

Comparing Long -Term Neurocognitive Functioning in Dialysis and Transplantation – A Six Year Prospective Study.

Deane, J. A.¹, Griva, K.², Stygall, J.³, Rixon, L.³, Newman, S. P.³, & Shahab, L.⁴.

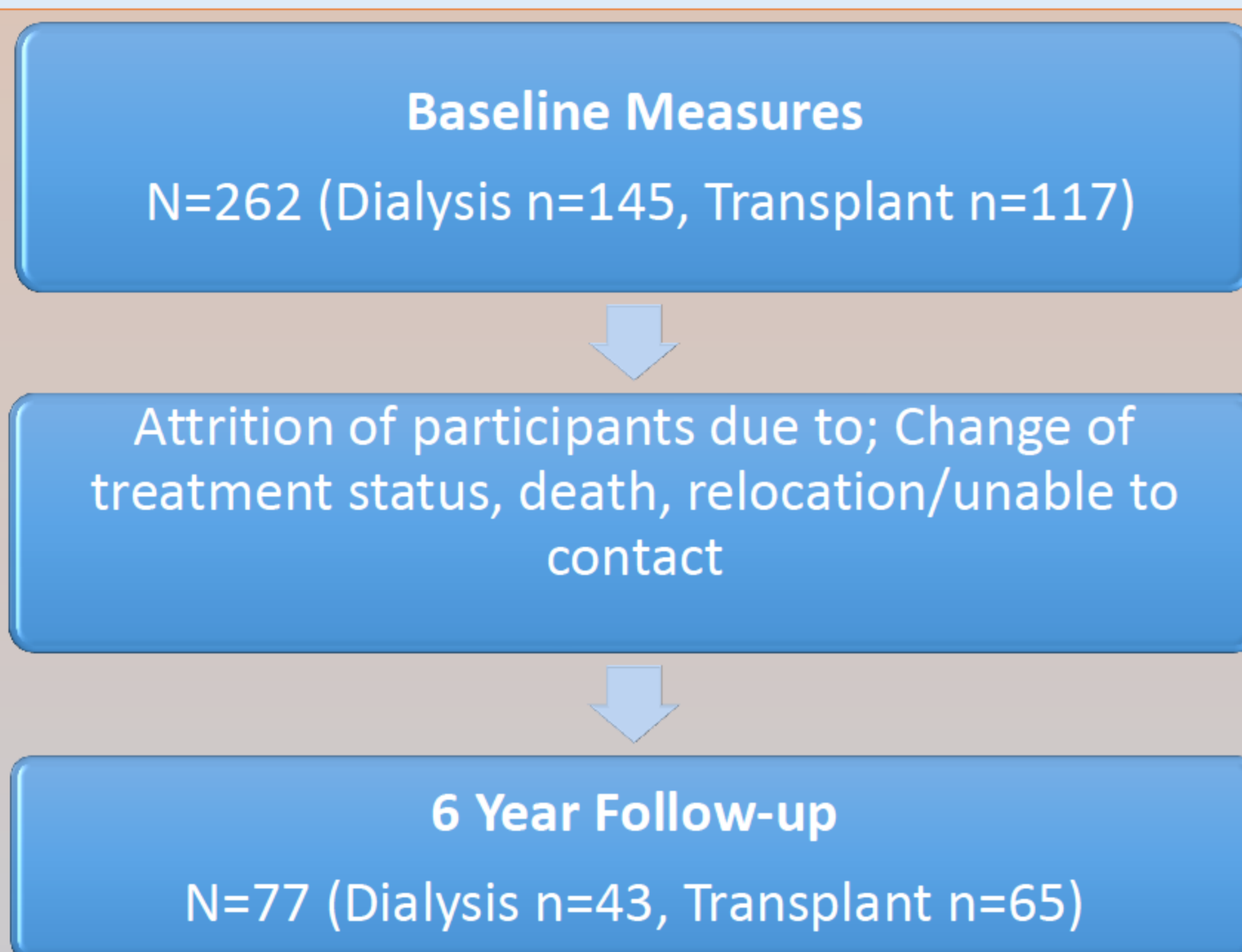
1. Queen Mary University, London, 2. National University of Singapore, 3. City University, London, 4. University College London.

