

IS FRAILTY ASSOCIATED WITH QUALITY OF LIFE, NUTRITIONAL STATUS AND CLINICAL CONDITION IN ELDERLY PATIENTS ON HEMODIALYSIS?

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1. INTRODUCTION AND OBJECTIVE

The proportion of elderly patients starting dialysis is increasing worldwide. The chronic kidney disease and the hemodialysis (HD) procedure contribute to the development of frailty. Therefore, we aimed to evaluate the association between frailty, quality of life, nutritional status and clinical condition in elderly patients on HD.

2. METHODS

Study design: Observational and cross sectional study.

Patients: 157 non-institutionalized patients aged 60 years and older on HD for at least 3 months.

Outcomes variables:

- **Quality of Life (QOL)** → Kidney Disease and Quality of Life questionnaire (KDQOL)
- **Nutritional Status** → Subjective global assessment (SGA), body fat (BF; by skinfold thicknesses) and skeletal muscle mass (SMM; by bioelectrical impedance, Janssen *et al* equation). BF and SMM were divided by the square height in meters to calculate the BF index and SMM index.
- **Clinical Condition** → Urea Kt/V, albumin, 25 OH Vitamin D and C-reactive protein (CRP).
- **Frailty** → Defined on the basis of a modification of previously validated frailty criteria, originally reported by Fried *et al*:

1. **Weight loss:** Unintentional weight loss ≥ 2.5 kg in the past 6 months;
2. **Slow walking:** Scored when answering “yes, limited a lot” for the question: “How much your health now limits you to walk one block?”;
3. **Weakness:** Handgrip strength (measured by hand dynamometer) in the lowest 20% percentile of our sample according to gender (≤ 20 kg for men and ≤ 14 kg for women);
4. **Exhaustion:** scored when answering “Some of the time”, “a good bit of the time”, “most of the time” or “all of the time” for the question “How much of the time during the past 4 weeks did you feel worn out?”;
5. **Low physical activity:** defined from self-reported exercise habits.

Three groups were created based on the number of positive frailty criteria:

3 to 5 domains	1 to 2 domains	No domain
Frailty group (FrailG) n=48 (31%)	Pre-frailty group (PreFG) n= 97 (62%)	Non-frailty group (Non-FG) n=12 (8%)

3. RESULTS

Table 1. Demographic and Nutritional characteristics of the sample, according to the groups.

	FrailG (n= 48)	PreFG (n=97)	Non-FG (n=12)	p
Age (yr)	71.6 \pm 8.1	69.8 \pm 6.7	73.2 \pm 7.9	0.157
Women, %	30 (63)	23 (24)	3 (25)	<0.001
PEW* (%)	72	56	33	0.03
BF index (kg/m ²)	9.3 \pm 3	7.9 \pm 3	7.7 \pm 3	0.07
SMM index (kg/m ²)	8.1 \pm 2	8.7 \pm 2	9.1 \pm 2	0.11

*Accessed by SGA; BF: Body fat; SMM: Skeletal muscle mass

Table 2. Clinical condition of the sample, according to the groups.

	FrailG (n= 48)	PreFG (n=97)	Non-FG (n=12)	p
CRP (mg/dL)	0.37 [0.2-1.2]	0.51 [0.2-1.1]	0.2 [0.1-0.5]	0.04
25 OH vit. D (ng/mL)	18.6 [13.3-28.4]	19.6 [12.6-26.4]	22.3 [11.6-34.3]	0.79
Albumin (g/dL)	3.9 \pm 0.4	3.9 \pm 0.4	3.9 \pm 0.6	0.78
Urea Kt/V	1.5 [1.3-1.6]	1.4 [1.3-1.6]	1.5 [1.1-1.7]	0.61

CRP: C-reactive protein

- ✓ Among the 22 domains of KDQOL, 18 were significant lower in the FrailG ($p < 0.05$: ANOVA; $p < 0.05$: Post-Hoc Bonferroni Test).
- ✓ Frailty score was negatively associated with SGA scores ($r = -0.35$; $P < 0.01$); and SMM index ($r = -0.3$; $P < 0.01$) and positively associated with BF index ($r = 0.20$; $P = 0.02$).
- ✓ The prevalence of frailty observed in our sample (31%) was within the that reported in adults dialysis patients, which can range from 30 a 68%) (Johansen *et al*, 2007, 2014; Mansur *et al*, 2012).

4. CONCLUSION

- ✓ Frailty was associated with worse QOL and nutritional status in elderly on HD.
- ✓ The inflammatory status was worse in the Frail and Pre-frail groups.
- ✓ Therapeutic interventions are needed in order to implement better patient care and improve QOL, nutritional status and the clinical condition in elderly patients on HD.

5. REFERENCES

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FUNDING: FAPERJ (Brazil), grant number E-26/111.653/2010 and E-26/103.209/2011

Poster number: SP716

