MONOCYTE ADHESION MOLECULES EXPRESSION IN TYPE 2 DIABETIC NEPHROPATHY

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INTRODUCTION AND AIMS

Diabetic nephropathy is considered as an inflammatory disease characterised by monocyte infiltration at every stage of renal involvement. Adhesion molecules are specific agents to recruit and activate monocytes from circulation to inflammatory site.

The aims of the study were assessment of cell surface expression of adhesion molecules ICAM (CD54), CD11b subunit of Mac-1 integrin receptor and P-selectin glycoprotein ligand-1 (PSGL-1, CD162) on peripheral blood monocytes in type 2 diabetic patients with nephropathy.

DESIGN AND METHODS

ICAM, CD11b and PSGL-1 expression on freshly isolated peripheral blood-derived monocytes were measured in 15 healthy control subjects and 72 type 2 diabetic patients with early and advanced stages of the disease. Antigen expression was investigated using undirect immunofluorescence. The relationships between the levels of urinary albumine, serum creatinine, serum monocyte chemoattractant protein (MCP-1) and adhesion molecules expression were analyzed.

RESULTS

Our results showed that blood monocytes from diabetic nephropathy patients with early stages of the disease showed higher expression of ICAM, CD11b and PSGL-1 when compared to monocytes from healthy controls. Persentage of ICAM, CD11b and PSGL-1 positive monosytes in diabetic nephropathy group was (29,5 1,9)%, (33,4 2,8)% and (58,3 4,6)%, respectively. Controls – (21,1 1,7)%, (24,3 2,6)% and (44,2 4,5), respectively. Progression of nephropathy was accompanied by significant growth of monocyte expression of ICAM and CD11b, (p<0,02), but not PSGL-1.

In all subjects, there were significant correlations between urinary levels of albumine, serum creatinine, serum MCP-1 and ICAM and CD11b expression.

Fig.1. ICAM and CD11β antigen expression on monocytes in diabetic nephropathy patients

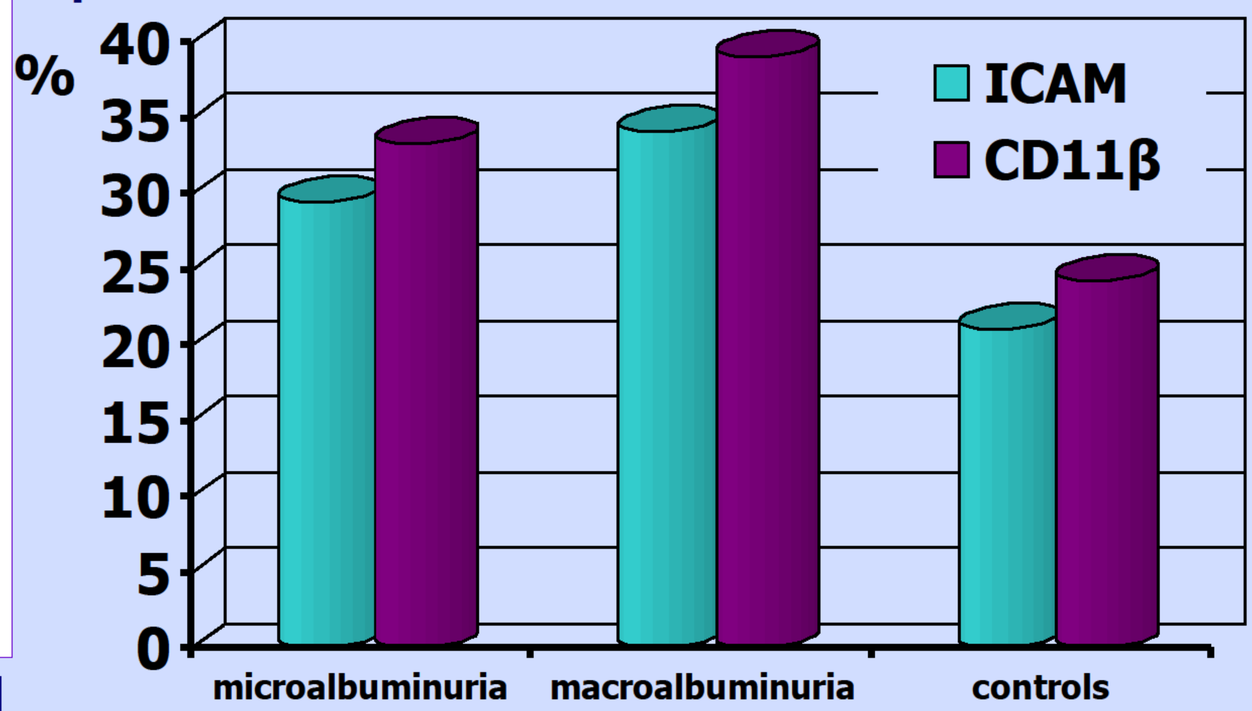

Fig.2. PSGL-1 expression on monocytes in patients with diabetic nephropathy and healthy controls

