

ASSOCIATION BETWEEN SERUM CONCENTRATIONS OF SOLUBLE LECTIN-LIKE OXIDIZED LOW DENSITY LIPOPROTEIN RECEPTOR-1 AND SERUM AMYLOID A IN TYPE 2 DIABETES

*C.H. Lee, S. Shiu, Y. Wong, K. Tan*

Medicine, University of Hong Kong, Hong Kong, Hong Kong

**BACKGROUND:** Lectin-like oxidized low density lipoprotein receptor-1 (LOX-1) mediates the uptake of oxidized LDL in endothelial cells and macrophages, and has been implicated in the pathogenesis of vascular inflammation and atherosclerosis. The extracellular domain of LOX-1 can be proteolytically cleaved and released as a soluble form (sLOX-1). It has been suggested that circulating level of sLOX-1 reflects LOX-1 expression and can act as a biomarker. LOX-1 expression is inducible and recent experimental data have shown that serum amyloid A (SAA), an acute phase protein, can induce LOX-1 expression in macrophages in vitro. Since type 2 diabetes is associated with subclinical inflammation, we have evaluated whether serum sLOX-1 level is increased in patients with type 2 diabetes and its relationship to SAA. **METHOD:** 300 patients with type 2 diabetes and 150 age-matched non-diabetic controls were recruited. Subjects with a history of any recent acute illness were excluded. Serum sLOX-1 and SAA were measured by ELISA. **RESULT:** Type 2 diabetic patients had higher serum sLOX-1 than controls [median 114.7 ng/ml (interquartile range 89.0–132.2) vs 102.6 (83.8–120.3) respectively,  $p < 0.01$ ] and the differences remained significant after adjusting for gender, body mass index and smoking. SAA was significantly increased in diabetic subjects than controls [129.7 ng/ml (85.8–179.3) vs 119.3 (81.6–147.9) respectively,  $p < 0.05$ ] even in the absence of any acute illness. Serum  $\log(\text{sLOX-1})$  correlated significantly with  $\log(\text{SAA})$  ( $r = 0.51$ ,  $p < 0.001$ ) and weakly with  $\log(\text{eGFR})$  ( $r = -0.11$ ,  $p = 0.05$ ) in diabetic patients but not in non-diabetic controls. On linear regression analysis,  $\log(\text{SAA})$  remained an independent determinant of sLOX-1 even after adjusting for age, gender, body mass index, HbA1c, eGFR and smoking in subjects with diabetes. **CONCLUSION:** Elevated sLOX-1 concentration in type 2 diabetes suggests that LOX-1 is upregulated and we have found a significant relationship between circulating sLOX-1 and SAA levels. Our results suggest that SAA may potentially play a role in inducing LOX-1 expression in diabetes and contribute to the development of atherosclerosis.