Prevalence and Predictors of Frailty in an Elderly Pre-Dialysis cohort

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Introduction:

Prevalence of chronic kidney disease (CKD) is increasing worldwide especially among elderly population. Approximately 25% of the dialysis population is over the age of 80 (1). Frailty is a health condition associated with the ageing process. The relationship between frailty and CKD in elderly population has been recognised and some studies have demonstrated frailty as a predictor of adverse outcome especially among haemodialysis patients(2,3). Studies concentrating on frailty in pre-dialysis patients are limited. We aimed to assess prevalence and predictors of frailty in our elderly pre-dialysis population.

Methodology:

A cross-observational study was conducted in which 108 patients aged 65 years or above with an eGFR of 25 or less were included. Data including age, sex, FBC, CRP, ferritin, renal function, calcium, albumin, PTH and co-morbidities were collected at baseline, at 3 months interval and at the end of one one year. Functional performance was assessed using Karnofsky scale. Frailty was assessed using combination of PRISMA questionnaire and Timed up and Go test (TUGT).

Prisma 7 Questions

1. Are you more than 85 years?

2. Male?

3. In general do you have any health problems that require you to limit your activities?

4. Do you need someone to help you on a regular basis?

5. In general do you have any health problems that require you to stay at home?

6. In case of need can you count on someone close to you?

7. Do you regularly use a stick, walker of wheelchair to get about?

TUGT test

### Karnofsky scale

100	Normal; no complaints; no evidence of disease
90	Able to carry on normal activity; minor signs or symptoms of disease
80	Normal activity with effort; some signs or symptoms of disease
70	Cares for self; unable to carry on normal activity or to do work
60	Requires occasional assistance but is able to care for most personal needs
50	Requires considerable assistance and frequent medical care
40	Disabled; requires special care and assistance
30	Severely disabled; hospitalisation is indicated, although death not imminent
20	Very sick; hospitalisation necessary; active support treatment is necessary
10	Moribund; fatal processes
0	Dead

Results:

A frail group (n=61; male =31, female=30) and a non-frail group (n=47; male=20, female=27) were identified. Frailty was prevalent in 53.6% of our population aged >65 years. Multiple regression analysis was used to compare different variables to frailty .Functional performance was significantly lower in the frail group compared to non-frail (P=0.0001). No significant differences between the 2 groups in terms of age(P=0.8), sex(P=0.6), haemoglobin (P=0.2), white blood cells(P=0.4),CRP(P=0.9), Ferritin (P=0.4), Calcium(P=0.2), Albumin (P=0.3), change in creatinine (P=0.9), PTH(P=0.3) or number of co-morbidities(P=0.8)were seen.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Frailty	-0.059844	0.896801	-0.066730	0.9471
Age	-0.002640	0.008620	-0.306302	0.7608
Albumin	-0.009225	0.011719	-0.787145	0.4352
Calcium	-0.414857	0.329313	-1.259766	0.2141
Change in Creatinine	7.33E-05	0.000675	0.108556	0.9140
CRP	-0.000314	0.001613	-0.194458	0.8467
Ferritin	0.000133	0.000190	0.696960	0.4893
Hemoglobin	0.006073	0.004566	1.330103	0.1900
Karnofsky	2.287868	0.344073	6.649378	0.0000
No. of Morbidities	-0.022233	0.061575	-0.361075	0.7197
PTH	-0.003329	0.003246	-1.025495	0.3105
SEX	0.055979	0.098630	0.567568	0.5731
WBC	-0.010947	0.015890	-0.688909	0.4943

Prevalance of Frailty
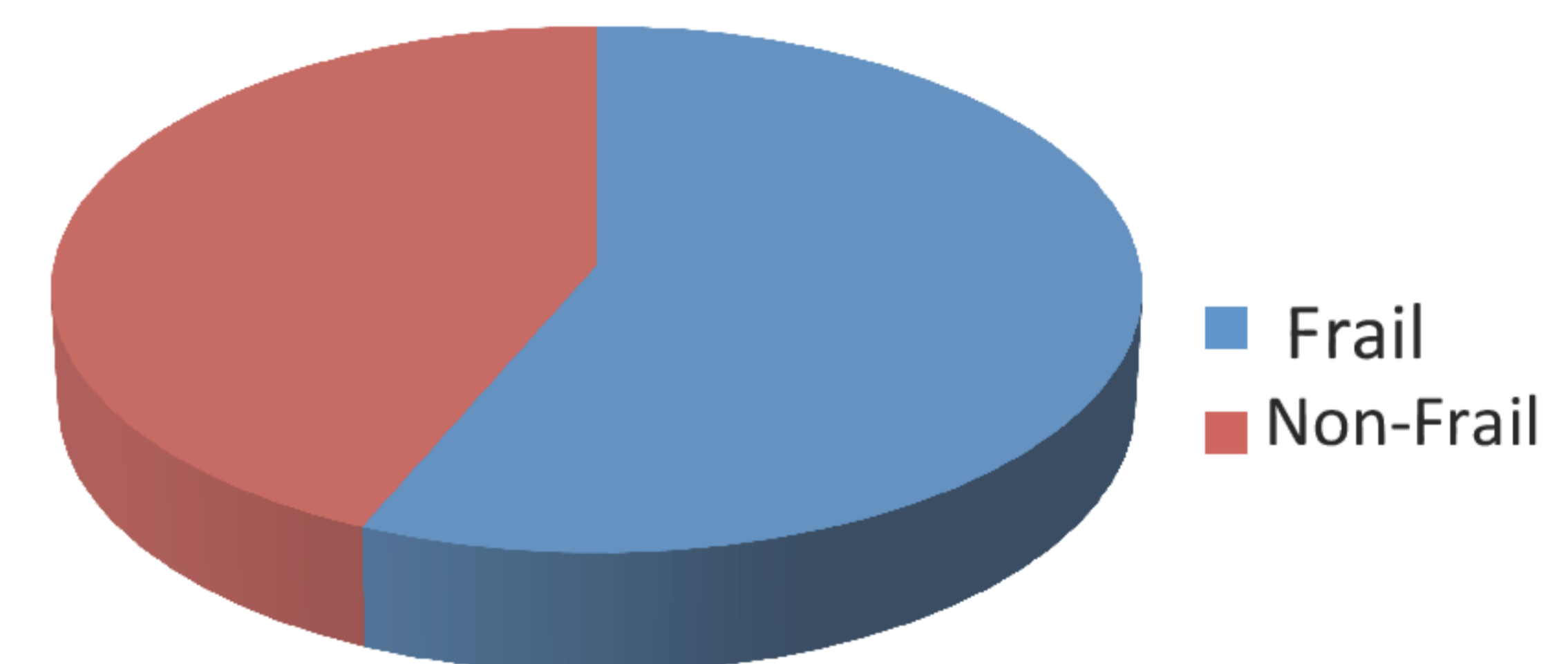
- Frail
- Non-Frail

Conclusion and Key points

• Prevalence of frailty is high amongst elderly pre-dialysis patients.

• These patients have lower functional performance.

• Anaemia, Calcium homeostasis and inflammatory markers do not predict frailty.

• As many of these patients will go on to have renal replacement and worsening of their physical parameters it is important that frailty is recognised in these patients at the pre-dialysis stage.

References

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