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Improvements in Clinical and Operational Outcomes for a Cohort of Patients Converted from Central Venous Catheter Access

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Background: Improvements in mortality and morbidity related to the reduction of central venous catheters (CVCs) in end-stage renal disease (ESRD) patients (pts) have been reported, however little has been described regarding improvements in surrogate biochemical outcomes and operational parameters. Given the economic incentives associated with the new ESRD bundled payment system, improvements in operational and surrogate biochemical outcomes may be an important ancillary driver to CVC reduction efforts.

Methods: We assessed operational and biochemical outcomes of pts after implementation of a CVC reduction program called which significantly reduced CVC rates from 2008 to present. Data from 6 months pre and post CVC conversion were assessed in a cohort of pts who converted from CVCs between October 2008 and June 2010 (n=3235). The analysis had 2 components, (i) impact on clinical parameters including albumin, Kt/V, hemoglobin (Hb), and average blood flow rate (BFR) and (ii) impact on operational dialysis parameters including heparin use, tissue plasminogen activator (tPA) use, and missed treatments. Three month averages for the cohort from months -6 to -4 were compared to months +4 to +6.

Results: Improvements were noted in most of the clinical parameters, including BFR. These clinical improvements were achieved with more efficient resource utilization, specifically heparin and tPA (Table).

Parameter	Months -6 to -4	Months +4 to +6	P-value	% Change
Albumin (mg/dL)	3.67±0.45	3.86±0.38	<0.0001	5.2%
Kt/V	1.61±0.39	1.70±0.34	<0.0001	5.6%
Hb (mg/dL)	11.63±1.08	11.59±0.87	0.10 (NS)	(0.34%)
BFR	359±41	414±51	<0.0001	15.3%
Heparin (U/tx)	11.44±6.02	4.92±2.70	<0.0001	(57.0%)
tPA (mg/tx)	0.072±0.24	0.0051±0.073	<0.0001	(92.9%)
Missed tx/month	0.92±1.72	0.85±1.66	0.10 (NS)	(7.6%)

Conclusion: We demonstrate that tangible benefits exist in terms of patient outcomes and operational parameters with the successful conversion of pts from CVCs for vascular access. These findings add to the compelling rationale for continued reduction in CVC access prevalence in ESRD pts.

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