

Peritoneal Dialysis patients are more hypervolemic than Hemodialysis patients: Truth or myth?

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Background

- Bioimpedance spectroscopy was recently introduced in the medical field and soon revealed itself as a valuable tool for dry weight estimation in renal replacement therapy (RRT).
- The increasing interest in assessing hydration status based on a noninvasive conductivity method has demonstrated its major role in adjusting the ultrafiltration volumes to achieve a better fluid balance.

Aims

To compare body composition and hydration status in RRT patients (both HD and PD) by using a BCM guided fluid device.

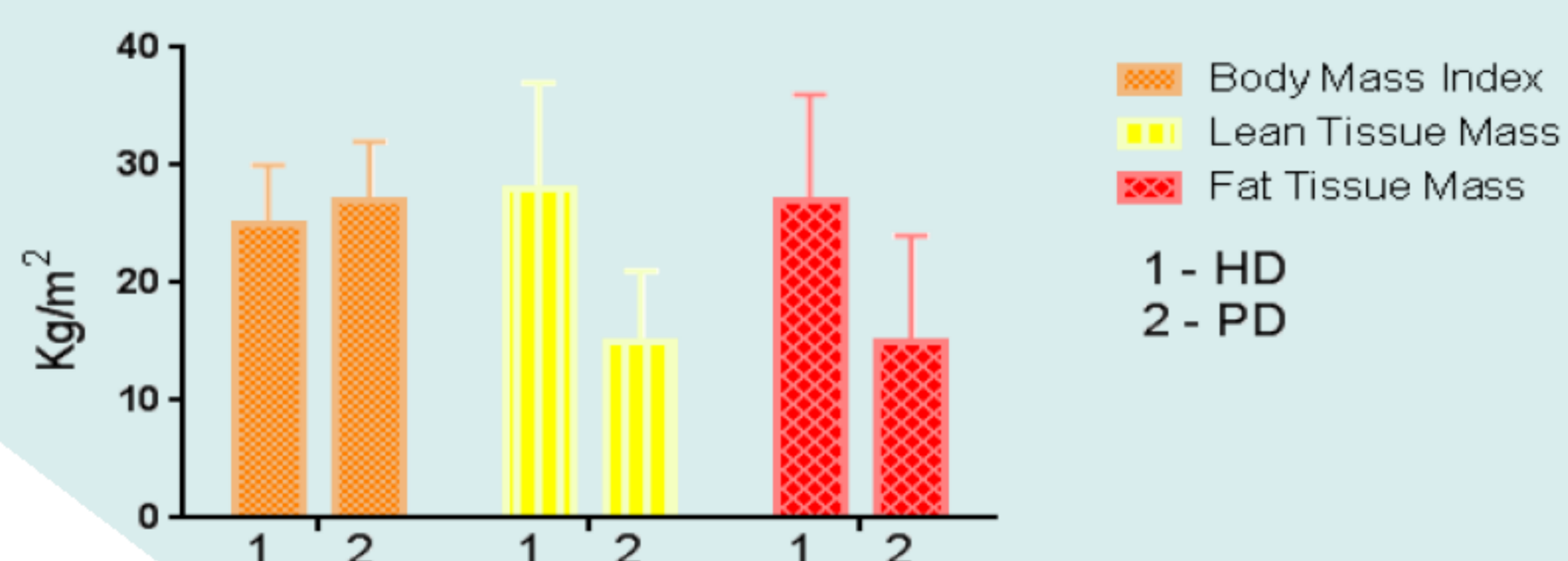
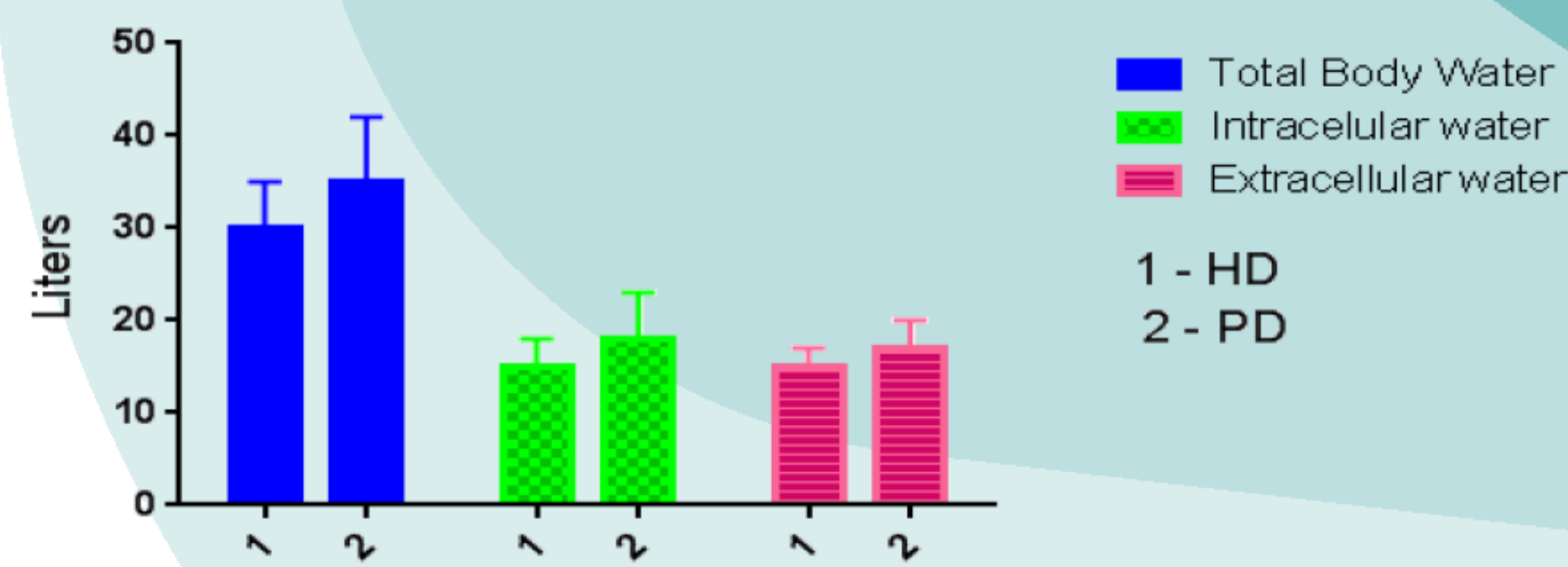
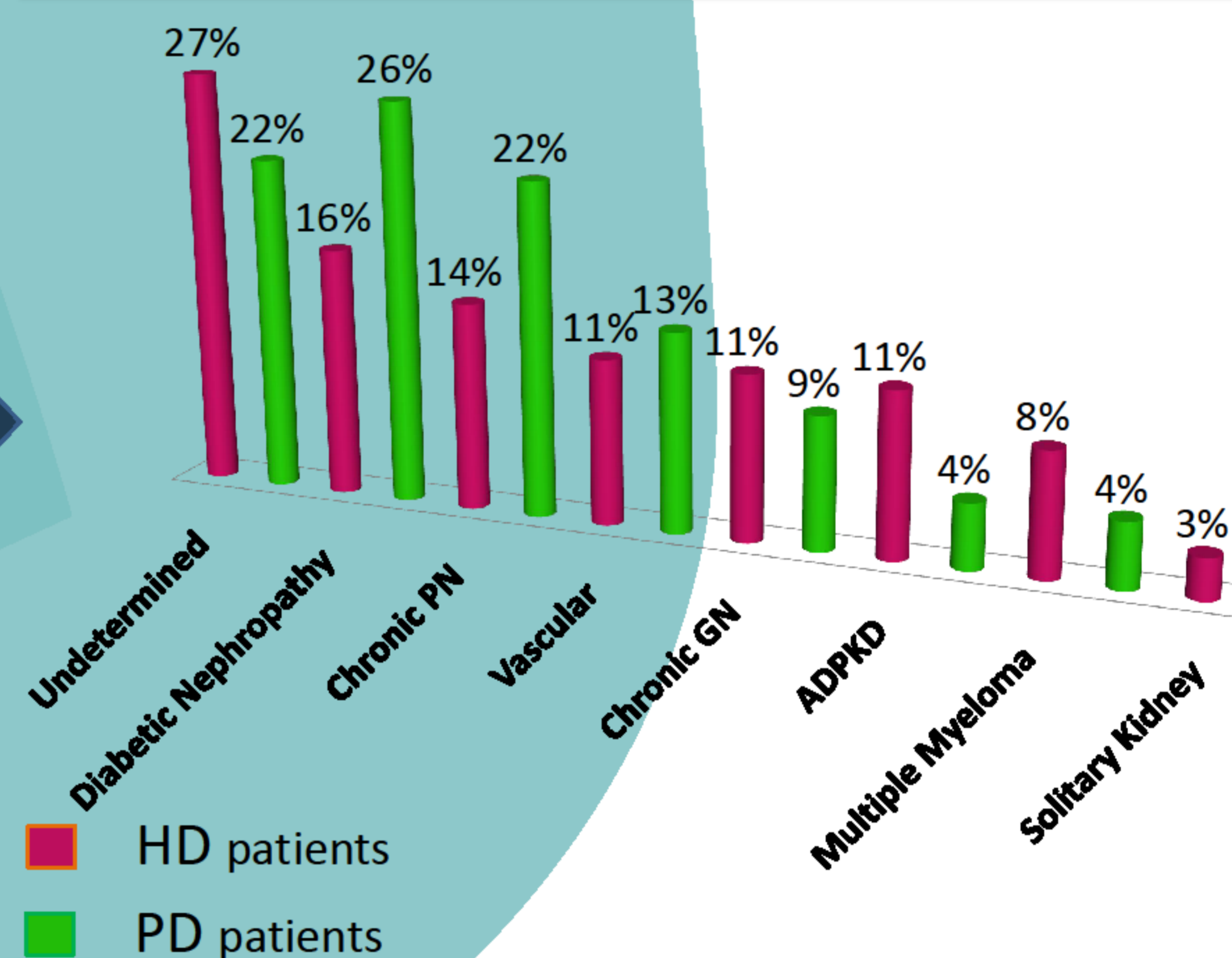
Population and Methods

