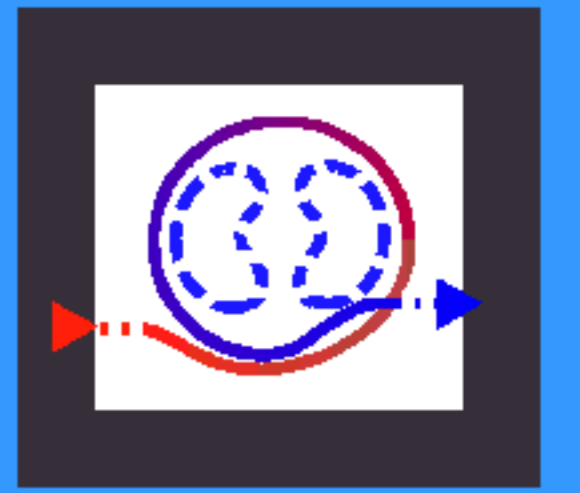




DISORDERS OF SERUM OMEGA 3 FATTY ACID COMPOSITION IN DIALYSIS PATIENTS, AND ITS ASSOCIATIONS WITH FAT MASS



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OBJECTIVES

Patients suffering from chronic kidney disease (CKD) are at increased mortality risk as compared to the general population. Lipid disorders, a constant feature of CKD, might contribute to this state. In contrast to abnormalities in cholesterol and triglyceride metabolism, disorders of fatty acids profile in the course of CKD are poorly described. The primary aim of this study was to evaluate n-3 polyunsaturated fatty acids (PUFA) composition in CKD patients treated with dialysis, in comparison to the general population. The secondary aim was to assess possible associations between the n-3 PUFA profile and major clinical and anthropometric variables.

METHODS

A total of 33 dialysis patients were studied and compared to an age- and sex-adjusted control group of 24 patients without CKD. Fatty acid composition in serum was analyzed by gas chromatography with a mass spectrometer detector (GC-MS) and anthropometric measures were assessed by bioimpedance spectroscopy.

RESULTS

The fatty acid profile of dialysis patients was characterized by a significantly lower percentage content of n-3 PUFA in the serum. For alpha-linolenic acid (ALA) it was $0.21 \pm 0.09\%$ in dialysis patients vs $0.33 \pm 0.11\%$ in the control group ($p < 0.001$). For eicosapentanoic acid (EPA) 0.59 ± 0.23 vs 1.15 ± 0.87 , respectively ($p < 0.001$), and for docosahexaenoic acid (DHA) 1.11 ± 0.50 vs 1.75 ± 0.87 ($p < 0.001$) (Figure 1). The amount of n-3 PUFA decreased with time on dialysis (Figure 2). In anthropometric analysis, it correlated positively with body fat mass. For DHA this correlation was equal to $r = 0.48$ ($p = 0.006$) (Figure 3) and for EPA $r = 0.40$ ($p = 0.03$) (Figure 4).

