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Association Serum Bilirubin Level and UGT1A1*28 Polymorphism with Progression in Human IgA Nephropathy

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Background: Oxidative stress is an important factor in progression of kidney disease. Bilirubin has antioxidant and anti-inflammatory properties. In this study, we evaluated the role of bilirubin in IgA nephropathy (IgAN) patients and the relationship between serum bilirubin levels and UGT1A1*28 polymorphism related with bilirubin degradation.
Methods: We collected clinical data of 195 adult patients aged 18 yr or more who were diagnosed as primary IgAN from 1983 to 2010. Serum bilirubin levels and incidence of end stage renal disease (ESRD) were traced. Genotyping of the TA-repeat polymorphism in UGT1A1*28 gene's promoter was performed.
Result: The UGT1A1*28 genotype frequencies were 83.1%, 14.9%, 1.0%, and 1.0% for 6/6, 6/7, 7/7, and 6/8, respectively, for IgAN patients. At kidney biopsy, bilirubin levels of the 6/6 genotypes were lower than those of the 6/7, 7/7, and 6/8 genotypes (0.66±0.30 versus 0.77±0.29 mg/dL, p=0.119). Serum bilirubin level had significantly inverse association with incidence of ESRD (HR 0.18, 95% CI 0.04-0.87, p=0.033). UGT1A1*28 polymorphism was not associated with ESRD incidence (6/6 genotype versus. 6/7, 6/8, 7/7 genotype, log rank p=0.660).
Conclusion: Elevation serum bilirubin at kidney biopsy in IgAN patients had a negative effect on ESRD incidence. But, disease progression may be not affected by UGT1A1*28 polymorphism.

Key Words: 빌리루빈, IgA 신병증, UGT1A1 polymorphism
Bilirubin, IgA nephropathy, UGT1A1 polymorphism