Introduction

- Cognitive dysfunction is common at every level of Chronic Kidney Disease. Impairments in attention, memory, speed of performance, and executive functioning are presented early on and persist with initiation onto dialysis.
- Changes in cognitive functioning have been noted both over the dialysis cycle and with successful renal transplant.
- Research is dominated by cross sectional studies. Little is known on the long term neuropsychological outcomes in dialysis and transplantation.
- This prospective study set out to examine and compare the course of cognitive functioning between dialysis and transplantation through repeated assessment over 6 years.

Methods

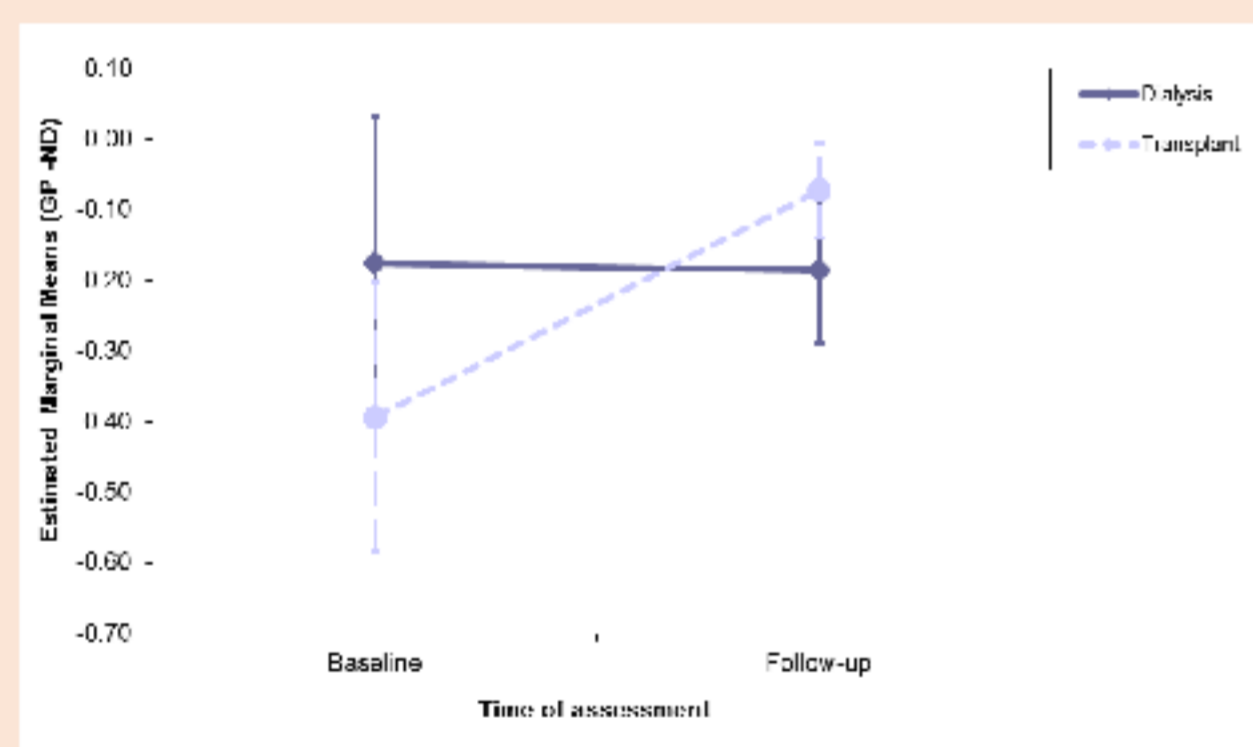
Patients were recruited from two London hospitals between 1998 - 2000
Baseline and follow-up (M=6.6 years) cognitive measures were taken



