

## Frailty is associated with ESRD choices but executive function impairment may impact patient decision making

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### Background

There are a growing number of people with end-stage renal disease (ESRD) requiring consideration of renal replacement therapy (RRT). The decision-making to initiate these patients on dialysis or non-dialysis medical (conservative) therapy is complex. This is in part due to high prevalence of frailty among our ageing population and the volume of details regarding the simultaneous benefits and variable burden of each therapy option - whether haemodialysis (HD), Peritoneal Dialysis (PD) or Conservative/supportive. Frailty is a clinical syndrome characterised by increased vulnerability to adverse outcomes as a result of reduced physiological reserve and multisystem decline. In ESRD, frailty is associated with poor clinical outcomes and mortality. A multidimensional and comprehensive assessment is, therefore, required to assist patients and clinicians in this shared decision-making process.

We aimed to assess cognitive function and frailty among patients with ESRD, and evaluate their association with choice of dialysis/non-dialysis modality.

### Methods

All patients were from a single UK renal centre. Overall frailty was assessed by the Clinical Frailty Score (Rockwood, scored 1-9), and cognition by both Abbreviated Mental Test 4 (AMT-4) and Clock Drawing Test (CDT).

CFS is a 9-point frailty assessment tool, ranging from a scale of 1 (very fit) to 9 (terminally ill), based on clinical descriptors and pictographs of functional status.

AMT-4 is a rapid screening tool for memory impairment, by 4 questions (age, date of birth, year and location, scored 0-4)

CDT is a 3-point screening tool for executive and visulo-spatial function; 1 point is earned for each of Clock : 1) contour, 2) numbers and 3) hands indicating the correct time.

### Results

We evaluated 552 patients. 44% were female, mean age 68.1±15.1 years (range 18-99).

The majority (388) had CKD 4/5, with the remainder already on RRT.

Mean CFS was 4.1 (range 1-9) and was similar in both CKD and RRT (4.1, 3.9, p=0.10).

CFS was different in CKD patients dependent on RRT choice. Frailty was higher in those planning for Conservative vs RRT treatment (5.6, 3.9, p<0.0001) but lower in PD vs HD (3.7, 4.1, p=0.015). There was no difference by PD sub-type. People without a decision yet were similar to those who had an ESRD plan (3.8, 4.2, p=0.26).

AMT-4 proved to be poorly discriminatory with 337 of 356 patients scoring 4 and no correlation with CFS. CDT however was highly variable (mean 2.25, range 0-3, n=44). There was a suggestion of lower CDT in Conservative patients but numbers were small (Conservative 1.5, RRT 2.3, p=0.15). CDT did negatively correlate with CFS (r=-0.36, p=0.01)

Although not designed as a mortality project, CFS was significantly higher in those (48) who died (5.3, 3.9, p<0.0001).

### Conclusions

Frailty presents a significant burden in ESRD, both with and without RRT. It is associated with RRT choices; frailer people are more likely to opt for HD or non-dialysis treatment. Assessment of cognition is needed, primarily by executive function rather than memory. This may have an important impact on people's ability to make complex decisions around their future ESRD care.