

Clinician reported cognitive impairment and residual renal function in older patients on peritoneal dialysis : a retrospective analysis

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Introduction

Cognitive impairment (CI) is common in the dialysis population and more so in older people. Peritoneal dialysis (PD) has been associated with a slower decline in cognitive function and a lower cumulative risk of dementia when compared with haemodialysis (HD).^{1 2} Haemodynamic instability may be contributory although similar cerebrovascular changes have been reported with both modalities.³ Residual renal function (RRF), often better preserved and linked to survival in PD patients, is hypothesized to be protective against cognitive decline in PD patients. This has not been formally evaluated in clinical studies. This single centre retrospective study aims to evaluate the relationship between clinician reported CI and RRF in older PD patients.

Methods

PD patients between 2009 and 2019, who were 65 years or older and with a PD vintage of at least 3 months, were evaluated. Those with a HD, transplant vintage or without a baseline PD adequacy test were excluded from the cohort. Demographic and clinical variables were collated from the renal database in addition to baseline PD adequacy results. Patients with suspected or confirmed cognitive deficits as reported by their clinician were deemed to have CI. Baseline characteristics were compared using univariate tests. Cox regression analysis was used to evaluate the relationship between baseline RRF and CI after adjusting for confounders.

Results

83 PD patients [age at PD onset – 73(70 -79) years; vintage – 22(10 – 36) months; 28.9% diabetic] met the eligibility criteria during the study period. 8.4% of them were deemed to have CI. Increasing age [HR -1.19 (1.04 -1.37), p =0.01], PD vintage [(HR -0.52 (0.30 -0.87), p =0.01], total weekly creatinine clearance (CrCL) at baseline [HR – 0.95 (0.91 – 1.00), p = 0.04] and residual CrCL at baseline (in ml/min) [HR – 0.77 (0.59 – 1.00, p = 0.05) were associated with CI in the univariate analysis. Higher residual CrCL continued to be associated with a lower risk of CI, after adjusting for age and PD vintage [HR – 0.37 (0.15 – 0.93), p = 0.03]. Total weekly CrCL was removed from the final model, due to strong correlation with residual CrCL.

Limitations

Ascertainment and selection bias

Small sample

Trend in RRF not evaluated during study period

Conclusions

Higher RRF may be associated with a lower risk of cognitive impairment in older people on PD. If corroborated in prospectively designed studies with objectively assessed cognitive trends, there could be implications for incremental dialysis and other strategies for preserving RRF.