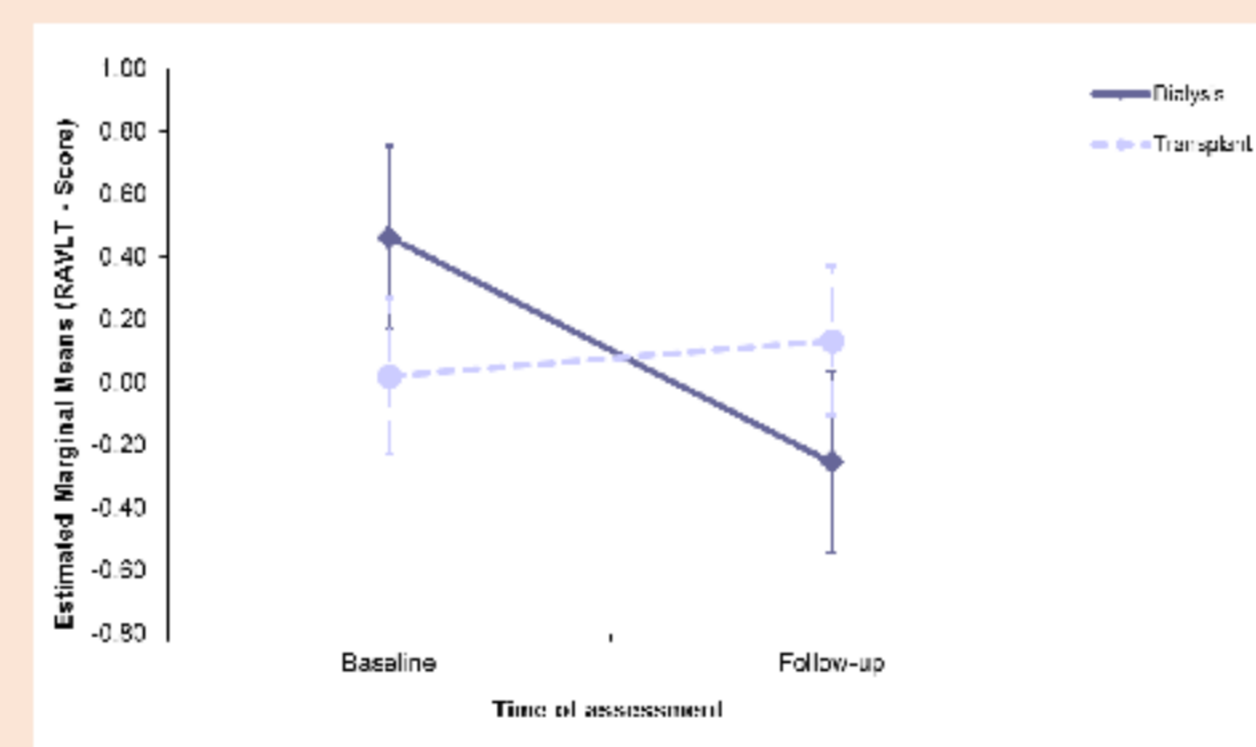
Battery of Cognitive Tests Used and Domains Tested

Cognitive Domain	Test	Scoring
Attention	TMT-A	Time to completion/secs
Executive Function	TMT-B	Time to completion/secs
Complex Attention	Symbol Digit Modalities Test (Oral and Written)	Number of correctly coded items in 90 secs
Processing Speed	Symbol Digit Modalities Test (Oral and Written)	Number of correctly matches in 90 secs
Verbal Memory	Rey Auditory Verbal Learning Test	Number of correctly words recalled (out of 15)
Fine Motor Skills	Grooved Pegboard (Dominant and Non-Dominant hand)	Time to completion/secs

