

제 2형 당뇨병모델인 db/db mice에서 경구 항CD3 항체 투여가 인슐린 저항성 및 당뇨병성 신증에 미치는 영향

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The Effect of Oral Anti-CD3 Antibody on Insulin Resistance and Diabetic Nephropathy in db/db Mice

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It has been recognized that inflammation is a key feature of type 2 diabetes. For several years, macrophage, as a regulator of innate immunity, has been considered to have a major role in diabetic inflammatory processes. But recent advances revealed an emerging prominent role of different types of T lymphocytes from the adaptive immune system in adipose tissue inflammation and the development of obesity. Oral anti-CD3 antibody, as an inducer of regulatory CD4+CD25-latency-associated peptide (LAP)-positive regulatory T cell, was recently reported to ameliorate inflammatory milieu in diabetes. Therefore, we asked whether oral anti-CD3 antibody has beneficial effects on progression of kidney disease in diabetic db/db mice. 2 days after the completion of 5-consecutive day treatment with oral anti-CD3 antibody in 8-week aged db/db mice, we found a significant increase in CD4+CD25-LAP+ regulatory T cell in spleen of treated animals compared with control. Thereafter, while there are no significant differences in glucose tolerance test, insulin resistance status represented by homeostasis model of insulin resistance (HOMA-IR) index, or blood glucose levels, we found a significant decrease in urinary protein excretion and the preservation of renal function represented by creatinine clearance over 3-month study period. In addition, lipid profiles such as total cholesterol and triglyceride levels had significantly improved in treated animals. Thus, our results suggest that oral anti-CD3 antibody treatment might have a protective role in progression of diabetic kidney disease possibly via CD4+CD25-LAP+ regulatory T cell modulation.

Key Words: 당뇨병성 신증, 항 CD3 항체, 조절 T 림프구

Diabetic nephropathy, Anti-CD3 antibody, CD4+CD25-LAP+Tcell