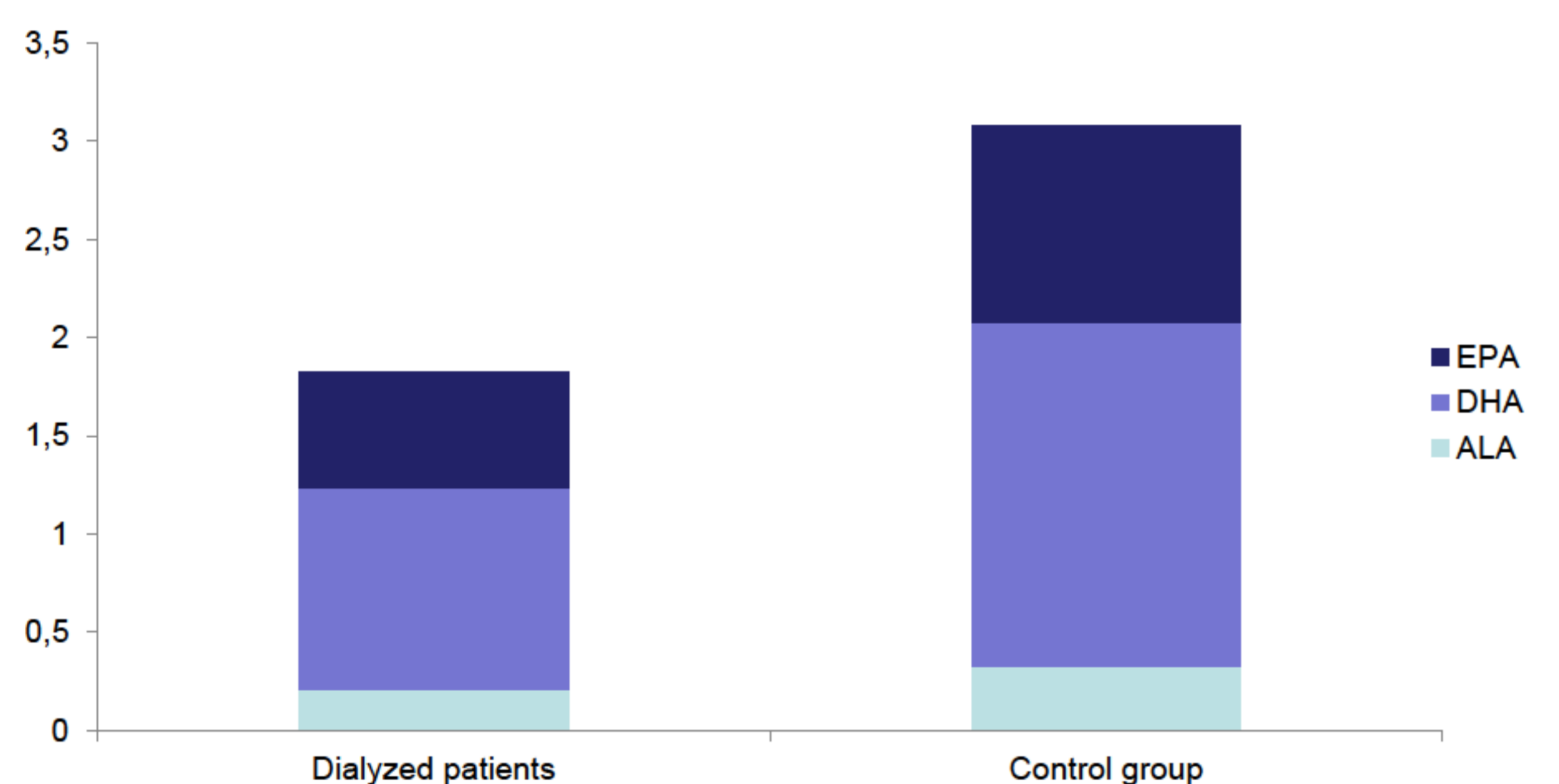


Figure 1. N-3PUFA composition in the studied groups

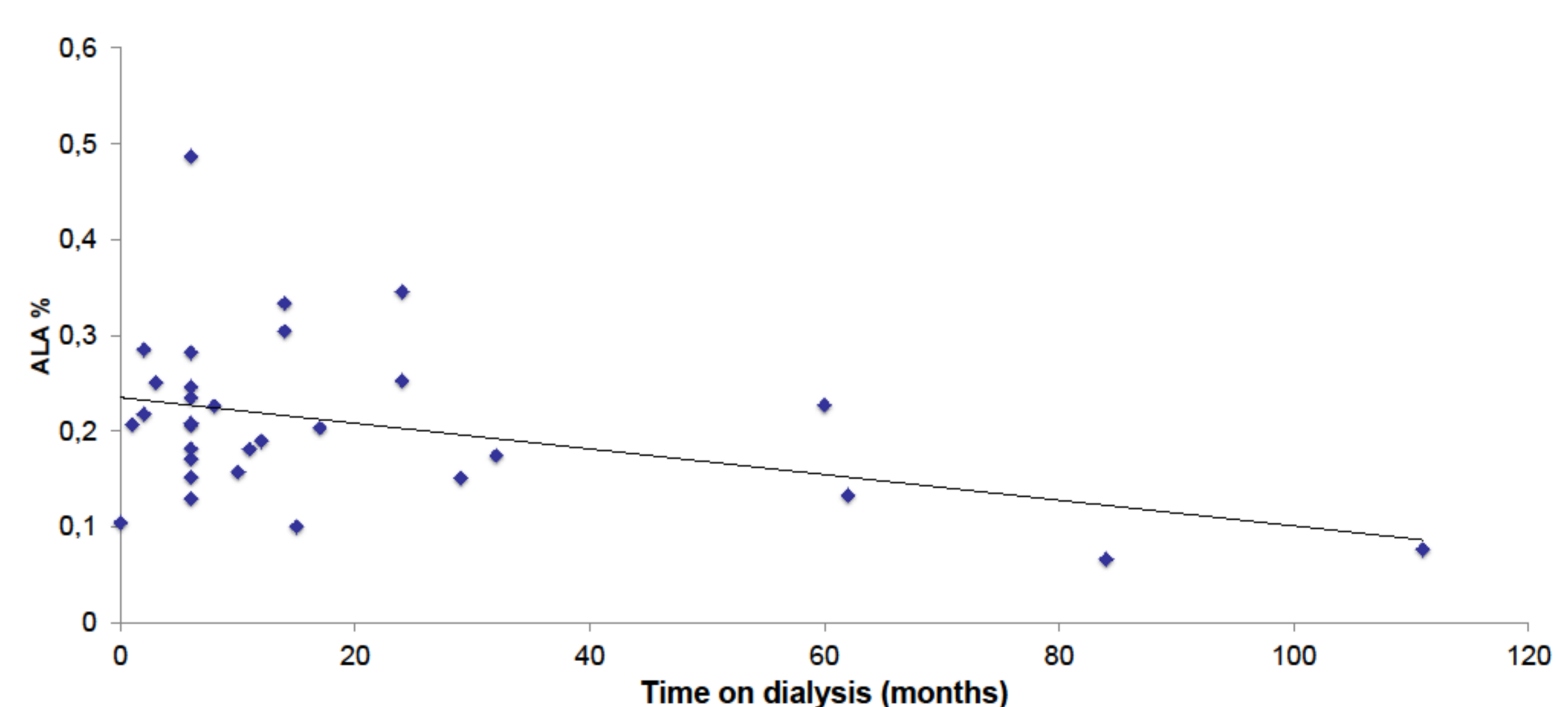


Figure 2. Association between time on dialysis and the percentage content of ALA

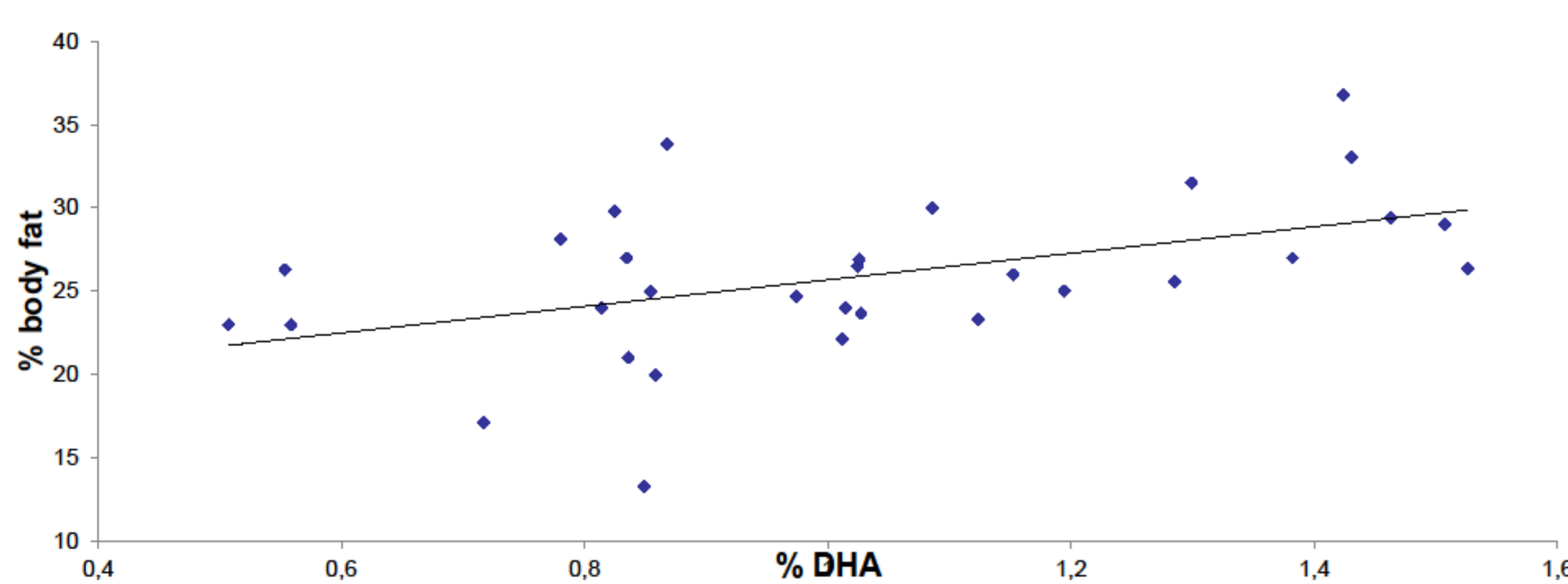


