

“HEMODIALYSIS SODIUM SET POINT: IS IT TRUE?”

Baamonde Laborda E, Oliva Damaso E, Vega Diaz N, Gonzalez Cabrera F, Fernandez Lopez JM, Parodis Lopez Y, Rodriguez Vela Y, Plaza Toledano C, Hortal Cascon L, Gallego Samper R, Sablón N, Rodriguez Perez JC. Department of Nephrology²
Hospital General Universitario de Gran Canaria “Dr. Negrin”



INTRODUCTION AND OBJECTIVE

Plasma sodium concentration stays constant through osmoregulation. Patients on hemodialysis (HD) keep a constant concentration of sodium which is individual and known as "sodium setpoint".

However, some daily clinical observations question this theory.

Knowledge of predialysis sodium level, plays a decisive role for management during hemodialysis.

The aim of the study: to analyze the concentration and variability of plasma sodium in a population of prevalent patients in standard HD with constant dialysate sodium (139 mEq/L) as well as the factors that may change these parameters.

MATERIAL AND METHODS

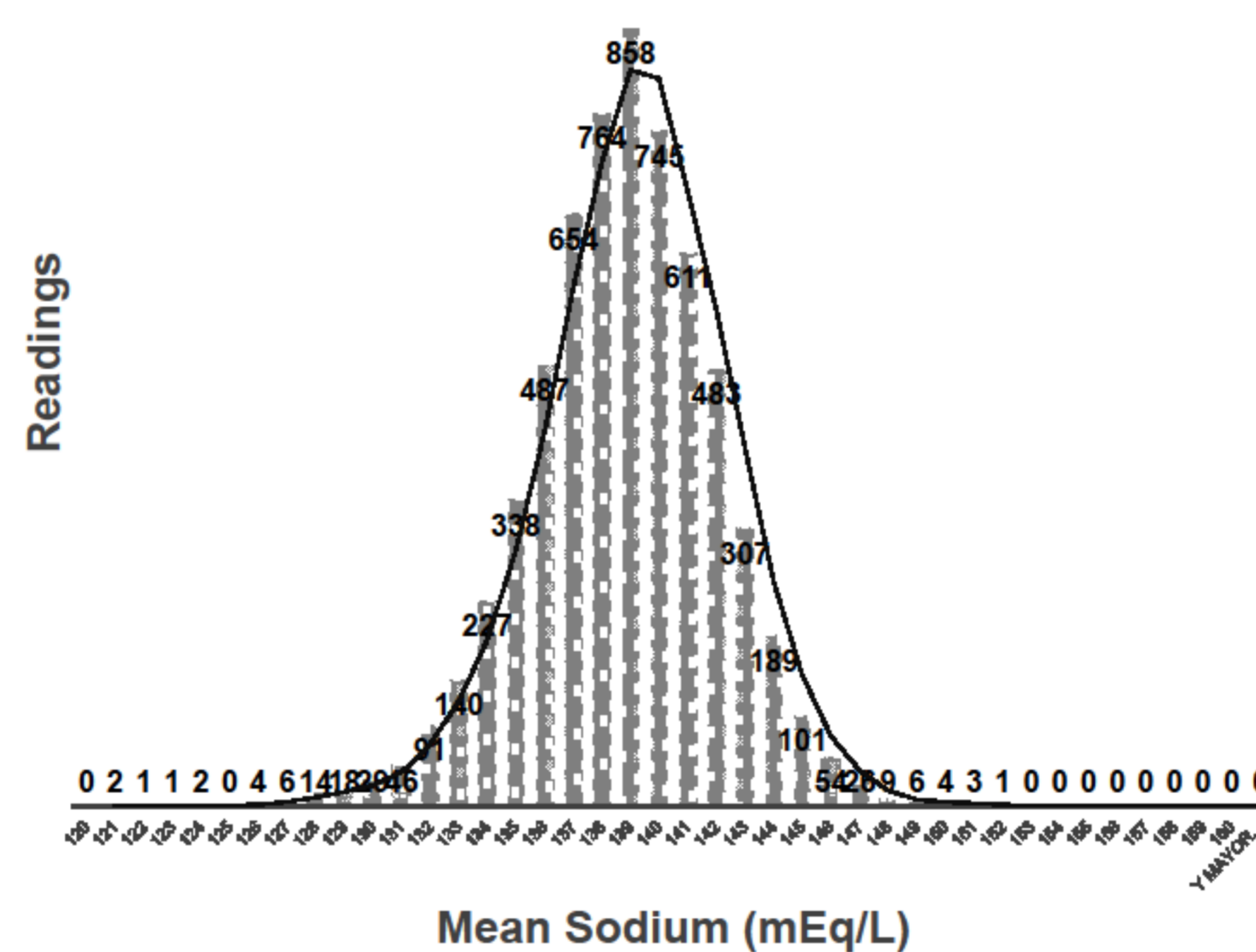
- **Retrospective** study.
- N: 269 prevalent patients.
- Conventional HD (3 times/week).
- Dialysate sodium (constant 139 mEq/L)
- Serum sodium concentration was measured by indirect potentiometry, with a correction for glucose concentration
- Demographic, clinical, laboratory and body composition parameters were analyzed.
- The first 24 measurements performed during the month were used to calculate the media and the variability analysis.
- We analyzed demographic, clinical and laboratory parameters, as well as mortality rate.

