SUPPLEMENTAL TABLES

Table of Contents

Supplemental Table 1. Adjusted estimates of global cognitive trajectories among kidney transplant (KT) recipients, by baseline frailty incorporating spline terms at 3 months, 6 months, 1 year, 2 years and 3 years post-KT (n=665). The model was adjusted for baseline age (centered at 55 years), sex, race, education, self-reported quality of life, donor type (live or deceased), the Charlson Comorbidity Index adapted for ESRD patients, [39,40] recipient eGFR at time of admission and discharge, as well as immunosuppressive medications (induction and triple therapy, including tacrolimus (TAC), MMF, and steroid). Baseline frailty is defined by the Fried frailty phenotype at time of admission for KT (pre-KT). The estimated score is for the last day for the time interval. CI denotes confidence interval. Bold rates of change represent statistical significance at a cut-off of p=0.05.

Time of Assessment	**Estimated Score** ***points***		**Estimated Rate of Change During Interval (95% Confidence Intervals)** ***points per week***		
	Frail	Non-Frail	Frail	Non-Frail	Difference
Pre-KT	89.0	90.8	-	-	-
Post-KT					
≤ 12 weeks	91.7	92.6	**0.22 (0.05, 0.39)**	**0.14 (0.08, 0.21)**	0.08 (-0.10, 0.25)
12-24 weeks	90.8	92.3	-0.07 (-0.29, 0.15)	-0.02 (-0.11, 0.07)	-0.05 (-0.29, 0.18)
24-52 weeks	92.5	92.0	0.06 (-0.04, 0.16)	-0.01 (-0.05, 0.03)	0.07 (-0.04, 0.18)
52-104 weeks	91.0	92.8	-0.03 (-0.09, 0.03)	-0.02 (-0.01, 0.04)	-0.04 (-0.11, 0.02)
104-156 weeks	89.3	91.9	-0.03 (-0.10, 0.03)	-0.02 (-0.05, 0.02)	-0.02 (-0.09, 0.06)
156-208 weeks	87.0	93.8	-0.04 (-0.16, 0.07)	0.04 (-0.02, 0.09)	-0.08 (-0.21, 0.05)

Supplemental Table 2. Full Multivariate Model Output for Primary Analysis Assessing Post-KT Cognitive Trajectories (3MS score) by Pre-KT Frailty Status at different time intervals post-KT.

Variable	Coefficient (95%CI)	p-value
Frailty	-1.81 (-3.30, -0.33)	0.02
Follow-up time (weeks)	0.14 (0.08, 0.21)	≤0.001
Frailty*time	0.08 (-0.10, 0.26)	0.40
Spline (week12)	-0.17 (-0.30, -0.03)	0.02
Spline (week24)	0.02 (-0.10, 0.13)	0.77
Spline (week52)	0.01 (-0.03, 0.06)	0.64
Frailty*Spline (week12)	-0.13 (-0.50, 0.24)	0.50
Frailty*Spline (week24)	0.12 (-0.18, 0.43)	0.43
Frailty*Spline (week52)	-0.11 (-0.22, 0.002)	0.06
Race		
Black vs. White	-2.25 (-3.13, -1.37)	≤0.001
Other vs. White	-2.61 (-4.02, -1.20)	≤0.001
Female vs. Male	1.20 (0.41, 2.00)	0.003
Age (continuous)	-0.08 (-0.11, -0.05)	≤0.001
Deceased Donor vs. Live Donor	-1.19 (-2.17, -0.20)	0.02
CCI	-0.15 (-0.30, -0.01)	0.04
Education		
HS vs. Grade School	2.95 (1.41, 4.49)	≤0.001
2yr technical degree vs. Grade School	4.14 (2.41, 5.88)	≤0.001
College vs. Grade School	4.53 (2.95, 6.12)	≤0.001
Graduate vs. Grade School	5.05 (3.37, 6.72)	≤0.001
None of the above vs. Grade School	5.03 (-1.66, 11.72)	0.14
Quality of Life		
Very Good vs. Excellent	-0.22 (-1.11, 0.67)	0.63
Good vs. Excellent	-0.32 (-1.24, 0.6)	0.50
Fair vs. Excellent	-0.35 (-1.38, 0.69)	0.51
Poor vs. Excellent	-0.99 (-2.47, 0.49)	0.19
Recipient eGFR (admission)	0.03 (-0.03, 0.08)	0.37
Recipient eGFR (discharge)	-0.01 (-0.02, 0.01)	0.36
Induction (yes vs. no)	1.05 (-0.24, 2.33)	0.11
Triple Therapy, tac/MMF/steroid (yes vs. no)	0.99 (-0.33, 2.32)	0.14
Constant	90.83 (87.69, 93.96)	≤0.001

