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신이식 후 빌리루빈의 변화 및 이식후 신손상

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Changes in Serum Bilirubin after Kidney Transplantation and the Effect on Graft Outcome

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Background and Objectives: Oxidative stress is an important factor in acute rejection after kidney transplantation and is balanced by various anti-oxidants such as bilirubin. We therefore investigated whether serum bilirubin is associated with the incidence of acute rejection and graft survival of transplanted kidneys.

Design, setting, participants, & measurements: We collected clinical data from 523 consecutive Korean kidney transplantation patients who underwent kidney transplantation from 1999 to 2008.

Results: After kidney transplantation, serum levels of total bilirubin significantly increased (0.40±0.18 mg/dL→0.83±0.37 mg/dL, $p<0.001$). Post-transplant 1 year bilirubin levels of the acute rejection (AR)-negative group were significantly higher than those of the AR-positive group (0.85±0.39 mg/dL versus 0.75±0.30 mg/dL, respectively, $p=0.007$). The AR incidence in the group with a difference value of total bilirubin between pre-transplant and post-transplant 1 year (Δbil) <0.4 mg/dL was higher compared to the group with a Δbil >0.4 mg/dL (26.3% versus 14.4%, respectively, $p=0.001$, chi-square test). This association was statistically significant after adjusting for several risk factors. [OR=0.55, 95% confidence interval (CI) 0.34-0.88, $p=0.013$]. In a Kaplan-Meier model, recipients with a Δbil <0.4 mg/dL showed poor graft survival compared to recipients with a Δbil ≥0.4 mg/dL ($p=0.036$, log rank test). Recipients with a Δbil ≥ 0.4 mg/dL decreased the risk of graft loss by a factor of 0.34 (95% CI 0.12-0.99, $p=0.048$) after adjusting for several risk factors in a Cox regression analysis.

Conclusions: As serum bilirubin during post-transplant 1 year increased, the incidence of AR declined and graft survival was improved.

Key Words: 빌리루빈, 산화 스트레스, 신장이식
Bilirubin, Oxidative stress, Kidney transplantation