Urgent start peritoneal dialysis and outcomes

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Disclosures

- SK, SS, DEC, CC, FT, and SMB are employees of DaVita Clinical Research
  - SMB's spouse is an employee of AstraZeneca
- MS is an employee of DaVita Inc
- DVW is the Physician Executive of the DaVita Patient Safety Organization

- This poster describes the results of a research project conducted by the DaVita Patient Safety Organization, a federally listed Patient Safety Organization, and is presented with its permission. The data discussed herein has been certified as non-identifiable pursuant to 42 C.F.R 3.212 (a;1). DaVita Clinical Research is a contractor to the DaVita Patient Safety Organization.

Introduction

- Many patients start dialysis without optimal pre-dialysis planning
- Most such patients initiate in-center hemodialysis using a central venous catheter (ICHD-CVC)
- Alternatively, patients may utilize urgent start peritoneal dialysis (USPD)
  - In USPD, a PD catheter is placed and used for dialysis initiation without the usual 2-4 week waiting period
- Comparison of outcomes achieved by patients using these two different dialysis initiation routes is needed.

Methods

- Eligible patients were adults who initiated dialysis with USPD or ICHD-CVC at dialysis facilities that were participating providers with the DaVita Patient Safety Organization between 01 January – 31 Dec 2018 [1]

- Patients were matched 1:1 on the basis of insurance type, etiology of ESKD, race, and diabetes

- Patient characteristics were summarized as of dialysis initiation

- Patients were followed forward in time from dialysis initiation to the first of death, transplant, loss to follow-up, or study end (30 June 2019)

- Outcomes evaluated were mortality, hospitalization, and KDQOL domain scores
  - Outcomes were compared across exposure groups using Cox proportional hazard models, negative binomial models, or generalized linear models as appropriate. All models were adjusted for age and sex

[1] All study data were derived from statistically de-identified electronic health records. Because this study was conducted using de-identified patient data, according to title 45, part 46 of the US Department of Health and Human Services' Code of Federal Regulations, it was deemed exempted from institutional review board or Ethics Committee approval (Quorum institutional review board, Seattle, WA, USA). We adhered to the Declaration of Helsinki and informed consent was not required

Patient Characteristics at Baseline

	ICHD-CVC (N=717)	USPD (N=717)
Age, years, mean ± SD	60.4 ± 15.1	56.5 ± 16.1
Sex, female, n (%)	293 (40.9)	282 (39.3)
Race, n (%) [a]		
White	318 (44.4)	318 (44.4)
Black	172 (24.0)	172 (24.0)
Hispanic	109 (15.2)	109 (15.2)
Other/Unknown	118 (16.4)	118 (16.4)
Etiology of ESKD, n (%) [a]		
Diabetes	242 (33.8)	242 (33.8)
Hypertension	161 (22.5)	161 (22.5)
Other	314 (43.8)	314 (43.8)
Commercial insurance, n (%) [a]	260 (36.3)	260 (36.3)
Diabetes, n (%) [a]	451 (62.9)	451 (62.9)
Charlson Comorbidity Index, mean ± SD	4.8 ± 1.7	4.5 ± 1.7

- In the matched study cohort, patients who initiated dialysis via USPD were on average somewhat younger and slightly less likely to be female, compared to patients who initiated dialysis via ICHD-CVC
- Subsequent analyses were adjusted for these two factors.

[a] Cohorts were exact matched on this factor
Abbreviations: CVC, central venous catheter; ESKD, end-stage kidney disease; ICHD, in-center hemodialysis; PD, peritoneal dialysis; SD, standard deviation.

Mortality and Hospitalization

Mortality

0.84 (0.62, 1.15)

Hospitalization


0.76 (0.65, 0.88)
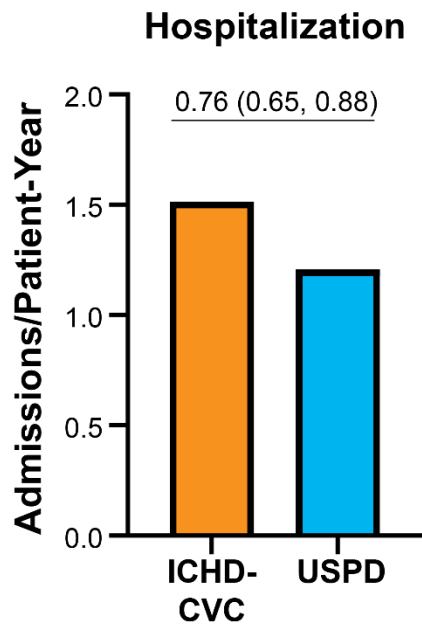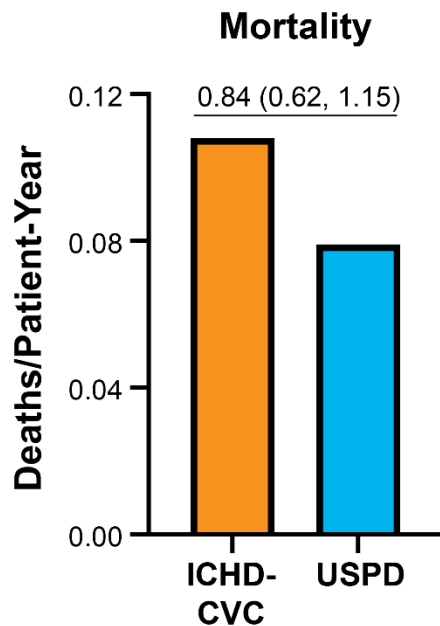
- USPD was associated with a lower mortality rate in the matched sample, although the difference was not statistically significant.