RESULTS

Demographics and clinical Characteristics

	Patients n= 261
Age (years) median ± SD	61 ± 13
Male (%)	66
Time on dialysis (months) median ± SD	53,5 ± 56,9
Follow-up time (months) median ± SD	48,78 ± 19,09
Diabetes (%)	49,3
Hypertension (%)	89,3
BMI (kg/m ²) median ± SD	28 ± 5,9
ERC etiology: (%)	
- Diabetes	49,3
- Isquemic/Hypertension	14,4
- Chronic Glomerulonephritis	8,9
- Polycystic kidney disease	8,5
- Undetermined	19,9

Histogram (absolute frequency): Sodium



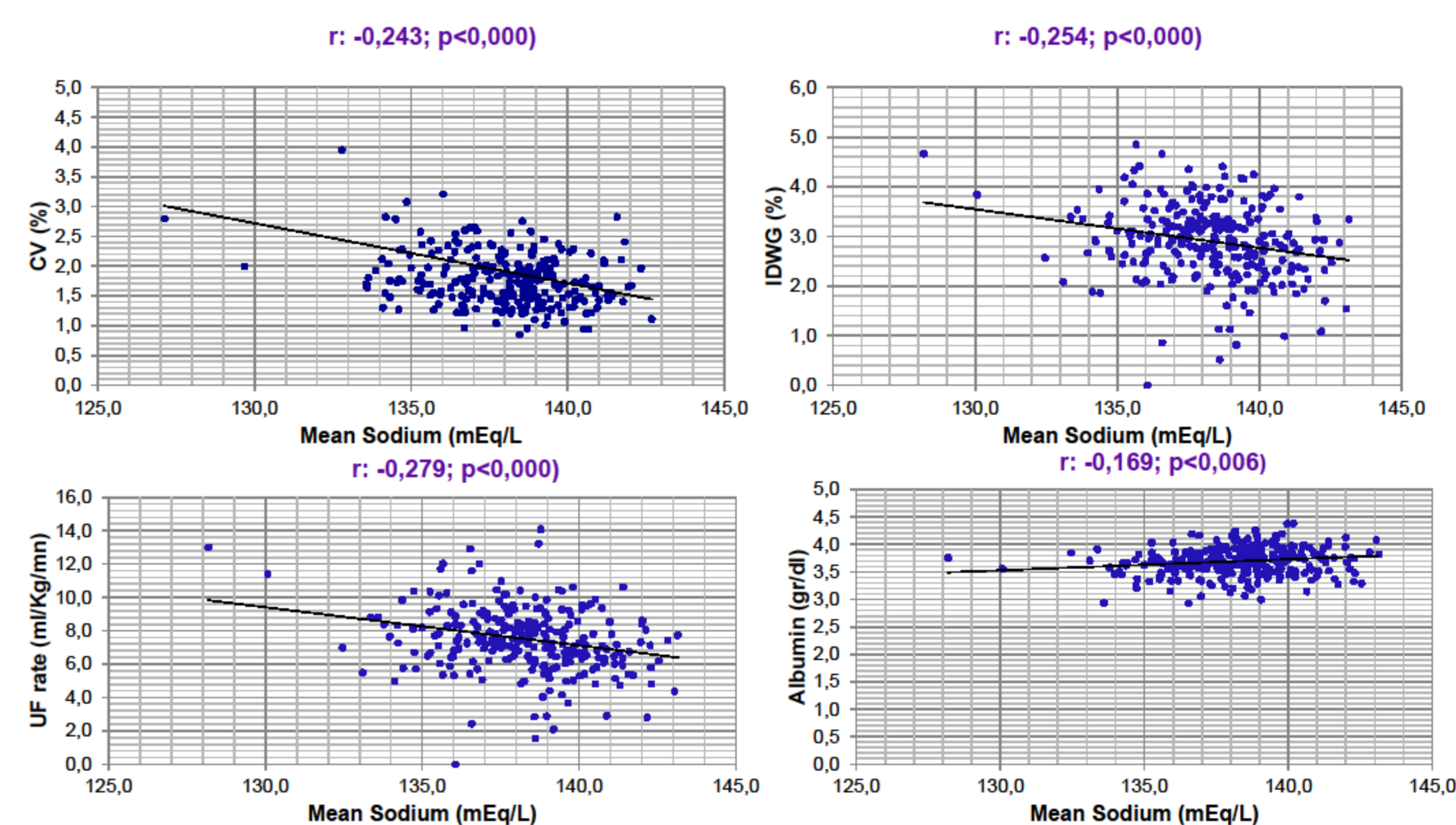
Average values in the baseline study

Value	Mean ± STD
Sodium (mEq/L)	137,96 ± 2,12
Coefficient of variation (CV)	1,89 ± 1,16
Hb (gr/dL)	11,26 ± 0,63
Cr (gr/dL)	8,02 ± 3,71
KTv	1,49 ± 0,36
Albumin (gr/dL)	3,69 ± 0,26
Glucose (mg/dL)	148,03 ± 54,39
IDWG (%)	2,16 ± 0,65
Ultrafiltration rate	7,55 ± 1,92
SBP (mmHg)	136,58 ± 16,09
DBP (mmHg)	73,78 ± 9,62
BMI	27,35 ± 5,46

Results according to tertiles of sodium

Sodium Tertiles	<137,49 (n: 87)	137,5-139,11 (n:87)	>139,11 (n: 87)	p
Natremia (mEq/L)	135,83 ± 1,54	138,34 ± 0,47	140,49 ± 1,01	0,000
