UTILITY OF MULTIFRECUENCY BIOIMPEDANCE IN THE STUDY OF HYPONATREMIC PATIENTS

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INTRODUCTION AND AIMS

Hyponatremia is the most frecuent hydroelectrolytic disorder found in hospitalized patients and may appear in hipo, normo or hypervolemic patients.

Multifrecuency Bioimpedance (BIA) allows the detection of changes in intra and extracellular fluids. It can estimate the total body water and the status of hydratation of patients.

Our objetive was to evaluate the utility of BIA in the diagnosis of the volume status of hyponatremic patients. Also, we analyzed the possible relationship between BIA data and clinical and biochemical parameters of patients

METHODS

We included hospitalized patients whith hyponatremia (Na <130 mEq/l) during a 10 month period. Medical history, clinical examination and BIA where performed at diagnosis.

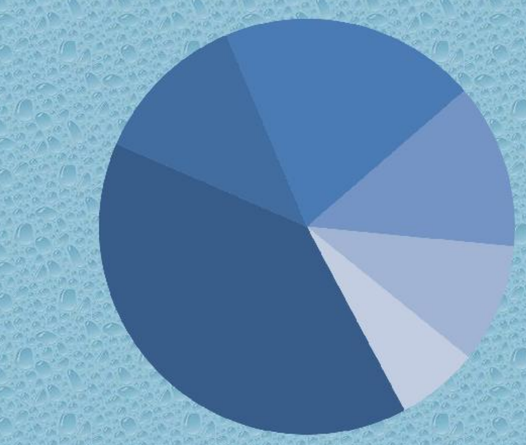
RESULTS

We studied 109 patients (70,8 14,3 years old [37-92], 47 female and 57 male). Hyponatremia was adquired out of hospital in 71 patients (65,1%) . Mean plasma sodium vas 120 4,8 mEq/l. The etiology of hyponatremia is shown in Graph 1.

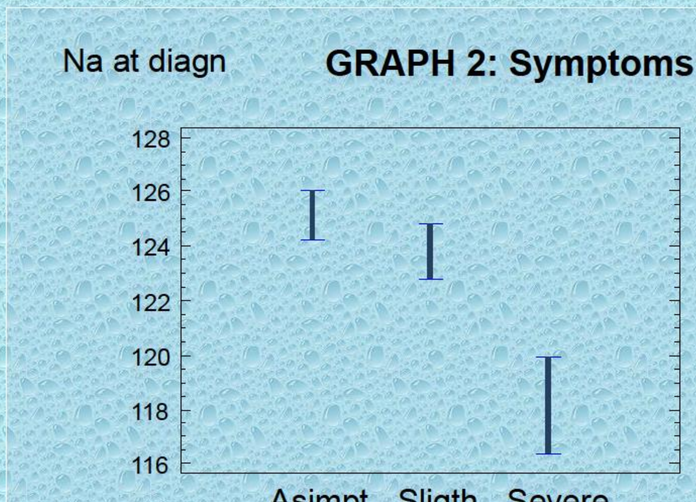
The presence of symptoms was correlated whith the severity of hyponatremia and the degree of hydratation . Graph 2.

The hydratation degree estimated by clinical parameters was related to BIA parameters (Spearman 0,498 p< 0,01). However, we observed several mismatched determinations between BIA and clinical estimation. Graph 3

GRAPH 1: ETIOLOGY



69 more than one 23 kidney failure



GRAPH 3		BIA CLASIFICAT.			
		1	2	3	TOTAL
CLIN CLASIFICATI.	1	**12**	11	5	28
	2	10	**11**	11	32
	3	3	10	**36**	49
	TOTAL	25	32	52	109

BIA results showed that 26 patients were dehydrated (OH < 1), 28 normohydrated (OH between -1 and 1) and 55 overhydrated (OH > 1).

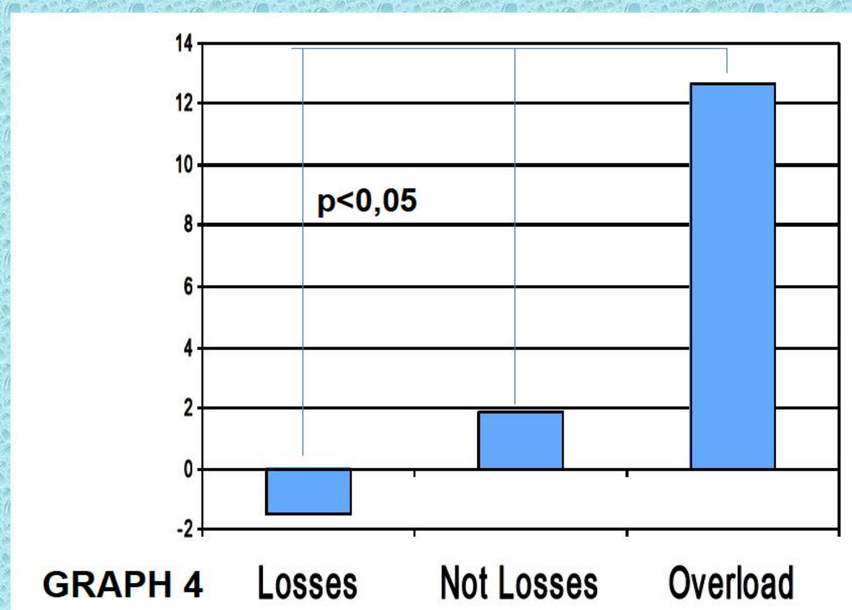
.-Patients with hyponatremia caused by **losses** of Na and water, had a reduction of ECW% of -1,5 18%

