

THE DIALYSATE / PLASMA PHOSPHATE RATIO IN THE CHARACTERIZATION OF THE PERMEABILITY OF THE PERITONEAL MEMBRANE

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INTRODUCTION:

Hyperphosphatemia is an independent predictor of cardiovascular mortality in renal disease and its control in peritoneal dialysis (PD) is complicated as the residual renal function is losing. Although there is a linear relation between the creatinine and phosphate peritoneal clearance the former can't be used to estimate the D/P phosphate ratio. The peritoneal permeability, among other factors, influence the phosphate binding proteins.

OBJETIVES:

To Know the value of D/P phosphate and its correlation with the D/P creatinine in our patient population and to evaluate the behavior of D/P phosphate in time and analyze the relations D/P phosphate with nutritional status.

MATERIAL AND METHODS:

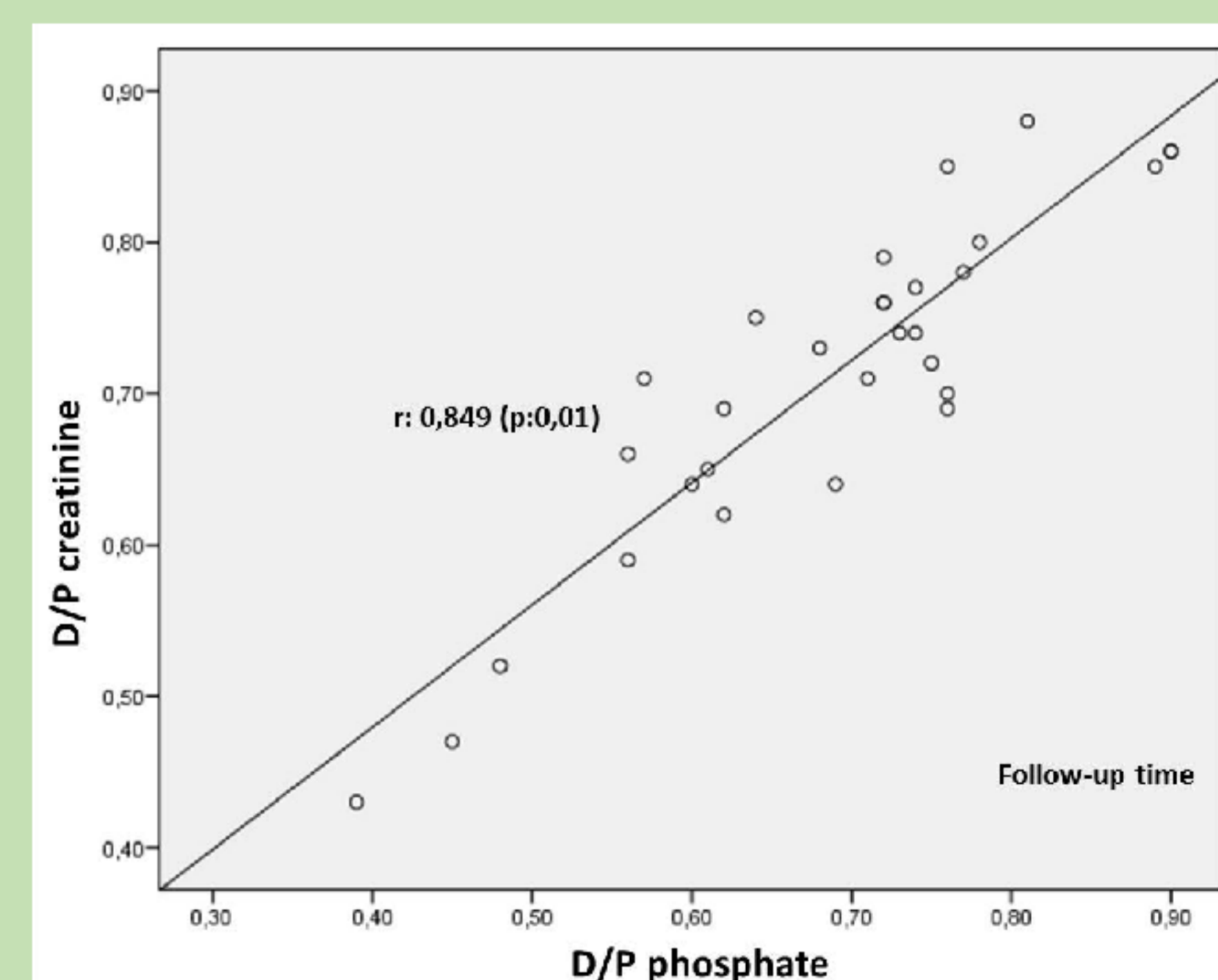
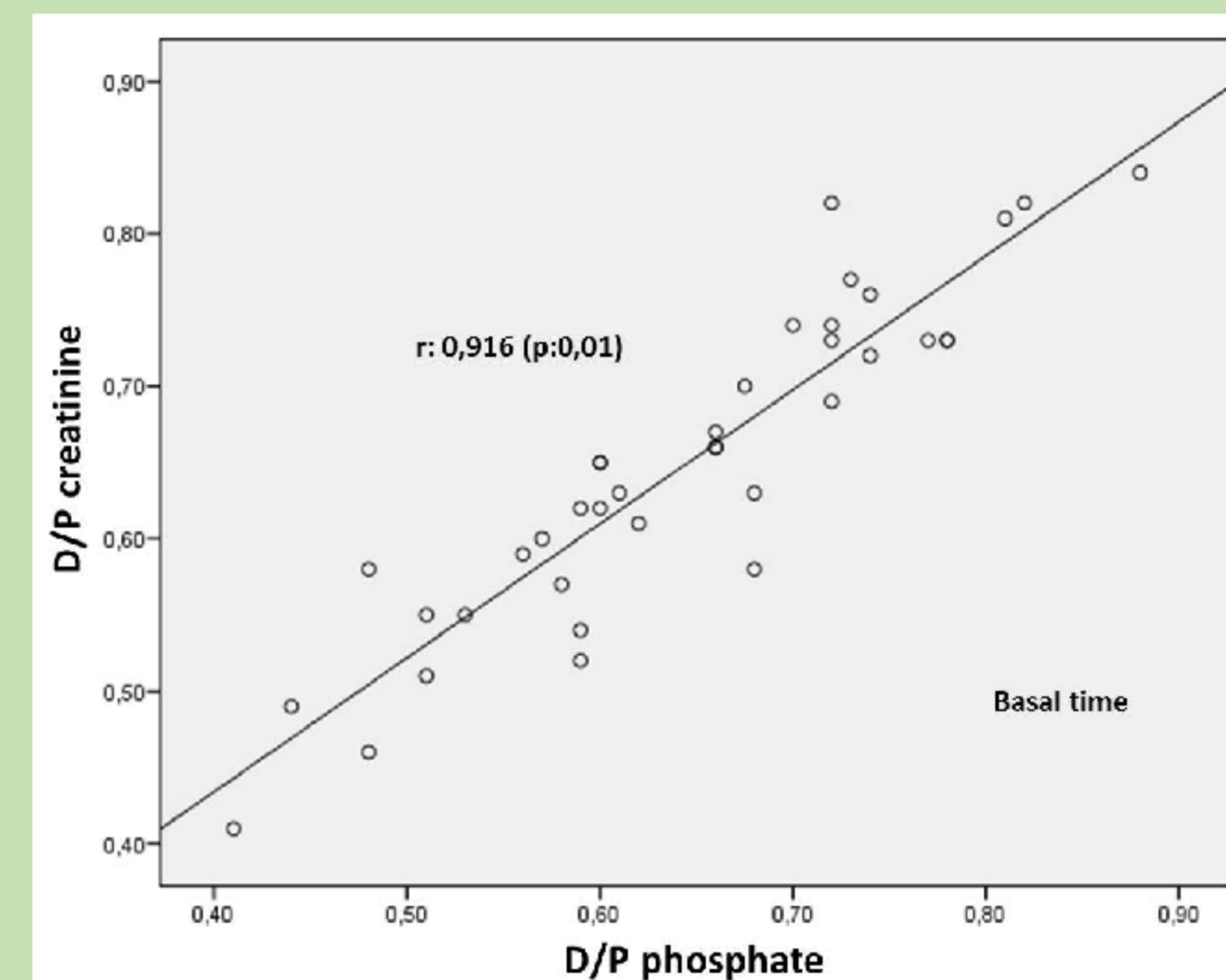
In 43 steady patients on DP from October 2011 to February 2014 we analysed the nutritional state measured by multifrequency spectroscopy bioimpedance (BIS), dialysis adequacy according to weekly KT/V and creatinine clearance, normalized protein catabolic rate (PCRn), albumin plasma concentration [Alb], creatinine D/P, phosphate D/P. In 35 patients we compared the same dates at tracing. We performed univariate statistical and analytical description for paired samples. Results are expressed as mean +/- SD. Correlation coefficients were calculated using Pearson's test.

