

# Does body composition influence mortality in hemodialysis geriatric patients?

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## Introduction and objective

Many patients on maintenance hemodialysis (HD) are older than 65 years old and the dialysis vintage is increasing. Due to the treatment *per se* and several other factors, these patient's nutritional status and body composition suffer changes which predict worst outcomes.

The **aim** of this study was to analyze if there are body composition parameters which are reliable mortality predictors in patients older than 65 years old.

## Methods

- Prospective longitudinal study with 24 months of follow-up which included 2534 patients from 35 dialysis units in Portugal
- Patients were divided in two age groups (G1: 65-79 years old and G2: ≥80 years old).
- Clinical and body composition parameters were compared between the two groups with T-student test and Cox regression analysis. The number of hospitalizations was also registered.
- Body composition was assessed with bioimpedance spectroscopy (*Body Composition Monitor*, Fresenius Medical Care®).
- A p-value <0.05 was considered statistically significant.

## Results

Table 2. Patient's characteristics by study group : G1 (65-79 years old) e G2 (≥80 years old)

	G1 (n=1377)	G2 (n= 1157)	P-value
Male	58.8%	53.3%	-
Diabetics	40.5%	30.2%	-
HD vintage <sup>1</sup>	74.4±53.1	68.7±45.8	<b>0.004</b>
Age adjusted Charlson comorbidity index <sup>1</sup>	6.0±1.5	7.1±1.6	<b>0.012</b>
Protein intake (nPCR: g/Kg/dia) <sup>1</sup>	1.13±0.26	1.05±0.25	<b>&lt;0.001</b>
Albumin (g/dL) <sup>1</sup>	4.0±0.4	3.8±0.4	<b>&lt;0.001</b>
Total cholesterol (mg/dL) <sup>1</sup>	178.6±45.5	174.5±40.5	<b>0.044</b>
HDL cholesterol (mg/dL) <sup>1</sup>	49.5±15.6	52.2±15.6	<b>&lt;0.001</b>
Phosphorus (mg/dL) <sup>1</sup>	4.2±1.2	3.7±1.2	<b>&lt;0.001</b>
Kt/V <sup>1</sup>	1.6±0.4	1.8±0.4	<b>&lt;0.001</b>
Creatinine (mg/dL) <sup>1</sup>	7.7±2.0	6.7±1.8	<b>&lt;0.001</b>
Dry weight (Kg) <sup>1</sup>	68.8±13.0	63.3±12.9	<b>&lt;0.001</b>
Body mass index (Kg/m <sup>2</sup> ) <sup>1</sup>	27.0±4.8	25.5±4.9	<b>&lt;0.001</b>
Lean tissue index (Kg/m <sup>2</sup> ) <sup>1</sup>	11.8±2.7	10.9±2.5	<b>&lt;0.001</b>
Fat tissue index (Kg/m <sup>2</sup> ) <sup>1</sup>	14.4±5.7	13.6±5.5	<b>0.003</b>
Body cell mass index (Kg/m <sup>2</sup> ) <sup>1</sup>	6.3±1.9	5.6±1.8	<b>&lt;0.001</b>
Relative overhydration (%)	8.00±7.9	8.09±8.7	0.405

Values presented as Mean ± SD

## Overall Mortality

### G1 (65-79 years old) and G2 (≥80 years old)

- Lean Tissue Index (G1 - HR: 1.566; p=0.014; G2 - HR: 1.523; p=0.003)
- Body Cell Mass Index (G1 - HR: 1.585; p=0.012; G2 - HR: 1.475; p=0.007)
- Protein intake (G1 - HR: 1.618; p=0.001; G2 - HR: 1.427; p=0.003)
- Albumin (G1 - HR: 1.662; p<0.001; G2 - HR: 1.387; p=0.007)
- Number of hospitalizations (G1 - HR: 4.177; p<0.001; G2 - HR: 2.982; p<0.001)

### G1 (65-79 years old):

- Body Mass Index (G1 - HR: 3.567; p=0.003)
- Phosphorus (G1 - HR: 1.357; p=0.037)
- Relative overhydration (G1 - HR: 2.525; p<0.001)



After adjustment for age, diabetes, gender, HD vintage and albumin, the **Lean Tissue Index** and the **Body Cell Mass Index** remained significant in both groups. The same was observed with **relative overhydration** but only in the group of younger patients.

## Conclusion

Different mortality predictors were found depending on the age group of the patients. Lean tissue index and body cell mass index are independent mortality predictors in these patients and relative overhydration is reliable only for younger patients.

