

Determinants and Predictors of Successful Home Hemodialysis Training in a Multi-Center US Observational Cohort

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Introduction

- Frequent home hemodialysis (HHD) is a growing renal replacement modality in North America.
- Emerging data suggest that intensive hemodialysis offers multiple clinical advantages over conventional hemodialysis while providing improved quality of life.
- Studies examining the suitability and determinants of successful HHD candidates are lacking.

Methodology

- Descriptive cohort study of all patients enrolled into an HHD program with a large, US dialysis provider
 - January 1, 2004 - December 31, 2009.
- Our primary objectives were:
 - to define the demographic characteristics of our HHD cohort and
 - to assess the risk factors for patients unable to successfully undertake HHD therapy.

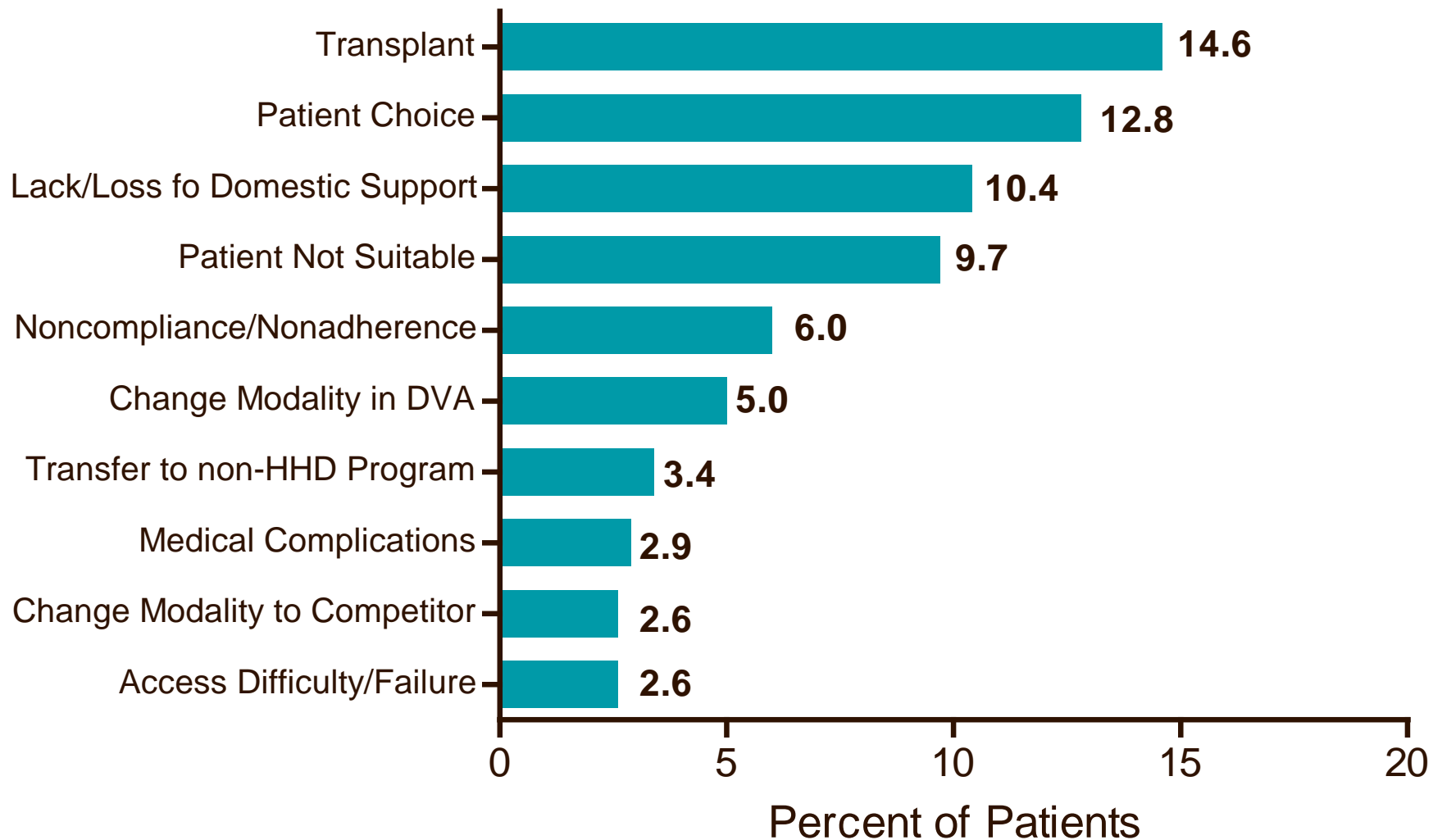
Patient Demographics

	Home Hemodialysis (n=1222)	Training Failure (n=144)
Age (years)*	52 ± 0.4	56 ± 1.1
Female:Male	421:801	49:95
Diabetes (%)*	29	40
Body Mass Index (g/m ²)	28.4 ± 0.2	28.7 ± 0.6
Hypertension (%)	24	16
Charlson Co-morbidity Index*	5.2 ± 0.1	5.6 ± 0.2
Dialysis Vintage (years)	3.1 ± 0.1	2.9 ± 0.3

Results

- 1222 patients were able to achieve HHD therapy after a mean training duration of 17.7 ± 0.2 days (mean \pm SE).
- 144 patients failed to graduate to HHD despite receiving 10.1 ± 0.6 training days.

Reasons for Patient Dropout



Failure Risk Factors

- A multivariable model predicting HHD training success indicated that significant risk factors for failure were:
 - age (per 1 year increase) (odds ratio: 0.97, $p < 0.001$)
 - diabetes status (odds ratio: 0.65, $p = 0.006$)

Limitations of the Study

- Retrospective observational design
- Residual confounders that were not elucidated
- Unable to capture other potential risk factors (e.g. social support)
- Did not ascertain patient perspectives
- This should not prevent the elderly or the diabetic patient from being considered for home HD

Conclusion

- This is the first US multi-center systematic analysis of the determinants of HHD patients.
- This study showed that advanced patient age and diabetes status are associated with HHD training failure.
- These data may be used to help predict which patients are likely to succeed or fail in training.