RESULTS:

The residence time on DP range from 4 to 31 months and the median of time tracking was 12 months. Over time we observed a decrease in residual renal function (from $5,25 \pm 3,3$ ml/min to $3,34 \pm 2,9$ ml/min) and in weekly creatinine clearance (from $78,33 \pm 26,6$ to $69,3 \pm 28,5$) and an increase in D/P creatinine values (from $0,56 \pm 0,11$ to $0,7 \pm 0,11$), as expected. Our study show similar values between D/P creatinine and D/P phosphate both at baseline and at follow-up (D/P phosphate respectively $0,645 \pm 0,11$ and $0,66 \pm 0,13$). We obtain a significant correlation between D/P creatinine and D/P phosphate in both period studied ($r: 0,916$, $p: 0,01$ y $r: 0,849$, $p: 0,01$ respectively). There was correlation between the variation of D/P phosphate with variations in albumin levels ($r:-0,422$, $p:0,05$), with overhydration (OH) ($r:0,56$, $p:0,05$) and with body cell mass (BCM) ($r:0,45$, $p:0,05$).

	Basal time (n=43)	Follow-up time (n=35)	p
Age (years)	68,7±11	72,5±9	NS
weight (Kg)	68,6 ± 11	70 ±9,7	NS
Sex man (n)	28 (60,5%)	21 (60%)	ns
Diabetes mellitus	15 (35%)	13 (37%)	ns
RRF (ml/min)	5,25 ± 3,3	3,34 ± 3	0,00
Diuresis (L)	1,2 ± 0,6	0,9 ± 0,7	0,02
Albúmina (g/dl)	3,6 ± 0,34	3,54 ± 0,4	NS
OH (L)	1,24 (-0,5 y +2,2)	1,2 (0,2 y 2)	NS
OH/ECW (%)	6,8 ± 8,5 (-11 y - 22,7)	6,7 (1 y 15)	NS
BCM (Kg)	17,6 (12 y 22)	15,9 (11,2 y 21,9)	NS
Phase angle (50°)	4,58 ± 1,05	4,47 ± 1,2	NS
KT/V total	2,28 ± 0,57	2,09 ± 0,63	NS
Cl creatinine weekly	81,3 ±26,5	68,5 ± 28	0,04
D/P creatinine	0,65 ± 0,11	0,7 ± 0,11	0,02
D/P phosphate	0,65 ± 0,11	0,66 ± 0,13	NS
D/D0 glucose	0,34 ± 0,1	0,29 ± 0,13	0,09
PCRn (g/Kg/dia)	1,09 ± 0,3	0,99 ± 0,19	NS

RRF: residual renal function; OH: overhydration; ECW: extracellular water; BCM: body cellular mass; PCRn: protein catabolic rate normalized;



CONCLUSION:

Our study show a practically overlapping between D/P phosphate and D/P creatinine values, in consecutive analyses, unlike others studies. The high age of the group must be considered in the results interpretation. The positive relationship between the variation of D/P phosphate and BCM could suggest nutritional aspect. These results must be confirmed in prospective studies.