- USPD was associated with a 24% lower rate of hospitalization during follow-up, compared to ICHD-CVC. This difference was statistically significant.

Plotted values are outcome rates in the matched sample. For mortality, the comparison represents the adjusted hazard ratio (95% CI); for hospitalization, the comparison represents the adjusted incidence rate ratio (95% CI). Comparisons were adjusted for residual imbalances in age and sex.

Abbreviations: CVC, central venous catheter; ICHD, in-center hemodialysis; USPD, urgent start peritoneal dialysis

Quality of Life
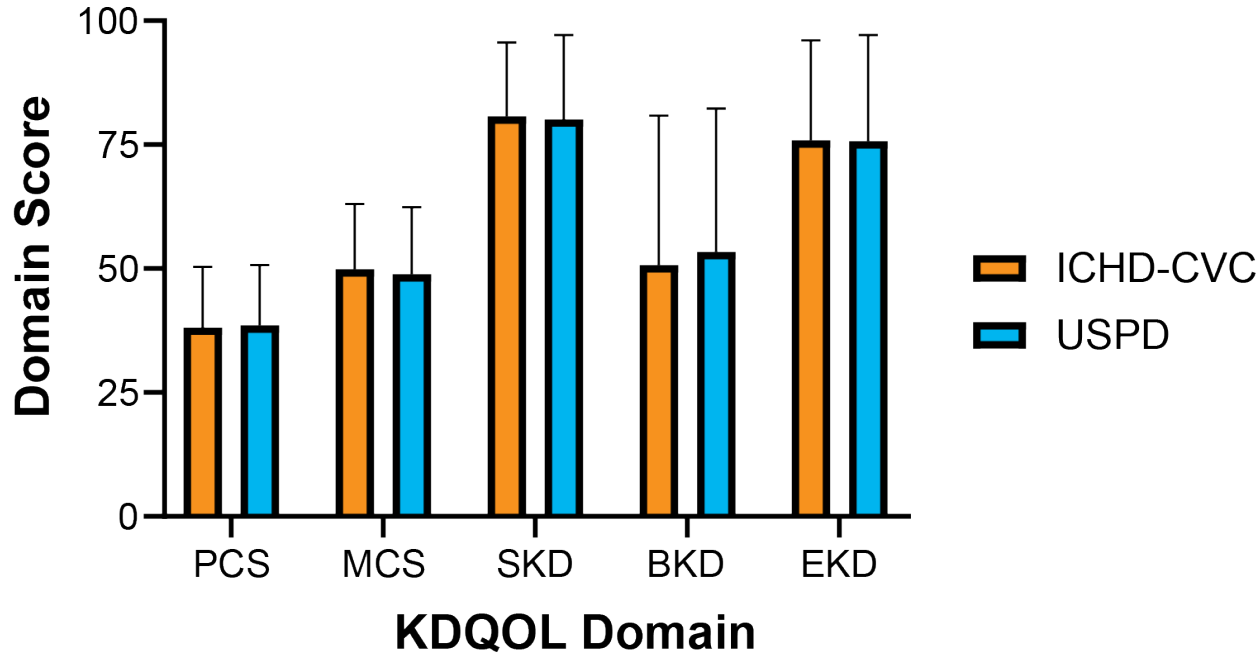
Scores on the 5 domains of the Kidney Disease Quality of Life instrument did not differ significantly between USPD and ICHD-CVC during follow-up.

Plotted values represent crude mean and standard deviation of scores obtained in the first 150 days of dialysis. No statistically significant differences were observed across exposure groups (p>0.05). Abbreviations: BKD, burden of kidney disease; CVC, central venous catheter; EKD, effects of kidney disease; ICHD, in-center hemodialysis; KDQOL, kidney disease quality of life; MCS, Mental composite score; PCS, physical composite score; SPKD, symptoms and problems of kidney disease; USPD, urgent start peritoneal dialysis.

Conclusions

- Among patients without optimal pre-dialysis planning, use of USPD is associated with a lower subsequent hospitalization rate compared to ICHD-CVC.
  - A lower mortality rate was also observed although it did not achieve statistical significance.
- No differences were observed with respect to KDQOL scores.
- In areas where the facilities and clinical expertise exist, more widespread adoption of USPD may lead to better outcomes among patients with limited pre-dialysis planning.

Limitations

- The matched design was used to maximize validity, but intrinsically limits the generalizability of findings to only those patients who were similar to those who received USPD (i.e. would have been possible candidates for dialysis initiation using this method).

- Small event numbers may have limited the ability to detect differences across exposure groups with respect to mortality.

- This was a retrospective, observational study.
  - Residual confounding may have influenced the results.
  - Cause and effect are not determined.