DM (%)	52,9	46	46	n.s
CV Sodium (%)	2,34	1,74	1,66	0,014
DST Sodium	3,17	2,41	2,33	0,024
Glucose (mg/dl)	150,84 ± 60,85	148,14 ± 54,49	145,11 ± 47,46	n.s
Interdialytic gain (%)	3,08 ± 0,69	2,98 ± 0,70	2,68 ± 0,71	0,001
UF rate (ml/kg/mn)	8,06 ± 1,89	7,67 ± 1,94	6,92 ± 1,75	0,000
Serum albumin (g/dl)	3,62 ± 0,24	3,72 ± 0,27	3,74 ± 0,24	0,006
SBP (mmHg)	134,93 ± 18,3	138,56 ± 14,46	136,25 ± 15,21	n.s
Kt/V	1,52 ± 0,28	1,46 ± 0,26	1,51 ± 0,47	n.s

Correlations



CONCLUSIONS

- Prehemodialysis sodium concentration is inversely related to the interdialysis hydration.
- The variability of serum sodium increases in the lowest tertile along with a greater hydration.
- The positive diffusive gradient between dialysate and plasma sodium may explain some of these observations.-

REFERENCES:

- Albalade M et al. Set-point de sodio en hemodiálisis: ¿es lo que vemos en la clínica?. *Nefrologia* 2013;33(6):808-15
- Keen ML, Gotch FA. The association of the sodium «setpoint» to interdialytic weight gain and blood pressure in hemodialysis patients. *Int J Artif Organs* 2007;30:971-9.