Supplemental Table 3. Sensitivity Analysis: Adjusted estimates of global cognitive trajectories among kidney transplant (KT) recipients, by baseline frailty status using a random effects Tobit model (n=665). The model was adjusted for baseline age (centered at 55 years), sex, race, education, self-reported quality of life, donor type (live or deceased), the Charlson Comorbidity Index adapted for ESRD patients,[39,40] recipient eGFR at time of admission and discharge, as well as immunosuppressive medications (induction and triple therapy, including tacrolimus (TAC), MMF, and steroid). Baseline frailty is defined by the Fried frailty phenotype at time of admission for KT (pre-KT). The estimated score is for the last day for the time interval. CI denotes confidence interval. Bold rates of change represent statistical significance at a cut-off of p=0.05.

Time of Assessment	**Estimated Score** ***points***		**Estimated Rate of Change During Interval (95% Confidence Intervals)** ***points per week***		
	Frail	Non-Frail	Frail	Non-Frail	Difference
Pre-KT			-	-	-
Post-KT	88.8	90.6			
≤ 12 weeks	91.4	92.3	**0.22 (0.05, 0.40)**	**-0.14 (0.08, 0.21)**	0.08 (-0.11, 0.26)
12-24 weeks	90.5	92.0	-0.08 (-0.30, 0.15)	-0.03 (-0.12, 0.06)	-0.05 (-0.29, 0.19)
24-52 weeks	92.3	92.0	0.06 (-0.03, 0.16)	-0.0004 (-0.04, 0.04)	0.06 (-0.04, 0.16)
52-208 weeks	87.6	92.5	**-0.03 (-0.05, -0.01)**	0.004 (-0.01, 0.01)	**-0.03 (-0.06, -0.01)**

Supplemental Table 4. Sensitivity Analysis: Adjusted estimates of global cognitive trajectories among kidney transplant (KT) recipients, by baseline frailty status, accounting for attrition assuming a mortal cohort using MI-GEE (n=665). Missing data were multiply imputed (MI) using chained equations and analyzed using generalized estimating equations (GEE) to describe repeated measures of cognition (3MS scores). The model was adjusted for baseline age (centered at 55 years), sex, race, education, self-reported quality of life, donor type (live or deceased), the Charlson Comorbidity Index adapted for ESRD patients,[39,40] recipient eGFR at time of admission and discharge, as well as immunosuppressive medications (induction and triple therapy, including tacrolimus (TAC), MMF, and steroid). Baseline frailty is defined by the Fried frailty phenotype at time of admission for KT (pre-KT). The estimated score is for the last day for the time interval. CI denotes confidence interval. Bold rates of change represent statistical significance at a cut-off of p=0.05.

Time of Assessment	**Estimated Score** ***points***		**Estimated Rate of Change During Interval (95% Confidence Intervals)** ***points per week***		
	Frail	Non-Frail	Frail	Non-Frail	Difference
Pre-KT	88.5	90.9	-	-	-
Post-KT					
≤ 12 weeks	91.0	90.8	**0.21 (0.06, 0.36)**	-0.004 (-0.02, 0.01)	**0.22 (0.06, 0.37)**
12-24 weeks	90.1	92.0	-0.07 (-0.27, 0.12)	**0.10 (0.04, 0.16)**	-0.18 (-0.38, 0.03)
24-52 weeks	91.8	91.1	0.06 (-0.05, 0.16)	0.03 (-0.07, 0.002)	0.09 (-0.02, 0.20)
52-208 weeks	88.5	92.3	-0.02 (-0.05, 0.01)	0.01 (-0.003, 0.02)	-0.03 (-0.06, 0.01)

