Short Communication

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Beta-Trace Protein as an Early Predictor of Diabetic Nephropathy in Type II Diabetes

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Diabetic nephropathy (DN) represents the leading cause of end-stage renal disease worldwide. Albuminuria is still the standard for diagnosis of DN, although it is limited by the fact that structural damage might precede albumin excretion. So, new biomarkers are needed to predict DN even in patients with normoalbuminuria.

Aim

To assess serum beta-trace protein (BTP) level and its possible role in early detection of DN.

Patients and methods

This is a prospective cohort study carried on 40 type II diabetic patients with urinary albumin/creatinine ratio less than 30 mg/g and 10 healthy nondiabetic controls without renal disease. Serum BTP and urinary albumin/creatinine ratio were measured for all participants at selection and after 3 months.

Results

BTP was significantly higher at selection time in 32/40 (80%) diabetic patients, with median (interquartile range) values of 410 (312.5) ng/ml when compared with controls, with median (interquartile range) of 200 (110) ng/ml (P<0.001). BTP at a cutoff value of 260 ng/ml for the detection of DN, with area under curve of 0.848 and 95% confidence interval of 0.726–0.969, had 80% sensitivity, 80% specificity, 94.1% positive predictive value, and 50% negative predictive value. After 3 months, BTP increased in diabetics to 440 (502.5) ng/ml, with P value of 0.867, and increased in controls to 275 (115) ng/ml, with P=0.007. After 3 months, BTP level positively correlated with blood urea in diabetics (r=0.321, P=0.043).

Conclusion

Serum BTP is a predictive marker of DN with high sensitivity and specificity. It detects renal injury earlier than albuminuria. Further studies are needed to assess its relation to glycemic control and disease progression.

Keywords: beta-trace protein, diabetic nephropathy, urinary albumin/creatinine ratio