BODY COMPOSITION AND PREHEMODIALYSIS SODIUM

Servicio Canario de Salud

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INTRODUCTION AND OBJECTIVE

In patients on hemodialysis (HD), the sodium concentration is stable but has a wide interindividual variability. Some data suggest that lower concentrations are associated with higher hydration but there are no studies linking prehemodialysis body composition and serum sodium levels .

The **aim** of the study: To analyze the relationship between pre-dialysis natremia and body composition, with special attention to body water and sodium levels.

MATERIAL AND METHODS

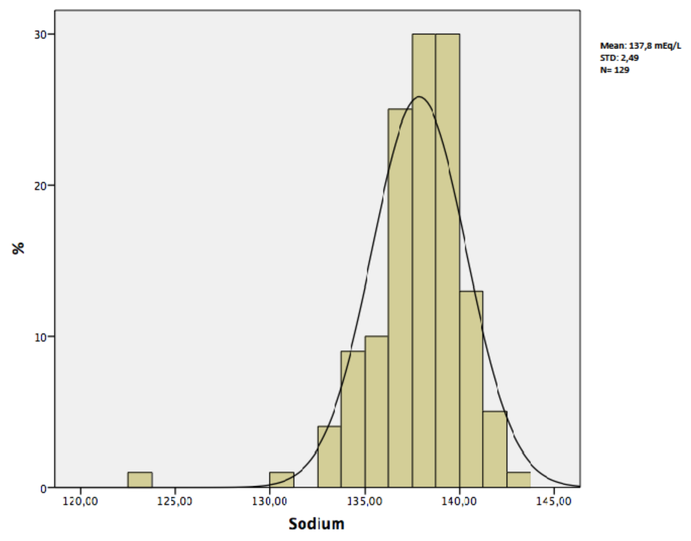
- **Retrospective** study.
- N: 129 prevalent patiens.
- Conventional HD (3 times/week).
- The body composition analysis was performed immediately after the intermediate dialysis session with a single frequency bioimpedance monitor (BIA) (Akern).
- For the sodium estimation, the 12 sodium determinations previous to BIA were used, making a correction for glucose levels.
- Demographic, clinical, laboratory and body composition parameters were analyzed.

RESULTS

Demographics and clinical Characteristics

	Patients n= 129
Age (years) median ± SD	61 ± 13
Male (%)	66
Time on dialysis (months) median ± SD	53,5 ± 56,9
Diabetes (%)	49,3
Hypertension (%)	89,3
Cardiovascular disease (%)	62
BMI (kg/m²) median ± SD	28 ± 5,9
ERC etiology: (%)	
- Diabetes	49,3
- Isquemic/Hypertension	14,4
- Chronic Glomerulonephritys	8,9
- Policystic kidney disease	8,5
- Undetermined	19,9

Frequency histogram: Sodium



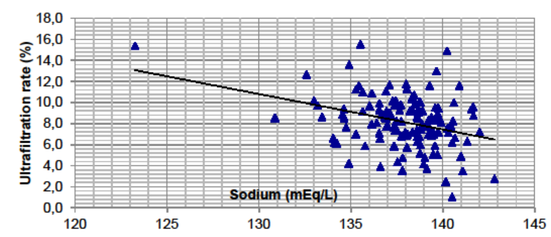
Average values in the baseline study

Natremia (mEq/L)	137,86 ± 2,49
Interdialytic weight gain (%)	3,08 ± 0,88
Uf rate (ml/kg/mn)	9,06 ± 2,49
Albumin (g/dl)	3,68 ± 0,20
RZ (Impedance)	529,35 ± 116,41
XC (Reactance)	54,82 ± 20,20
Total Body Water (%)	67,68 ± 11,48
Extracellular Water (%)	51,85 ± 7,92
Intracellular Water (%)	47,31 ± 9,25
Lean Mass (%)	34,61 ± 11,64

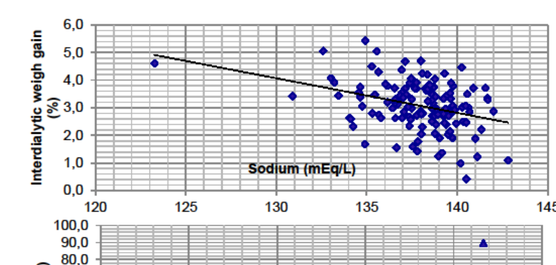
Results according to tertiles of sodium

Sodium Tertiles	<137,29 (n: 42)	137,3-138,93 (n:44)	>138,93 (n: 43)	*p*
Natremia (mEq/L)	135,24 ± 2,38	138,16 ± 0,51	140,13 ± 0,90	*0,000*
DM (%)	48,4	44,2	43	*n.s*
Glucose (mg/dl)	142,50 ± 57,02	143,10 ± 49,15	141,39 ± 53,81	*n.s*
Interdialytic (%)	3,45 ± 0,84	3,10 ± 0,74	2,69 ± 0,90	*0,000*
Uf rate (ml/kg/mn)	9,06 ± 2,49	8,08 ± 1,93	7,34 ± 2,72	*0,005*
Albumin (g/dl)	3,63 ± 0,18	3,71 ± 0,16	3,69 ± 0,25	*n.s*
Total Body Water (%)	67,20 ± 13,7	67,36 ± 10,4	68,48 ± 10,33	*n.s*
Extracellular Water (%)	58,66 ± 48,86	51,67 ± 7,27	53,31 ± 8,68	*n.s*
Intracellular Water (%)	49,39 ± 9,96	46,47 ± 8,57	46,12 ± 9,06	*n.s*
Lean Mass (%)	30,09 ± 7,77	36,72 ± 11,4	36,87 ± 13,79	*0,008*

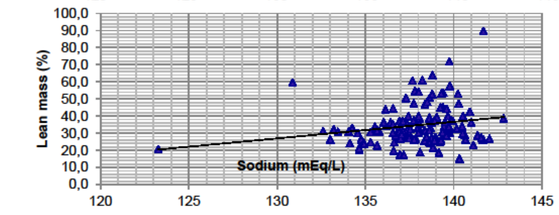
Correlations



(r = -0,338, p = 0,000)



(r = -0,353, p = 0,000)



(r = 0,207, p = 0,018)

CONCLUSIONS

- Patients with lower sodium levels are those with greater interdialysis hydration.
- No differences in the distribution of body water of patients divided by tertiles of serum sodium were appreciated.
- There is a negative correlation between serum sodium and extracellular water, and positive between serum sodium and Lean body mass.

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