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EFFECT OF PRAVASTATIN ON ERYTHROCYTE MEMBRANE FATTY ACID CONTENTS IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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Objectives: Treatment with statin has been decreased the risk of cardiovascular events in patients with chronic kidney disease (CKD). Erythrocyte membrane oleic acid contents are significantly higher in patients with acute coronary syndrome than control subjects.The aim of this study was to evaluate the effect of pravastatin on the erythrocyte membrane FA in patients with CKD.

Methods:

Sixty two CKD patients were enrolled in this single arm randomized clinical trial and this trial was conducted at two centers from Jan 2017 to March 2019 (NCT02992548). Pravastatin with dose of 20mg was initially treated for 24 weeks. Pravastatin dose was increased to 40mg after 12 weeks, if it is necessary to control dyslipidemia. The primary outcome was the change of erythrocyte membrane FA including oleic acid after pravastatin treatment for 24 weeks. We checked total cholesterol, triglyceride, LDL-cholesterol, HDL-cholesterol and adiponectin for secondary outcome at baseline and after 24 weeks.

Results: Forty-five patients finished this study (age: 59.2 ± 12.4 years old, diabetes: 48.9%). Baseline serum creatinine was 1.5±0.7 mg/dL. Compared to baseline, total cholesterol (223.1±50.8 mg/dL *vs.* 168.4±32.5 mg/dL), LDL-cholesterol (149.1±35.3 mg/dL *vs.* 100.1±25.4 mg/dL), and C-reactive protein were significantly decreased after pravastatin treatment. There were no significant changes in triglyceride, HDL-cholesterol, and serum creatinine levels. Saturated FA, oleic acid and arachidonic acid contents of erythrocyte membrane were significantly increased after pravastatin treatment compared to baseline levels. Polyunsaturated FA (PUFA) and linoleic acid were significantly decreased after pravastatin treatment compared to baseline.

Conclusions:

Linoleic acid or omega-3 FA supplementations may be necessary to recover erythrocyte membrane FA changes, when pravastatin is used for dyslipidemia treatment in CKD patients. Further study for reducing cardiovascular events are necessary by using combined PUFA and pravastatin treatment.