A non-interventional observational, retrospective, cross-sectional analysis of 60 CKD stage 5d patients in RRT was conducted in a single Portuguese Centre. Patients were divided into 2 groups, Hemodialysis (HD) and Peritoneal Dialysis (PD). BCM was carried out in HD patients before a midweek session and in PD patients with full abdomen. **Overhydration** was defined as a **relative overhydration/extracellular water (ROH/ECW)** value greater than **0.15**. The due date was established as the last BCM performed.

Results

Variable	HD	PD	p value
Sample size (n ^o of patients)	37 (62%)	23 (38%)	-
Male gender (n ; %)	20/37 (54%)	15/23 (66%)	-
Age (range and median)	71 ± 11	52 ± 13	< 0,001
Dialysis vintage (median - months)	35	18	0.05
CKD Etiology	-	-	0.790
Diabetes Mellitus (n ; %)	14 (37,8%)	7 (30,4%)	0.56
Arterial Hypertension (%)	73 %	57%	0.189
Residual Urinary Output (median ± SD; mL)	1172 ± 795	407 ± 517	<0.001
Loop diuretics (Furosemide; %)	35%	39%	0.760
Serum Albumin (median ± SD - g/dL)	3,3 ± 0,6	3,2 ± 0,6	0.68
C-reactive Protein (median ± SD - g/dL)	1	1,7	0.012

CKD etiology in HD vs PD patients



Variable	HD	PD	p value
Total Body Water (median ± SD; Liters)	30 ± 5	35 ± 7	0.04
Intracellular water (median ± SD; Liters)	15 ± 3	18 ± 5	0.05
Extracellular water (median ± SD; Liters)	15 ± 2	17 ± 3	0.05
Body Mass Index (median ± SD; Kg/m ²)	25 ± 5	27 ± 5	0.257
Lean Tissue Mass (median ± SD; Kg/m ²)	28 ± 9	15 ± 6	0.001
Fat Tissue Mass (median ± SD; Kg/m ²)	27 ± 9	15 ± 9	0.001
Relative Overhydration (ROH) > 0,15	29.7%	30.4%	0.174
Serum albumin and ROH	-	r = - 0.467	0.025

Conclusion

Despite the presence of higher total body, extracellular and intracellular water in PD patients there was no statistically significant difference in what concerns ROH between the two groups. Nonetheless, serum albumin was identified as a marked of overhydration only in the PD group.

