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신이식 전 영양결핍 및 염증이 이식 후 예후에 미치는 영향

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The Pretransplant Malnutrition and Inflammation Affects the Outcome after Kidney Transplantation

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Background: Malnutrition, inflammation, and atherosclerosis (MIA) is known to be associated with a high mortality rate in ESRD patients. However, the clinical relevance of MIA syndrome in kidney transplantation recipients remains unknown. Here, we investigated the outcomes of kidney transplantation in patients with malnutrition and inflammation.

Methods: A total of 676 adult recipients in whom kidney transplantation had performed were enrolled. Recipients were analyzed by the level of serum albumin and high sensitivity c-reactive protein (hs-CRP). Building on the results, recipients were classified into four groups according to the quartile value of pretransplant albumin and hs-CRP: low albumin (lower quartile)+high hs-CRP (higher quartile); low albumin+low hs-CRP; high albumin+high hs-CRP; and high albumin+low hs-CRP. The primary outcome was the composite of cardiovascular events and all-cause mortality. Secondary outcome was the occurrence of cardiovascular events and graft failure.

Results: Recipients with lower pretransplant serum albumin level showed higher occurrence of cardiovascular events ($p=0.001$), and composite of cardiovascular events with all-cause mortality ($p=0.006$). The lower albumin level was, the more cardiovascular events occur. The higher hs-CRP level tends to be associated with the occurrence both of the primary outcomes although statistically insignificant. In the 4 groups analysis, cumulative cardiovascular events free survival was significantly lower in the "low albumin+high hs-CRP" group ($p<0.001$), by Kaplan-Meier method. Cumulative graft failure free survival was not different between the groups. The composite of cardiovascular events and all-cause mortality was significantly high in "low albumin+high hs-CRP" group than in "high albumin+low hs-CRP group" (hazard ratio: 4.337, 95% confidence interval: 1.382-13.613; $p=0.012$).

Conclusion: The malnutrition and inflammation status before kidney transplantation may increase the risk of developing cardiovascular event and all-cause mortality.

Key Words: 신이식, 영양결핍, 염증
Kidney transplantation, Malnutrition, Inflammation