NUTRITION AND CIRCULATING D-LACTATE AND ZONULIN CONCENTRATIONS IN HEMODIALYSIS PATIENTS

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OBJECTIVES

D-lactic acid, the stereoisomer of L-lactic acid, is produced in human body in very low amounts. Its main source is microbial fermentation in the colon. There is no data concerning the food composition and circulating D-lactate concentrations. While zonulin levels are considered as a marker of interstitial permeability.

METHODS

The analysis included 76 adult (34 females) hemodialysis patients. Plasma D-lactate and zonulin concentrations were assessed by ELISA in fasting state before subsequent hemodialysis session. Energy and macronutrients intake were assessed on the basis of three day food diary completed by patients.

AIM

The aim of the study was to assess the relationships between diet composition and plasma D-lactate and zonulin in hemodialysis patients.

RESULTS

Plasma concentrations of D-lactates and zonulin were 1.69 ± 1.51 mg/ml and 11.3 ± 4.6 ng/ml, respectively. D-lactates levels significantly correlated ($r = 0.377$, $p < 0.001$) with mean daily energy intake, but not with the diet composition: protein, fat, carbohydrates, and consumption of fiber. There was no association between D-lactates and zonulin levels.

Table 1. Characteristics of food composition assessed on the basis of 3-day nutritional diary

Energy intake (kcal)	1720 ± 550
Protein intake (g)	65.9 ± 23.6
Animal protein	42.3 ± 19.7
Vegetable protein	23.4 ± 6.9
Fat intake (g)	66.8 ± 31.0
Carbohydrates intake (g)	226.1 ±72.2
Fiber intake (g/100kcal/day)	9.3 ± 3.1
Energy from proteins (%)	15.7 ± 3.4
Energy from fats (%)	33.5 ± 8.0
Energy from carbohydrates (%)	50.4 ± 9.1

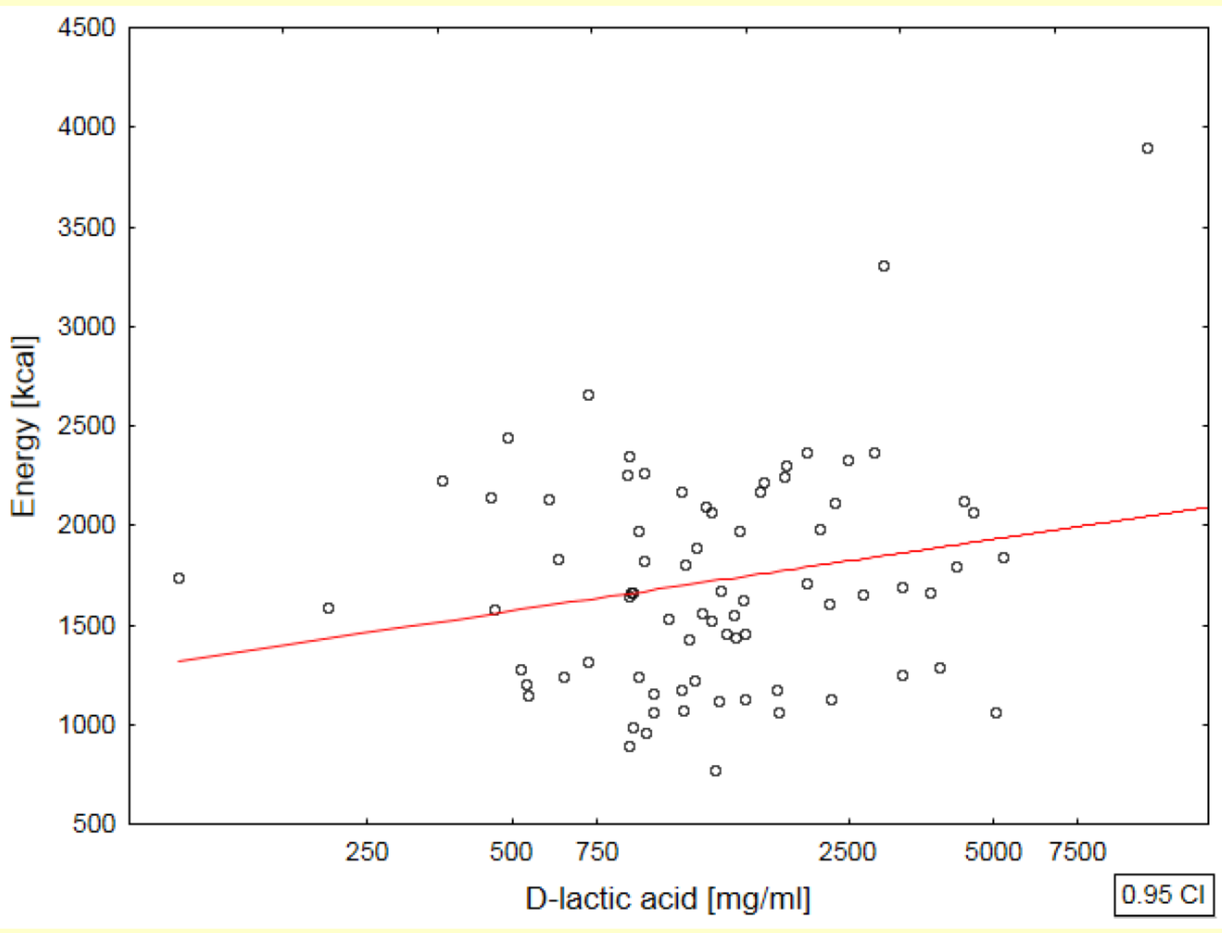

Figure 1. Correlation between D-lactate concentration and mean daily energy intake.

CONCLUSIONS

Our study suggests that plasma D-lactates concentration in hemodialysis patients is associated with daily energy intake but not intestinal permeability.

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