SERUM OMENTIN-1 LEVELS IN DIABETIC AND NONDIABETIC PATIENTS WITH CHRONIC KIDNEY DISEASE

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OBJECTIVES

Omentin-1, a novel adipokine identified in visceral adipose tissue, is negatively correlated with different conditions such as diabetes, obesity and inflammation. However, changes in serum Omentin levels associated with the degree of the renal dysfunction and with metabolic risk factors in Chronic Kidney Disease (CKD) patients has not yet been revealed. In the present study, we aimed to investigate the level of Omentin-1 and related parameters in diabetic and nondiabetic CKD patients.

METHODS

Sixty-four (30 diabetic, 34 non-diabetic) CKD patients and 27 healthy control subjects enrolled in this cross-sectional study. Patients with conditions that possibly affect serum Omentin levels were excluded. Serum levels of albumin and C-Reactive Protein (CRP) were used to determine malnutrition, and inflammation, respectively, just as in studies evaluating high cardiovascular mortality and morbidity in CKD patients. Malnutrition defined as serum albumin <3.5 mg/dL and inflammation was defined as serum CRP level of > 10 mg/L (normal range, 0-5 mg/L). The patients were classified as malnutrition-inflammation (MI)-0 (no component), MI-1 (one component) and MI-2 (two components). Anthropometric and laboratory assesment performed and malnutrition and inflammation components evaluated. Serum concentrations of Omentin-1 and insulin were measured by using ELISA.

RESULTS

Serum Omentin-1 levels in CKD patients were significantly lower compared to the healthy controls. Further analyse revealed that decrease in omentin in CKD patients is due to the reduced omentin levels in diabetic subgroup. There was a significant difference in serum Omentin-1 levels between non-diabetic (324.2 ± 47.7 ng/mL) and diabetic (189.4 ± 31.2 ng/mL) CKD subgroups ($p < 0.01$). Omentin levels were lower in stage 2 and 3 CKD but not stage 4 CKD patients compared to controls. An increase in inflammation and malnutrition components were correlated with a decrease in the serum level of Omentin. Omentin-1 measurements of the patients according to MI components were shown in Table 1.

Table 1. Omentin–1 levels in malnutrition-inflammation (MI) subgroups

Number of MI components	Number of CKD patients (n=64)	Omentin–1 levels (ng/mL)
None	29 (45%)	307.4 ± 172.2
One component	24 (38%)	191.3 ± 84.7[a]
Two components	11 (17%)	145.8 ± 67.3[b]

One-way ANOVA test results was demonstrated in table 4. The ANOVA test p value was 0.019. CKD: Chronic kidney disease; MI: malnutrition, inflammation.

[a] Omentin-1 difference between one MI component *versus* no MI components, P =0.022.

[b] Omentin-1 difference between two MI components *versus* no MI components, P=0.013; Omentin difference between two MI components *versus* one MI component, P=0.042.

CONCLUSIONS

Diabetes mellitus and inflammation are responsible from the decrease in serum levels of Omentin in CKD, however, this reduction resolves due to the failure of degradation and excretion of omentin when creatinin clearance falls below 30 ml/dk (stage 4 CKD).

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H) Clinical Nephrology, Chronic Kidney Disease (CKD). H1) Lab methods, progression & risk factors for CKD 1-5, nutrition in CKD, renal diseases (except GNs and cystic diseases).
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