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COULD THE RESIDUAL RENAL FUNCTION REMAIN A KEY DETERMINANT OF PLASMA OXALIC ACID CONCENTRATION IN PERITONEAL DIALYSIS PATIENTS?

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BACKGROUND AND AIMS: Under physiological conditions, the bulk of circulating oxalate (90% to 95%) is ultimately excreted by the kidneys. Under uremic and/or anuric conditions, dialysis is considered to be the main method of oxalate removal.

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Oxalate balance pattern	All (n = 62)	PD patients with preserved diuresis (n = 41)	PD patients with anuria (n = 21)	*P*-value
POx, mg/L	3.8 [2.2-4.3]	3.9 [3.0-4.9]	3.8 [2.7-5.5]	0.69
UOx, mg/d	33.8 [16-47.2]	33.8 [16-47.2]	-	-
PDEOx, mg/d	13.2 [11.1-14.7]	13.5 [10.6-20.9]	12.0 [11.0-13.1]	0.02
Overall oxalate removal level, mg/d	31.4 [13.1-55.2]	53.1 [29.6-62.6]	14.1 [11.9-25.0]	<0.0001
ROxCL, L/week/1.73m^2	36.9 [4.8-72.1]	36.9 [4.8-72.1]	-	-
PerOxCL, L/week/1.73m^2	29.6 [11.5-45.2]	40.6 [15.0-53.8]	20.1 [11.2-35.7]	0.009

ROxCL was correlated with residual diuresis (r=0.71, p<0.001) and, accordingly, UOx excretion and overall oxalate removal level (r=0.8, p<0.0001). However, neither residual diuresis nor overall oxalate removal level was associated with POx concentration in the PD patients (r=-0.03, p=0.98 and r=0.09, p=0.52, respectively). In the partial correlation test, only PerOxCL was found to be an explanatory factor for POx concentration in the PD patients regardless of their age and gender (r=-0.47, p<0.0001).

Nevertheless, little evidence is available on oxalate balance in peritoneal dialysis (PD) patients. The present study aimed to evaluate the separate contribution of residual renal and peritoneal oxalate clearances to oxalate balance in PD patients.
METHOD: We performed a cross-sectional observational study involving 62 PD patients with the average age of 50.5±13.5 years and PD vintage of 37±24 months. Plasma oxalate (POx) concentration, levels of daily urinary (UOx) and peritoneal dialysis effluent oxalate (PDEOx) excretion were evaluated. POx concentration was measured spectrophotometrically using MAK315 kit (Sigma, Spain); UOx and PDEOx concentrations were determined using an oxalate oxidase/peroxidase reagent (BioSystems, Spain). In addition, oxalate transport status (4-hour D/P oxalate ratio), renal oxalate clearance (ROxCL) and peritoneal oxalate clearance (PerOxCL) were calculated.
RESULTS: Among the examined PD patients were 41 (66%) patients with preserved diuresis and 21 (34%) patients with anuria. The anuric PD patients had lower PerOxCL and, accordingly, peritoneal and overall oxalate removal levels compared with the patients with preserved diuresis (Table 1).
CONCLUSION: The results of our research demonstrated an important role of the residual renal function in oxalate balance in PD patients. However, the decline in RRF could partially (but not completely) contribute to the increase in POx in PD patients. Thus, PerOxCL but not ROxCL could significantly affect oxalate balance in PD patients.