c. Probability of returning to work according to albumin (g/L) levels in dialysis patients, entering in 1997-2002

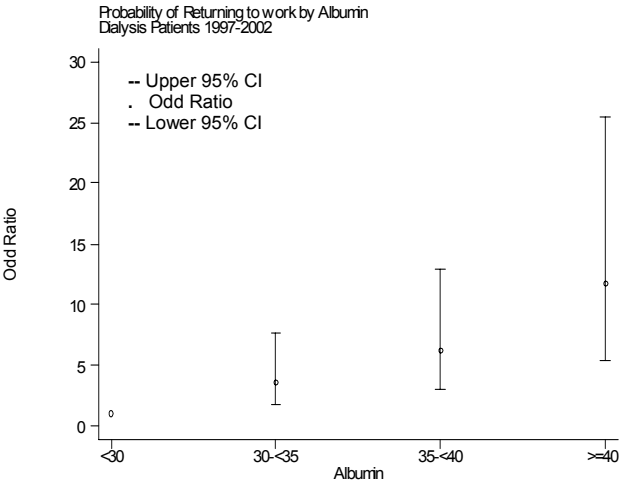


Figure 4.17d. Probability of returning to work according to haemoglobin (g/dL) levels in dialysis patients, entering in 1997-2002

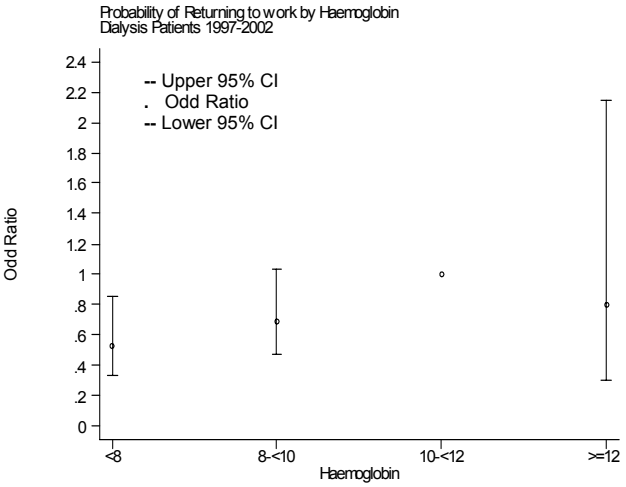
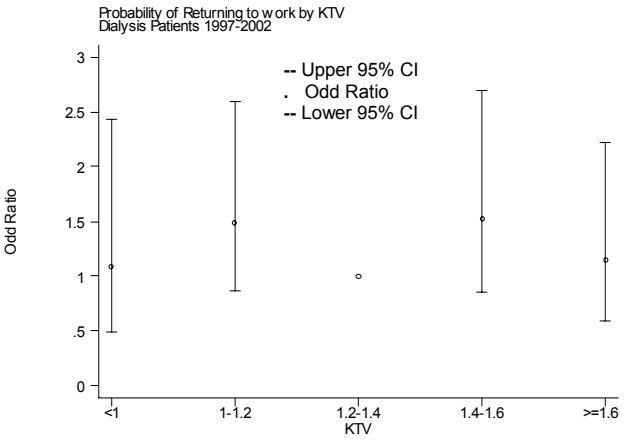


Figure 4.17e. Probability of returning to work according to Kt/V levels in dialysis patients, entering in 1997-2002.



Conclusion

Amongst dialysis patients the QoL outcome was positively influenced by various factors including male gender, younger age, starting dialysis in 2001-2002, CAPD, BMI>25, albumin of at least 30 g/L, serum cholesterol of >3.2 mmol/L, haemoglobin at least >10 g/dL, and an iPTH of 100-250 ng/L. The work rehabilitation outcome was enhanced by male gender, younger age, starting of dialysis in 2001-2002, CAPD, BMI>25, albumin of at least 30 g/L, haemoglobin at least >10 g/dL, iPTH of >100 ng/L. Diabetes which was present in 40% of our patients has a negative influence on QoL and work rehabilitation. Similarly HD, the modality by which 90% of our dialysis population were treated negatively influenced both the patients' QoL and work rehabilitation outcome.

In a resource intensive treatment such as dialysis, optimal rehabilitation of the patient becomes important from many perspectives. Competing demands for limited resources will force funding authorities to look beyond patient survival and a successful rehabilitation program will stand dialysis in good stead. It is important also from the patient's viewpoint. A long term repetitive treatment schedule which restricts successful rehabilitation particularly vocational rehabilitation may further add psychosocial problems to the patient. Further research to ascertain and minimize the impact of these risk factors on QoL and rehabilitation can lead to the development of strategies that will promote optimal rehabilitation.

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