

# Morbimortality of hospitalized patients receiving parenteral nutrition and presenting hyponatremia.

Gómez Hoyos E<sup>1</sup>, Matía Martín P<sup>2</sup>, Cuesta Hernández M<sup>2</sup>, Ortola Buigues A<sup>2</sup>, Crespo Hernández I<sup>2</sup>, Pérez Ferre N<sup>2</sup>, Rubio Herrera MA<sup>2</sup>, De Luis Roman DA<sup>1</sup>, Calle Pascual A<sup>2</sup>, Runkle de la Vega I<sup>2</sup>.  
Endocrinology Service. <sup>1</sup>Clinico Universitario Hospital. Valladolid.  
<sup>2</sup>Clinico San Carlos Hospital. Madrid. Spain

## INTRODUCTION

Hyponatremia is the most frequent electrolyte disorder found in clinical practice, and has been associated with increased morbimortality. Hyponatremia is even more common among patients receiving parenteral nutrition (PN), a therapy increasingly in use. However, the morbimortality of hyponatremic patients on PN is unknown

## METHODS

Retrospective study, selecting all patients receiving PN in a teaching hospital from 01/11/11 to 01/06/12. We evaluated hospital length-of-stay (LOS), in-hospital mortality, serum Sodium (SNa) at admittance, at start and end of PN, and at discharge. Hyponatremia defined as glycemia-corrected SNa < 135 mmol/L, triglycerides < 400 mg/dl. Data analysis: X<sup>2</sup>, T-test, Mann Whitney U, Logistic regression. SPSS 15

## RESULTS

222 patients received PN (57,2% males). Median age 75 [61-82] years. 14.5% presented malnutrition (by BMI). Charlson index was 3.3 (SD 2.4). LOS was 30 [20-40] days. Mortality was 17.7%. 50.4% (112/222) presented hyponatremia in at least one SNa determination, 27% in at least 25% of SNAs, 15.7% in at least 50% of SNAs, and 3% in at least 75% of SNa. Mortality rate and LOS ≤ 30 days distribution depending on the presence of hyponatremia in the minimum, 25, 50 and 75 th percentile (P) of all SNa in each patient (Table n°1 and n°2). Logistic regression analysis of mortality and LOS ≤ 30 days depending the presence of hyponatremia in the minimum and 25, 50 and 75 th P of all SNa in each patient, adjusted by age, gender, Charlson index and BMI (Table n° 3 and 4).

	n	MORTALITY	p
SNa <sub>in</sub> Minimun			
≥ 135	110	13 (11,8%)	
<135	112	26(23,2%)	0,019
SNa <sub>in</sub> 25thP			
≥ 135	162	27 (16,7%)	
<135	62	12(20%)	0,346
SNa <sub>in</sub> 50thP			
≥ 135	187	30 (16%)	
<135	35	9(25,8%)	0,129
SNa <sub>in</sub> 75thP			
≥ 135	215	36(16,7%)	
<135	7	3(42,9%)	0,088

Table n° 1: Mortality rate distribution depending on the presence of hyponatremia in the minimum, 25, 50 and 75 Th percentile (P) of all SNa in each patient.

	n	LOS ≤ 30 days	p
SNa <sub>in</sub> Minimun			
≥ 135	110	80(72,7%)	
<135	112	48(42,8%)	0,001
SNa <sub>in</sub> 25thP			
≥ 135	162	103(63,9%)	
<135	60	25(41,7%)	0,003
SNa <sub>in</sub> 50thP			
≥ 135	187	114(70%)	
<135	35	14(40%)	0,018
SNa <sub>in</sub> 75thP			
≥ 135	215	125(58,1%)	
<135	7	3(42,9%)	0,334

Table n° 2: LOS ≤ 30 days distribution depending on the presence of hyponatremia in the minimum, 25, 50 and 75 Th percentile (P) of all NaS in each patient.

SNa <135 vs ≥ 135 mmol/L	ODDS RATIO	IC 95%	p
Minimun	1,8	0,80 - 4,08	0,154
25th P	1,03	0,44-2,40	0,946
50th P	1,75	0,66-4,64	0,257
75th P	7,38	1,07-50,78	0,042

Table n°3. Logistic regression analysis of mortality depending the presence of hyponatremia in the minimum and 25, 50 and 75 th P of all SNa in each patient, adjusted by age, gender, Charlson index and BMI.

SNa ≥ 135 vs < 135 mmol/L	ODDS RATIO	IC 95%	p
Minimun	3,86	2,03-7,38	0,001
25th P	2,73	1,43-5,22	0,002
50th P	2,78	1,22-6,31	0,015
75th P	2,6	0,44-15,31	0,284

Table n°4. Logistic regression analysis of LOS ≤ 30 days depending the presence of hyponatremia in the minimum and 25, 50 and 75 th P of all SNa in each patient, adjusted by age, gender, Charlson index and BMI.

## CONCLUSIONS

The presence of sustained hyponatremia is independently associated with increased mortality in patients receiving parenteral nutrition. The absence of hyponatremia is independently associated with a shorter hospital length-of-stay. Hyponatremia should not be overlooked in PN patients.

