Urinary MMP-9 activity is a marker of decline of renal function in patients with type 2 diabetes mellitus

Abstract
Matrix metalloproteinases (MMPs) may play a pathophysiological role in the development of diabetic nephropathy (DN). We hypothesized that urinary MMP activity in patients with type 2 diabetes mellitus (T2DM) is related to a decline in renal function. We determined MMP-2, -8 and -9 activity in 24-h urine collections in relation to risk factors for DN in T2DM patients with (UA, n=27) and without albuminuria (NA, n=48) and controls (CO, n=28). MMP-8 and -9 levels were highest in UA patients (P<0.01). Of UA patients, 93% had at least one MMP increased, compared to 78% of NA patients and 46% of CO (P=0.001). Age, diabetes duration, BMI, systolic blood pressure, fasting plasma glucose, HbA1c and renal function were determinants of MMP-8 and -9 (P<0.05). In summary, MMP-8 and -9 are highest in T2DM UA patients. MMP-9, showed the strongest associations with clinical parameters related to DN.