

THE COST EFFECTIVENESS OF A LOW CLEARANCE CLINIC

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INTRODUCTION

The projected growth in spending for the treatment of end-stage renal failure threatens to become unsustainable for most countries. Different sources suggest that patients with progressive chronic kidney disease should be managed in a multidisciplinary care setting. Given that multidisciplinary teams impact health care resources, it is imperative to evaluate their effectiveness.

OBJECTIVE

The purpose of this study was to evaluate the impact of exposure to conventional nephrology care or low clearance clinic team (LCC) care prior to dialysis initiation on patient outcomes and expenditure after dialysis initiation.

METHODS

This retrospective study considered incident haemodialysis patients attending the LCC vs receiving standard nephrologist care at our Centre, between 2008 and 2011.

Data were collected of all patients at the time of dialysis initiation. Serial laboratory data were collected at the time of dialysis initiation and monthly until 12 months of follow-up. Costs were calculated based on the Portuguese capitation system introduced in 2008.

Statistical analysis

For comparison between groups, the Student's t-test or Wilcoxon rank-sum test and chi-square test were used. We used a binary logistic regression model to evaluate the risk of hospitalization. Survival on dialysis was examined using the Kaplan-Meier method and was compared using the log-rank test. Cox proportional hazard modelling was also used to examine hazard ratios for death as outcome. P values < 0.05 were considered statistically significant.

RESULTS

Table 1. Summary demographics at dialysis initiation

	Entire cohort	Standard nephrologist care	Low clearance clinic	P
N (%)	176	63 (36.0%)	113 (64.0%)	
Follow-up (months)	43.0 ± 41.6	39.6 ± 45.6	45.1 ± 39.4	ns
Age, (years)	67.4 ± 15.2	66.0 ± 15.7	68.3 ± 15.0	ns
Female gender, n (%)	70 (39.8%)	28 (44.4%)	42 (37.2%)	ns
Diabetes, n (%)	58 (33.0%)	18 (28.6%)	40 (35.4%)	ns
Cardiovascular disease, n (%)	49 (27.8%)	19 (30.2%)	30 (26.6%)	ns
GFR, (ml/min/m ²)	9.5 ± 3.7	8.3 ± 2.9	10.1 ± 4.0	0.002
Definitive vascular access, n (%)	138 (78.4%)	41 (65.1%)	97 (85.8%)	0.002

RESULTS (cont)

Table 2. Laboratory data at dialysis start, 6-month and 12-month post-dialysis

	Standard nephrologist care	Low clearance clinic	P
Hemoglobin (g/dl)			
Dialysis start	10.1 ± 1.5	10.2 ± 1.4	ns
6 months	11.8 ± 1.6	11.8 ± 1.5	ns
12 months	11.5 ± 1.5	11.6 ± 1.1	ns
Albumin (g/dl)			
Dialysis start	3.5 ± 0.6	3.8 ± 0.5	0.020
6 months	4.0 ± 0.4	4.0 ± 0.4	ns
12 months	4.0 ± 0.3	4.1 ± 0.4	ns
Calcium (mg/dl)			
Dialysis start	8.4 ± 1.0	8.7 ± 0.8	0.060
6 months	8.9 ± 0.7	8.9 ± 0.7	ns
12 months	8.7 ± 0.6	8.8 ± 0.6	ns
Phosphate (mg/dl)			
Dialysis start	5.4 ± 1.6	4.9 ± 1.5	0.075
6 months	4.5 ± 1.3	4.6 ± 1.4	ns
12 months	4.2 ± 1.3	4.5 ± 1.3	ns
PTH (pg/ml)			
Dialysis start	841.1 ± 625.5	549.7 ± 512.4	0.008
6 months	186.8 ± 130.5	225.8 ± 185.3	ns
12 months	247.9 ± 173.2	276.0 ± 170.2	ns

Table 3. Cost data at 6-month and 12-month post-dialysis

	Standard nephrologist care	Low clearance clinic	P
Total Costs (euros)			
6 months	5087.3 ± 3741.4	3737.7 ± 2386.4	0.005
12 months	8024.6 ± 5311.9	6336.4 ± 4768.7	0.035
Anemia related costs (euros)			
6 months	4135.5 ± 3592.0	3048.0 ± 2069.2	0.013
12 months	6443.8 ± 4846.7	5126.2 ± 4168.8	0.064
Mineral bone metabolism related costs (euros)			
6 months	874.1 ± 947.1	641.7 ± 870.6	ns
12 months	1444.5 ± 1777.0	1131.5 ± 1584.7	ns
High blood pressure related costs (euros)			
6 months	67.2 ± 84.6	38.4 ± 54.1	0.008
12 months	116.4 ± 160.3	60.3 ± 85.8	0.003

There were no differences in survival or morbidity between groups. Older age was associated with greater risk hospitalization and death; a definitive vascular access correlated with lower hospitalization and a trend to lower risk of death.

Table 4. Risk of death (Cox proportional hazard modelling)

Characteristic	β	Exp (B)	95% CI	P value
Age	2.170	8.759	2.683 – 28.598	< 0.001
Gender	0.219	1.245	0.645 – 2.403	ns
GFR	0.285	1.330	0.692 – 2.554	ns
Definitive vascular access	-0.703	0.495	0.245 – 1.002	0.051
Low clearance clinic	-0.087	0.916	0.480 – 1.749	ns
Diabetes	0.168	1.183	0.636 – 2.200	ns
Cardiovascular disease	0.154	1.166	0.604 – 2.251	ns

Table 5. Risk of hospitalization

Characteristic	β	Exp (B)	95% CI	P value
Age	0.770	2.159	1.069 – 4.361	0.032
Gender	0.440	1.552	0.747 – 3.226	ns
GFR	0.364	1.439	0.693 – 2.986	ns
Definitive vascular access	-1.316	0.268	0.106 – 0.680	0.006
Low clearance clinic	0.218	1.243	0.592 – 2.610	ns
Diabetes	0.118	1.125	0.536 – 2.360	ns
Cardiovascular disease	0.621	1.139	0.817 – 4.233	ns

CONCLUSIONS

Better biochemical variables and presence of a definitive vascular access at dialysis initiation in the Low Clearance Clinic group, resulted in a lower expenditure during the first year of haemodialysis.