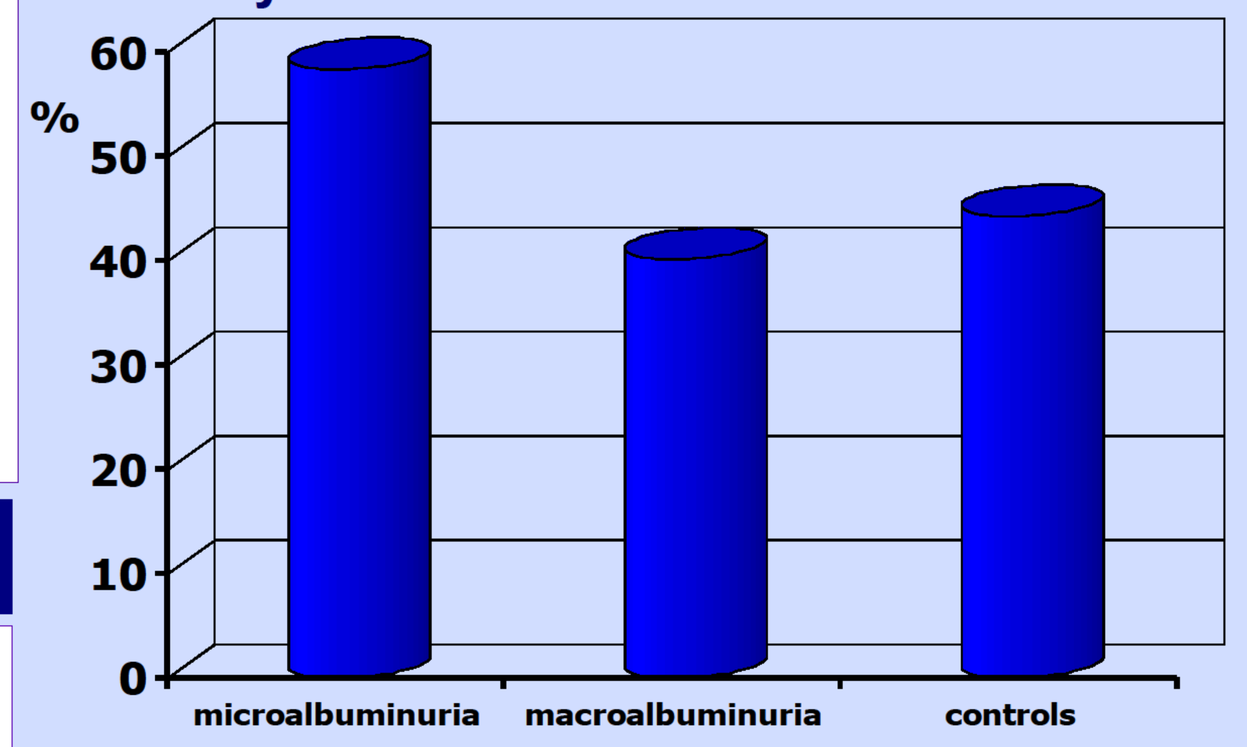

Table 2. Correlation coefficients (r) CD11β+ and ICAM+ monocytes of with urinary albumine, serum creatinine and serum MCP-1

	ICAM+ monocytes	CD11β+ monocytes
urinary albumine	0,44*	0,47*
serum creatinine	0,48*	0,46*
serum MCP-1	0,54*	0,57*

*** Significant at P < 0,05.**

CONCLUSION

These findings suggest that monocyte activation is implicated in the development of diabetic nephropathy. Progression of disease is accompanied by adgesion molecules expression disbalanse. Determination of ICAM, CD11b and PSGL-1 expression on monocytes in type 2 diabetic patients with nephropathy may have important diagnostic implications.

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