

신이식환자와 투석환자의 적혈구막 지방산 조성 및 지질의 비교

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Comparison of Erythrocyte Membrane Fatty Acid Contents and Lipid Profiles in Renal Transplant Recipients and Dialysis Patients

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Introduction: Alterations of erythrocyte membrane fatty acid (FA) composition play important roles in cellular function because they change the membrane microenvironment, such as transmembrane receptors. The erythrocyte membrane oleic acid contents are higher in patients with acute coronary syndrome and the erythrocyte membrane oleic acid contents are also higher in dialysis patients who have high risk of cardiovascular disease. However, available data of erythrocyte membrane FA contents on renal transplant recipients (KTP) are limited. We sought to test the hypothesis that erythrocyte membrane FA contents of KTP may be different from those found in the dialysis patients.

Methods: In this cross sectional study, we recruited 68 dialysis patients, 49 KTP and 33 normal control subjects (CTL). Erythrocyte membrane FA contents were measured by gas chromatography.

Results: The mean age of the enrolled dialysis patients, KTP and CTL was 56.4 ± 10.1 , 48.9 ± 10.4 and 49.5 ± 8.3 years. Mean kidney transplanted duration was 89.8 ± 64.8 months and mean dialysis duration was 49.0 ± 32.6 months. Total cholesterol and high density lipoprotein cholesterol (HDL) were significantly higher ($p < 0.001$) and C-reactive protein (CRP) was significantly lower ($p = 0.019$) in KTP compared with those found in dialysis patients. The erythrocyte membrane contents of monounsaturated FA (MUFA) were significantly higher in KTP ($p = 0.001$) and dialysis patients ($p < 0.001$) compared with those found in CTL. The erythrocyte membrane contents of palmitoleic acid were significantly higher but oleic acid were significantly lower in KTP compared with those found in dialysis patients and CTL. The erythrocyte membrane contents of arachidonic acid ($p = 0.001$), docosahexaenoic acid (DHA) ($p = 0.003$) were significantly higher and linoleic acid ($p < 0.001$) and omega-6 FA to omega-3 FA ratio ($p < 0.001$) were significantly lower in KTP compared with those found in dialysis patients and those FAs in KTP were similar with those found in CTL. The erythrocyte membrane contents of oleic acid was independently associated with MUFA ($p < 0.001$), DHA ($p = 0.010$), triglyceride ($\beta = 0.223$, $p = 0.002$), HDL ($\beta = -0.212$, $p = 0.001$), glucose ($p = 0.019$) in all enrolled subjects.

Conclusion: FA contents of erythrocyte membrane were significantly different in KTP compared with those found in dialysis patients. Nearly normalized HDL levels and erythrocyte membrane oleic acid contents were found in KTP.

Key Words: 지방산, 지질, 신장이식

Fatty acid, Lipid, Kidney transplantation