Figure 3. Relationship between body fat and DHA in dialysis patients

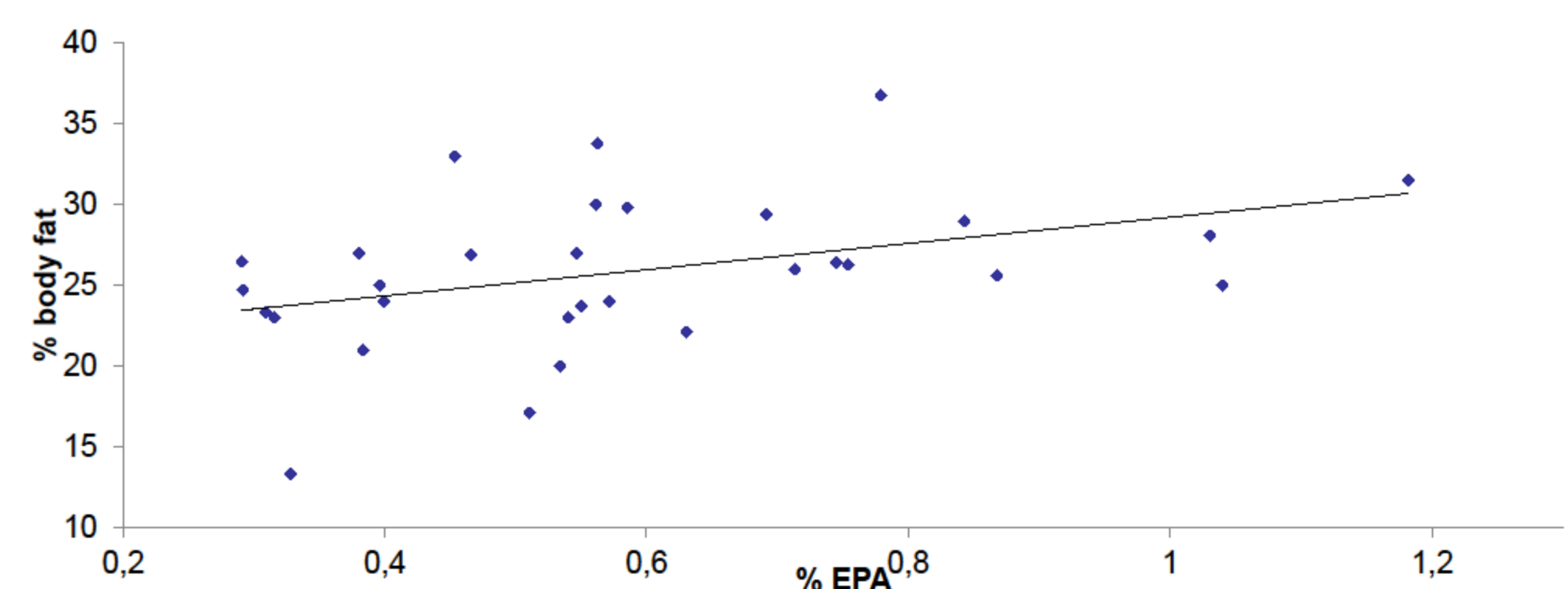


Figure 4. Relationship between body fat and EPA in dialysis patients

CONCLUSIONS

Patients with CKD have a relatively low content of n-3 PUFA. This fact might contribute to the high cardiovascular risk of this population. Patients with higher percentage content of body fat are characterized by a favorable fatty acid composition, which might, to some extent, explain the paradoxical better survival, observed in obese dialysis patients.