Patient Education Promoting 'Peritoneal Dialysis First': Its Impact on Unexpected Haemodialysis Starts

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Introduction

In British Columbia, education of predialysis CKD patients encourages them to consider independent renal replacement therapy (RRT) options such as peritoneal dialysis (PD) first. As a result, PD is the documented first choice in about 50% of patients with a RRT decision. However, PD prevalence rates remain about 25% indicating that some of these patients are commencing other modalities such as haemodialysis (HD).

Hypothesis

Many patients who chose PD start and remain on HD, potentially leading to more unplanned HD starts and lower AV fistula incidence rates in these patients compared to those who chose and started HD.

Methods

- A retrospective cohort study of prospectively collected data in British Columbia using a provincial CKD patient registry (PROMIS).
- Inclusion criteria:
  - All patients starting dialysis between Dec 31, 2006 and Dec 31, 2008.
  - Minimum 90 days on dialysis to ensure RRT was chronic.
  - A minimum 3 months predialysis follow-up.
  - At least 1 predialysis RRT education session.
- Exclusion criteria:
  - Any patients with previous RRT including prior transplantation.

Statistical Methods

- Categorical variables were summarized using frequency and percentage with differences measured using the χ^2 – test.
- Normally distributed continuous variables were summarized using the mean±SD with differences measured using a t-test.
- Non-normally distributed continuous variables were summarized using the median (IQR) with differences assessed using the non-parametric Wilcoxon test.

Results

- 508 patients were included in the study.
- At 3 months prior to dialysis start,
  - 127 (25%) chose HD.
  - 114 (22%) chose PD.
  - 13 (3%) chose pre-emptive transplant.
  - 5 (1%) chose conservative management.
  - 249 (49%) were undecided or had no documented decision.
- Of those with a documented predialysis modality choice, 44% (114 of 259) chose PD.

Results

Table 1: Baseline characteristics of patients according to modality choice

Variable	Undecided at 3 months pre-dialysis	Decided at 3 months pre-dialysis	P value	HD choice at 3 months pre-dialysis	PD choice at 3 months pre-dialysis	P value
Total number of patients	249	259		127	114	
Age at dialysis start	68 (57-75)	67 (57-77)	0.83	69 (59-78)	68 (56-74)	0.13
Male gender	150 (60%)	139 (54%)	0.13	63 (50%)	62 (54%)	0.46
Diabetes	129 (52%)	124 (48%)	0.38	68 (54%)	50 (44%)	0.13
Cardiovascular disease	87 (35%)	103 (40%)	0.26	57 (45%)	41 (36%)	0.16
Race			0.09			0.08
Caucasian	165 (66%)	149 (58%)		76 (60%)	64 (56%)	
Asian Oriental	27 (11%)	41 (16%)		20 (16%)	20 (18%)	
Asian South/East	31 (12%)	45 (17%)		24 (19%)	16 (14%)	
Other	26 (10%)	24 (9%)		7 (6%)	14 (12%)	
Physical exam						
Weight in kg	77.3 (65.0-91.0)	75.8 (63.9-91.0)	0.54	76.3 (64.5-94.7)	75.5 (62.7-88.2)	0.27
Height in cm	167.5 (160.0-175.0)	166.6 (157.5-175.3)	0.61	165.1 (156.5-176.0)	166.6 (157.5-175.3)	0.63
BMI	27.4 (24.0-32.0)	26.4 (23.8-31.2)	0.31	27.7 (23.8-34.7)	26.0 (23.8-30.6)	0.10
Lab values						
Albumin in g/l	35.0 (31.0-38.0)	35.5 (30.0-39.0)	0.42	35.0 (30.0-38.0)	36.0 (32.0-39.5)	0.05
eGFR	10 (8-12)	10 (8-13)	0.13	10 (7.5-13)	10.3 (8-13)	0.35
# of GFR measurements in 12 months prior to dialysis start	12 (8-14)	12 (9-14)	0.76	12 (8-14)	12 (9-13)	0.80
eGFR slope in year prior to dialysis	-7.17 (-11.93 to -3.73)	-5.79 (-9.98 to -3.11)	0.01	-5.26 (-9.61 to -3.16)	-5.86 (-10.18 to -2.95)	0.93
Months of nephrology follow-up	30 (14-53)	28 (12-44)	0.08	32 (12-49)	27 (12-42)	0.27

Table 2: Predialysis modality choice vs actual start modality

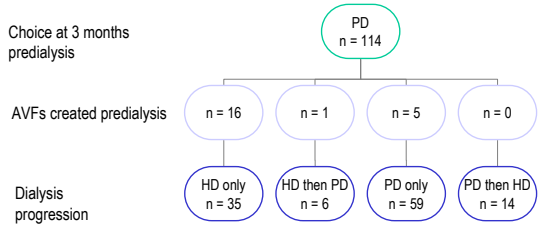
Predialysis Choice	Actual RRT Modality	
	Haemodialysis	Peritoneal Dialysis
Haemodialysis	120 (94%)	7 (6%)
Peritoneal Dialysis	41 (36%)	73 (64%)
Transplant	5 (38%)	8 (62%)
Conservative	5 (100%)	0
Undecided	170 (68%)	79 (32%)

Table 3: Predialysis AV creation according to dialysis modality

Predialysis Modality Choice	Start Modality	Number of Patients	Number of AVFs Created
HD	HD	120	95 (79%)
PD	HD	41	17 (41%)
Undecided	HD	170	85 (50%)
PD	PD	73	5 (7%)

Results

Figure 1: Progression of patients who chose peritoneal dialysis



Discussion

In British Columbia,
- 44% of predialysis patients with a documented modality choice chose PD.
- A significant proportion of these patients (36%) failed to start on their modality of choice and commenced HD instead.

- Of those who chose PD but started HD, 41% had AVFs created prior to dialysis start.
- Those who chose and started HD had a higher rate of AVF creation at 79%.
- The higher rate of AVF creation in the group who failed to start PD vs those who started PD (41% vs 7%) indicated that physicians already had reservations about the likelihood of some patients to start PD.

- Of further concern, 49% of patients had no documented predialysis modality choice.
- Whatever the reason for no documented decision (patient indecision or failure of healthcare staff to complete documentation), these patients were much more likely to start on HD (68%) and less likely to have had an attempt at AVF creation (50%).
- This highlights the importance of ensuring that predialysis modality decisions are made and recorded with a view to improving AVF creation rates.
- Patients who are unable to decide re modality should be referred for AVF creation as they will almost certainly commence HD.

Conclusions

A significant proportion of patients who chose PD failed to commence their modality of choice and started on HD instead. These patients had a lower rate of AVF creation than those who chose and started HD. Attention should now be focused on identifying the factors that predict failure to commence PD for those who chose it predialysis. Better identification of patients who are unlikely to start on PD would ensure a greater proportion of these patients are referred for AVF creation prior to dialysis start.