

# Independent Association of Hemodialysis Treatment Session Time and 5-Year Survival in 88,153 Maintenance Hemodialysis Patients

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## Background

- The impact of the duration of hemodialysis (HD) treatment time on survival independent of the dialysis dose (Kt/V) in maintenance hemodialysis (MHD) patients is unclear.
- We hypothesized that higher HD treatment time is associated with greater survival.

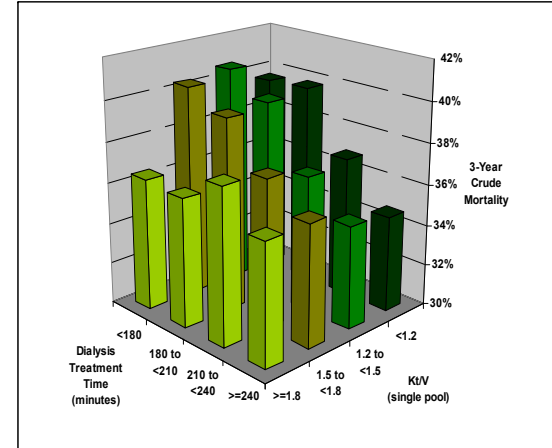
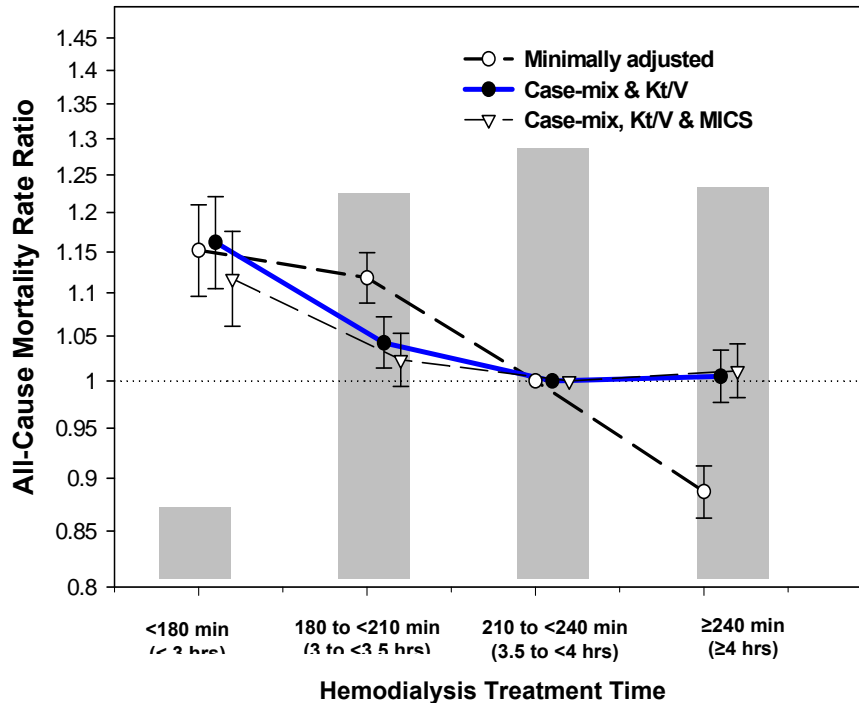
## Methods

- We examined the associations between reported HD treatment time and 5-year survival in the national database of 88,153 MHD patients who underwent dialysis treatment for at least 3 months from all Legacy DaVita dialysis facilities between July 2001 and June 2006, after deleting those who received HD <30 min or >6 hrs during any given treatment session.
- Analytical Method: Cox survival modeling
- The death hazard ratios (and 95% CI) of the HD treatment time were calculated at 3 levels of multivariate adjustments:
  - Unadjusted
  - Case-mix adjusted: Demographics (age, gender, race/ethnicity, diabetes, vintage, insurance, marital status), KRU and dialysis dose (Kt/V single pool)
  - Malnutrition-inflammation complex syndrome (MICS) adjusted: BMI, weight, and blood/serum levels of creatinine, albumin, hemoglobin, WBC, ferritin, TIBC, lymphocyte%, calcium, phosphorus & bicarbonate

## Results

- Maintenance hemodialysis patients who underwent HD treatment less than 3 hours had 13% to 17% higher mortality compared to those who were treated 3.5 to 4 hours (see Figure and Table below):

Death HR (95% CI)	< 3hrs	3 to < 3.5 hrs	3.5 to < 4 hrs	≥ 4 hrs
Number of patients	4,889	26,603	29,744	26,917
Unadjusted HR	1.15 (1.09-1.21)	1.12 (1.09-1.15)	1.00 (ref.)	0.89 (0.86-0.91)
Case-mix adjusted HR	1.17 (1.11-1.22)	1.05 (1.02-1.07)	1.00 (ref.)	1.00 (0.97-1.03)
+ MICS adjusted HR	1.13 (1.07-1.19)	1.03 (1.00-1.06)	1.00 (ref.)	1.01 (0.98-1.03)



## Conclusions

In a large contemporary cohort of 88,153 MHD patients, hemodialysis treatment time >3.5 hours per treatment session is associated with survival advantages up to over 5 years even after adjustment for Kt/V and other confounders.

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