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Letter to Editor

Acute phase reactant dynamics and incidence of microvascular dysfunctions in type 2 diabetes mellitus

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In a manuscript published in October of 2011, Azenabor et al. reported that increased level of acute phase reactants such as β2 microglobulin, fibrinogen, lipoprotein (a) and C-reactive protein (CRP) are associated with number of microvascular complications in type II diabetic subjects and suggested that they may play a role in pathogenesis of diabetic complications.[1] Several studies reported that elevated inflammatory markers are associated with diabetes mellitus.[2,3] CRP level is positively correlated with obesity and insulin resistance.[4] Interestingly, antidiabetic and antihyperlipidemic agents can reduce inflammatory factors in diabetic patients.[5] Plasma inflammatory markers such as CRP and fibrinogen are higher even in patients with metabolic syndrome and it is demonstrated that the number of metabolic syndrome components are strongly correlated with serum level of inflammatory markers.[6] Elevated inflammatory factors in diabetic subjects with complications compared to non-complicated patients have also been documented. The high sensitive CRP (hsCRP) level in diabetic patients with presence of diabetic retinopathy was higher than patients without diabetic retinopathy suggesting a link between inflammation and development of microvascular complications.[7] However, it seems that effects of inflammatory markers on diabetic complications are more complicated and some points should be noted. First, there is a link between inflammation, antioxidants and development of diabetic complications. It was shown that paraoxonase-1 (PON1) activity was decreased in diabetic patients and PON1/CRP ratio was also decreased in diabetic patients with retinopathy compared with those without retinopathy.[7] Second, endothelial dysfunction markers should be considered as important factors in diabetic complications. Targher et al. indicated that serum von Willebrand factor, soluble intracellular adhesion molecule-1 (sICAM-1) and hsCRP were unchanged in type I diabetic patients without complications.[8] They found that inflammatory markers and endothelial dysfunction markers were significantly elevated in diabetic patients with complications compared with those without complications. Third, some inflammatory markers are involved during angiogenesis processes. For example, CRP can modulate angiogenesis and may be involved in microvascular complications.[9] Interleukin 6 also stimulates inflammatory cytokine production and involved in tumor angiogenesis.[10] Fourth, the magnitude of inflammatory markers elevation and presence of other risk factors should be considered. It is demonstrated that urinary albumin excretion higher than 12 mg/24h, hsCRP higher than 3 mg/kg and presence of hypertension are risk factors for development of microvascular complications in diabetic subjects.[11] Further research is needed to understand the role and mechanism of inflammation on insulin resistance and microvascular complications in diabetes.

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Conflict of Interests
Authors have no conflict of interests.

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