

## BACKGROUND

- Cognitive decline amongst hemodialysis (HD) patients long term.
- Concerns regarding patients' safety immediately after dialysis.
- Lack of current evidence discussing cognition and HD short term.



## AIMS

- 1) Measure cognitive function during HD and >24hrs later.
- 2) Investigate associations of cognitive performance with physiological parameters during HD.

## METHODS

- Observational prospective study.
- 100 participated from three HD units in Birmingham.
- Inclusion criteria - maintenance HD therapy for at least three months, aged over 50.
- Exclusion criteria – dementia.
- Ethical approval granted – internal and external (Derby).
- Statistics:
  - Median and Interquartile range (IQR)
  - Friedman test
  - Spearman's rank correlation
  - Cohen's effect size

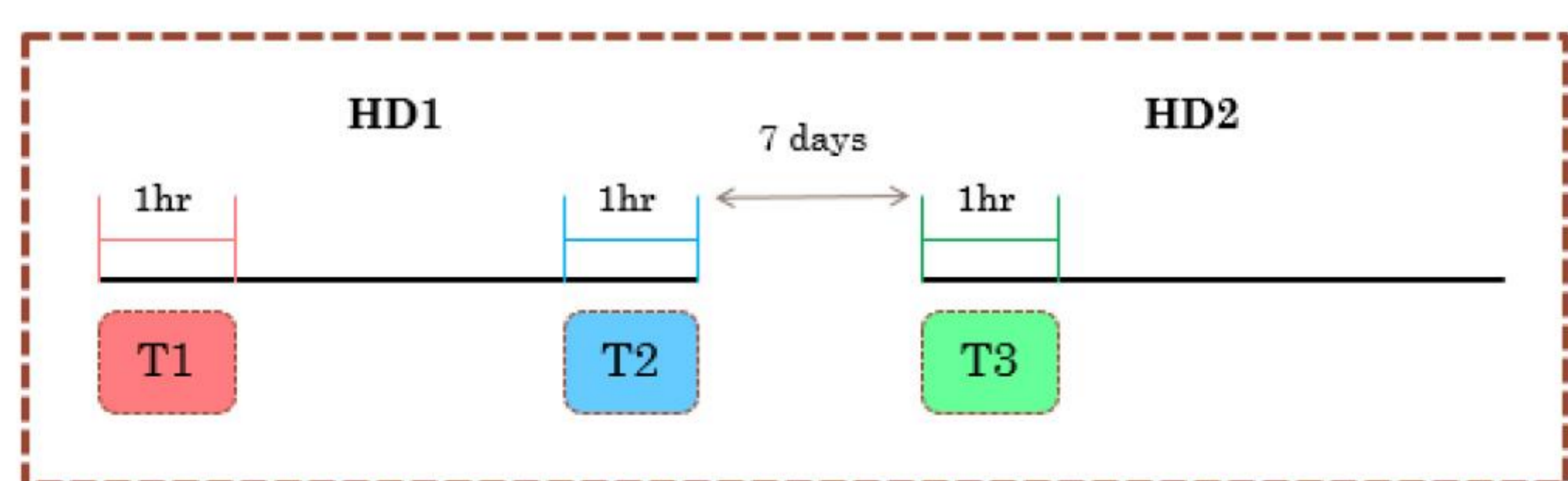
## DATA COLLECTION

### Assessments:

1. Montreal Cognitive Assessment (MOCA)
2. Geriatric Depression Scale (GDS)
3. Confusion Assessment Method (CAM)

### Physiological parameters:

1. Mean Arterial Pressure
2. Heart rate
3. Oxygen saturation
4. Urea reduction ratio
5. Haemoglobin
6. Intradialytic weight



## ACKNOWLEDGMENTS

- Castle Vale, Solihull and BHH dialysis units
- Medical Innovation Development Research Unit
- 100 participants

## RESULTS

- 75% (100/133) participation rate.
- Demographics:

	Mean (SD)
Age (n=100)	72 (9)
Percentage (%)	
Gender (n=100)	
Male	59
Female	41
Ethnicity (n=100)	
Caucasian	84
Asian	11
Afro-Caribbean	5

