Characteristics and Growth of a Multi-center US Home Hemodialysis Program

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Background

- As home hemodialysis (HHD) becomes more popular, many clinicians have questions regarding the characteristics of patients on HHD as well as potential growth of this modality.

- There is no data reporting the characteristics of HHD patients from multiple centers.

- Age, diabetes, and Charlson index all predict outcomes for in-center (IC) hemodialysis patients.

- In this retrospective study we report demographics of home hemodialysis patients compared to IC hemodialysis (HD) patients for a large, multi-center, national, dialysis provider.

Patient Population

- All patients participating in the Davita At Home Hemodialysis program in the years 2005 through 2007.

- Clinical data are collected by the HHD nurse for each patient and are entered into a DaVita database
  - first date of dialysis (FDOD) and first date of Davita dialysis (FDODD)
  - first and last dates of HHD treatments
  - demographics (date of birth, gender, race)
  - comorbidities included in the Charlson Comorbidity Index

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Definitions of Cohorts

- Participating is defined as any patient who has had a dialysis service charge record within the index month (December) of the reference years 2005, 2006, 2007.

- IC/HH refers to the last HD treatment date within the index month. For example: If the last treatment was IC, the patient is classified as IC for that year; if the last treatment was HH, the patient is classified as HH.

- Vintage refers to the time from the first date of dialysis (FDOD) to the last date of HH or IC treatment.

Analytical Calculations

- **Charlson Index**
  - Charlson ME, et al. J Chron Dis. 40(5)373-83,1987

- **Age**
  - DOB to the first index month

- **Regular Vintage**
  - First day of dialysis

Statistical Analysis

- For comparison between groups, T-test and overall chi-square were performed.

Demographics – number of patients

Number of Patients	2005	2006	2007
HHD	148	365	876
In-Center Total	85,844	91,369	95,551

Demographics – Age of patients

Characteristic		2005	2006	2007
Age (mean ± SD) $P < 0.0001$	HHD	50.8 ± 15.7	50.9 ± 14.6	51.5 ± 13.9
	In-Center	61.1 ± 15.2	61.1± 15.1	60.8 ± 15.1

Demographics – Sex

Characteristic		2005	2006	2007
% Male	HHD	64.2	67.7	66.6
P <0.0001	In-Center	54.8	55.1	55.3

Demographics – Race

Characteristic		2005	2006	2007
% Caucasian	HHD	54.1	59.7	63.8
P <0.0001	In-Center	38.1	38.3	38.2

Demographics – Diabetes

Characteristic		2005	2006	2007
% Diabetic	HHD	48.0	49.3	50.9
	In Center	51.8	57.9	59.1
		$P < 0.3512$	$P < 0.0001$	$P < 0.0001$

Vintage Days

Characteristic		2005	2006	2007
Vintage Days	HHD	2035.40	1717.50	1488.10
	In Center	1094.68	1118.69	1203.58
		$P < 0.0001$	$P < 0.0001$	$P < 0.0001$

Demographics – Charlson Index

Characteristic		2005	2006	2007
Charlson (mean ± SD)	HHD	4.6 ± 2.2	4.7 ± 2.3	4.8 ± 2.2
	In Center	5.4 ± 2.2	5.5 ± 2.2	5.4 ± 2.1
$P < 0.0001$				

[Regression Trend test P T<0.3979]

Summary of Results

- Over one-year periods the HHD program grew 147% from 2005 to 2006 and 134% from 2006 to 2007

- The average age of the HHD patients was significantly lower compared to IC patients

- There were more males on HHD than on IC HD

- Similarly there were more Caucasians in the HHD cohort

- After the first year, there was a significantly smaller percentage of diabetics in the HHD than the IC cohort

- Patients on HHD were on dialysis longer than IC patients

- The Charlson was significantly lower in the HHD patients than the IC patients

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Conclusions

- HHD patients are significantly younger, are more likely to be Caucasian males and have lower comorbidities (prevalence of diabetes and Charlson co-morbidity scores) than IC HD patients.

- Studies that report outcomes for HHD patients need to control for these differences.

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