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Effect of Pitavastatin on Erythrocyte Membrane Fatty Acid Contents and HbA1C in Patients with Chronic Kidney Disease

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Objectives:

Statin treatment has decreased the risk of cardiovascular events in patients with chronic kidney disease (CKD). Although there are reports that statin treatment tends to cause diabetes mellitus (DM), pitavastatin has not increased the risk of DM. This study aimed to evaluate the effect of pitavastatin on the erythrocyte membrane fatty acid (FA) contents in patients with CKD. In addition, the effect of pitavastatin on adiponectin and glycated hemoglobin (HbA1c) levels was identified.

Methods: Forty-five patients were enrolled in the randomized controlled study. Pitavastatin was initially administered with a dose of 2 mg for 24-weeks. Atorvastatin 10 mg was used as a control. The dose of pitavastatin or atorvastatin was increased to 4 mg or 20 mg after 12-weeks, if it was necessary to control dyslipidemia.

Results: Twenty-eight patients were finished this study. Sixteen patients took pitavastatin and 12 took atorvastatin, with diabetes 10 and 9, respectively. Compared with baseline, arachidonic acid (AA) levels were significantly increased and saturated FA, palmitic acid, and trans-oleic acid levels were significantly decreased after any statin treatment. There was a decrease in saturated FA, palmitic acid, and trans-oleic acid levels after any statin treatment in CKD patients with eGFR >60. After pitavastatin treatment, AA levels were significantly increased and trans-oleic acid levels were decreased compared with baseline. There was also a decrease in palmitic acid after atorvastatin treatment. Compared with baseline, both groups had significant decrement in total cholesterol and low-density lipoprotein-cholesterol levels, but no effect on adiponectin levels. Patients treated with pitavastatin showed decrement in HbA1c levels.

Conclusions:

Administration of pitavastatin in patients with CKD leads to a modification in FA, including trans-oleic acid and AA. Further studies may be necessary to identify the effect of combined FA and pitavastatin treatment on reducing cardiovascular events, when pitavastatin is used for treating dyslipidemia in patients with CKD.