**Table 1:** Participant demographics of 100 HD patients from three satellite HD units

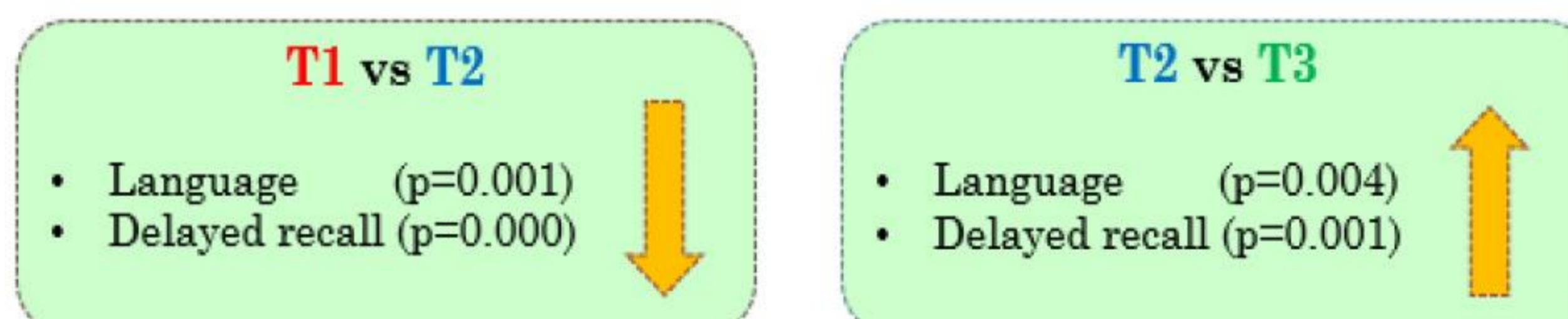
Number of participants with a normal MOCA score:

- 19/100 (19%) at T1
- 5/100 (5%) at T2
- 13/78 (17%) at T3

MOCA assessment	Median (IQR)	Friedman test p-value	Cohen's effect size
T1 (n=100)	70 (60-80)		
T2 (n=100)	67 (57-73)		
T3 (n=78)	67 (57-80)		
T1 vs T2		0.000	0.26
T2 vs T3		0.015	0.16
T1 vs T3		0.256	0.099

**Table 2:** MOCA score at T1, T2 and T3  
Effect size : small 0.1, medium 0.3, large 0.5

## SPECIFIC DOMAINS OF MOCA



### T1 vs T3

- NO statistically significant changes.

### GDS:

- 57/100 (57%) at T1
- 41/92 (45%) at T2
- 40/76 (53%) at T3

### CAMS:

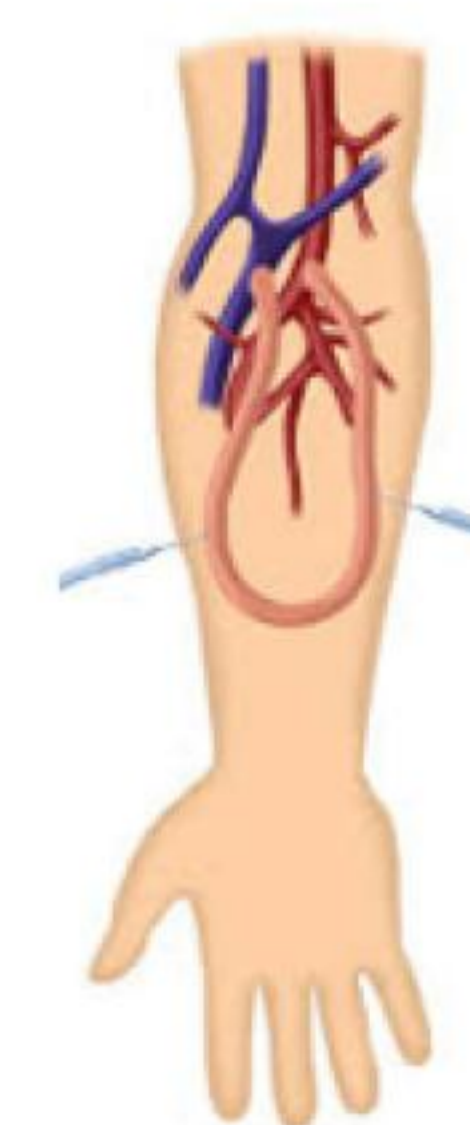
- No evidence of delirium
- No significant changes

### Physiological parameters:

- No significant correlations

## CONCLUSION

- Cognition declines acutely during a HD session before returning just below baseline.
- Attention and delayed recall domains affected.
- No association with changes in physiological parameters.
- High rates of depressive symptoms amongst HD patients.



## REFERENCES

- Murray AM, Pederon SL, Tupper DE, Hochhalter AK, Miller WA, Li Q, Zaun D, Collins AJ, Kane R, Foley RN. 2007. Acute variation in cognitive function in hemodialysis patients: a cohort study with repeated measures. *Am J Kidney Dis*; 50(2): 270-8.
- Vats HS, Duffy DP. 2010. Assessment of Self-Perceived Risk and Driving Safety in Chronic Dialysis. *Patients. Dialysis & Transplantation*; 39(2): 63-68.