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Microalbuminuria is associated with impaired arterial and venous endothelium-dependent vasodilation in patients with Type 2 diabetes.

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Abstract

BACKGROUND: Microalbuminuria in Type 2 diabetes is associated with arterial endothelial dysfunction, but the venous bed was never evaluated.

AIM: To study the endothelial function in the venous and arterial bed in patients with Type 2 diabetes with normoalbuminuria or microalbuminuria.

MATERIAL AND METHODS: We evaluated 28 patients with Type 2 diabetes, glycated hemoglobin (HbA_{1c}) <7.5%, who were classified as normo- (albuminuria <30 mg/24 h; no.=16) or microalbuminuric (albuminuria 30-300 mg/24 h; no.=12). Venous and arterial endothelial function were assessed by the dorsal hand vein technique (venodilation by acetylcholine) and brachial artery flow-mediated vasodilation, respectively.

RESULTS: Patients were normotensive (systolic arterial pressure: 131.1±10.6 mmHg) and on good metabolic control (HbA_{1c}: 6.6±0.6%). Microalbuminuric patients presented impaired venous (32.9±17.4 vs 59.3±26.5%; p=0.004) and arterial vasodilation (1.8±0.9 vs 5.1±2.4; p<0.001), as compared to normoalbuminuric patients. There was a negative correlation between acetylcholine-induced venodilation and albuminuria (r=-0.62; p<0.001) and HbA_{1c} (r=-0.41; p=0.032). The same was observed between flow mediated arterial vasodilation and albuminuria (r=-0.49; p=0.007) and HbA_{1c} (r=-0.44; p=0.019). Venous and arterial vasodilation was positively correlated (r=0.50; p=0.007).

CONCLUSIONS: Both venous and arterial endothelial function are impaired in Type 2 microalbuminuric diabetics, in spite of good metabolic control, suggesting that other factors are involved in its pathogenesis.

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