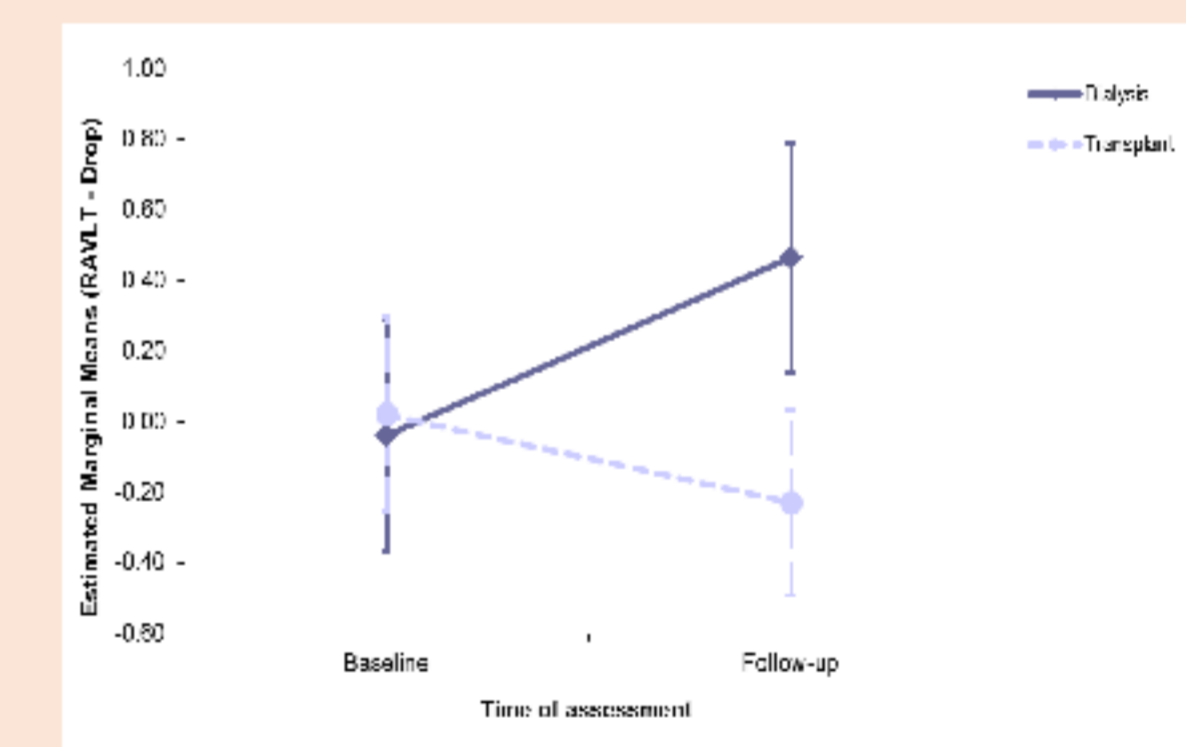
Results



Grooved Pegboard (Non-Dominant hand)



Rey Auditory Verbal Learning Test (Total Score)



Rey Auditory Verbal Learning Test (Change in Score from initial recall to delayed recall)

- There is a significant improvement over time in transplant patients memory scores, compared to dialysis patients
- Dialysis patients memory declines significantly over time
- Transplant patients perform significantly worse over time in fine motor skills (non-dominant hand) compared to the more stable dialysis group.
- Both groups show a significant decline in complex attention, and fine motor skills (dominant hand)
- Dialysis patients show an accelerated rate of decline

Discussion

This is the first study to show long term cognitive functioning in dialysis and transplant patients

Dialysis patients show a significant decline in memory over time, where as dialysis patients show vast improvements supporting previous literature on memory.

The pattern of improvement in transplant patients is important as it points to longer term transplant related gains.

Findings for fine motor skills less robust, potential future research may consider the effect on immunosuppressant drugs on this area (Cyclosporine causes tremors in 12% of users)

Future areas of research may consider the impact decline of cognitive functioning has on; Quality of Life, decision making with regards care and treatment and treatment adherence