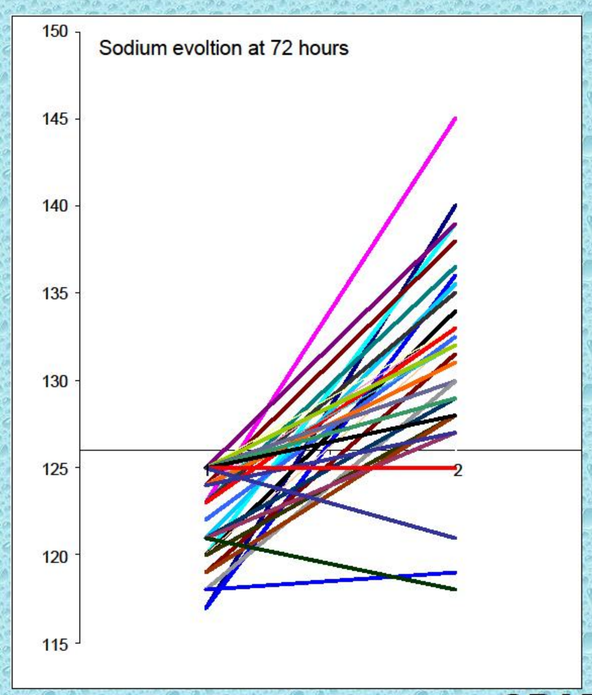
.-Patients with hyponatremia caused by SIADH, serotonin reuptake inhibitors or lung infection had an increase of ECW% of 1.89 17,27%.

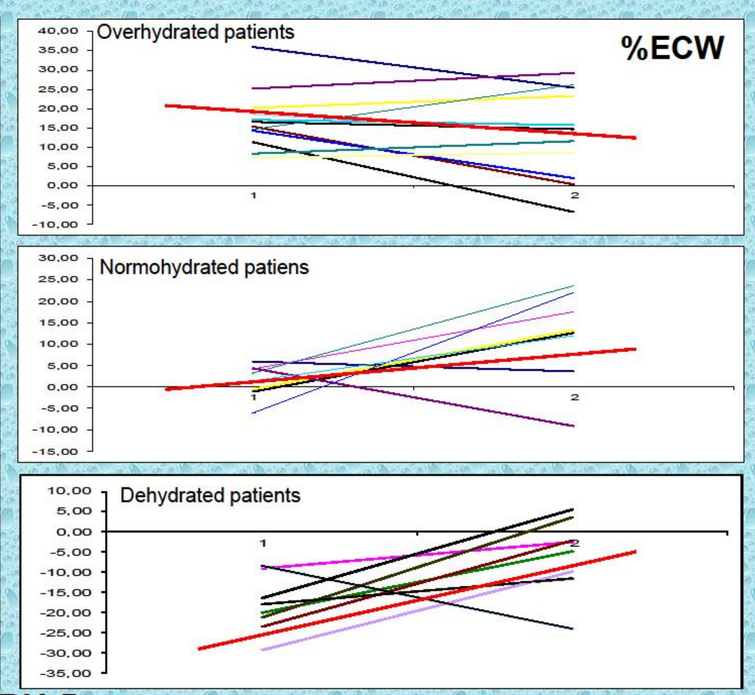
.-Finally, patients with conditions that cause fluid **overload** had an increase of 12,66 13.66 of ECW%. Graph 4

We found a realationship between the hydratation degree and the level of plasma sodium at diagnosis (p< 0.05)

The correction of sodium levels paralleled to the correction of fluid imbalance. Graph 5







GRAPH 5

CONCLUSIONS

OUR RESULTS SHOW THAT BIA IS A SIMPLE AND INEXPENSIVE METHOD THAT CAN HELP IN THE DIAGNOSIS OF HYDRATION STATE IN HYPONATREMIC PATIENTS

THE ASSESSMENT OF HYDRATION STATE IN HYPONATREMIA WILL ALLOW AN APPROPRIATE DIAGNOSIS AND TREATMENT

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