Supplemental Table 5. Sensitivity Analysis: Adjusted estimates of global cognitive trajectories among kidney transplant (KT) recipients, by baseline frailty status, accounting for attrition assuming an immortal cohort using WGEE (n=665). Probabilities of remaining in the study were generated using complimentary-log-log, from which inverse probability weights were calculated and used in conjunction with generalized estimating equations (WGEE) to describe repeated measures of cognition (3MS scores). The model was adjusted for baseline age (centered at 55 years), sex, race, education, self-reported quality of life, donor type (live or deceased), and the Charlson Comorbidity Index adapted for ESRD patients,[39,40] recipient eGFR at time of admission and discharge, as well as immunosuppressive medications (induction and triple therapy, including tacrolimus (TAC), MMF, and steroid). Baselinefrailty is defined by the Fried frailty phenotype at time of KT admission (pre-KT). The estimated score is for the last day for the time interval. CI denotes confidence interval. Bold rates of change represent statistical significance at a cut-off of p=0.05.

Time of Assessment	**Estimated Score** ***points***		**Estimated Rate of Change During Interval (95% Confidence Intervals)** ***points per week***		
	Frail	Non-Frail	Frail	Non-Frail	Difference
Pre-KT	79.7	80.7	-	-	-
Post-KT					
≤ 12 weeks	84.4	83.0	**0.40 (0.21, 0.60)**	**0.20 (0.12, 0.28)**	**0.20 (0.01, 0.40)**
12-24 weeks	80.8	83.3	**-0.31 (-0.41, -0.21)**	0.02 (-0.06, 0.10)	**-0.34 (-0.46, -0.21)**
24-52 weeks	83.8	84.7	**0.11 (0.06, 0.16)**	0.05 (-0.01, 0.11)	0.06 (-0.02, 0.14)
52-208 weeks	76.6	85.2	**-0.05 (-0.06, -0.03)**	**0.003 (-0.04, 0.05)**	**-0.05 (-0.10, -0.003)**

Supplemental Table 6. Sensitivity Analysis: Adjusted estimates of global cognitive trajectories among kidney transplant (KT) recipients, by frailty status, accounting for time-varying frailty (n=665). The model was adjusted for baseline age (centered at 55 years), sex, race, education, self-reported quality of life, donor type (live or deceased), the Charlson Comorbidity Index adapted for ESRD patients,[39,40] recipient eGFR at time of admission and discharge, as well as immunosuppressive medications (induction and triple therapy, including tacrolimus (TAC), MMF, and steroid). Time-varying frailty is defined by the Fried frailty phenotype at each specific time point. The estimated score is for the last day for the time interval. CI denotes confidence interval. Bold rates of change represent statistical significance at a cut-off of p=0.05.

Time of Assessment	**Estimated Score** ***points***		**Estimated Rate of Change During Interval (95% Confidence Intervals)** ***points per week***		
	Frail	Non-Frail	Frail	Non-Frail	Difference
Pre-KT	90.3	91.0	-	-	-
Post-KT					
≤ 12 weeks	92.6	92.7	**0.19 (0.05, 0.33)**	**0.14 (0.09, 0.19)**	0.05 (-0.11, 0.20)
12-24 weeks	90.0	92.5	**-0.22 (-0.41, -0.02)**	-0.02 (-0.09, 0.05)	-0.20 (-0.41, 0.01)
24-52 weeks	93.4	92.6	**0.12 (0.03, 0.21)**	0.005 (-0.03, 0.04)	**0.12 (0.02, 0.21)**
52-208 weeks	88.0	92.9	**-0.03 (-0.06, -0.01)**	0.002 (-0.01, 0.01)	**-0.04 (-0.06, -0.01)**