Abstract

Association between changes in the mRNA expression of platelet-activating factor receptor in peripheral blood mononuclear cells and progression of diabetic nephropathy

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Several studies have recently pointed out the role of many inflammatory mediators in the progression of diabetes complications. We had previously demonstrated that mRNA expression of platelet activating factor receptor (PAFR) in peripheral blood mononuclear cells (PBMCs) was associated with urinary albumin to creatinine ratio (ACR) and forearm flow-mediated dilatation in patients with type 2 diabetes. In an attempt to elucidate this association, patients were followed up for 1 year.

We recruited 95 patients from the hospital outpatient clinic, among whom 86 were followed up for 1 year (normoalbuminuria: 40 patients, microalbuminuria: 25 patients, macroalbuminuria: 21 patients). We then measured their baseline and 12 month characteristics and collected blood samples to extract PBMCs and measure gene expressions.

Despite higher mRNA expression of PAFR in PBMCs among patients with macroalbuminuria, the baseline values of mRNA expression of PAFR were not associated with progression of nephropathy. However, the changes in mRNA expression of PAFR were correlated with changes in ACR in all patients ($r = 0.225$, $p = 0.037$) and estimated glomerular filtration rate in patients with macroalbuminuria ($r = -0.438$, $p = 0.047$) during the follow-up period.

Our findings indicate that even though no causal relationship exists between diabetic nephropathy and elevated expression of PAFR in PBMCs, their close association; signifies the presence of another common mechanism that could induce both events. Given these findings, the PAF/PAFR interaction could clarify corresponding mechanisms involved in diabetic nephropathy.