CHRONIC KIDNEY DISEASE.
PATHOPHYSIOLOGY, PROGRESSION & RISK FACTORS - 1

PREDICTING PROGRESSION IN CKD: CORIN BALANCES HEART AND RENAL SYSTEMS

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Introduction and Aims: Natriuretic peptides (NP) play a key role in regulation of salt-water balance and volume homeostasis, through natriuretic/diuretic and vasodilatory actions. Corin, a serine protease converting pro-NP to active NP, was detected throughout the renal tubules, beyond the heart. The aim of this study was to examine the predictive value of corin for the progression of chronic kidney disease (CKD).

Methods: A prospective, observational study was designed, involving 160 non-dialysis patients. 50 healthy subjects (HS) were recruited as controls. The studied cohort was followed for 12 months, or until endpoint, defined as doubling of baseline serum creatinine and/or onset of end-stage renal disease, was reached.

Results: Serum corin levels were significantly higher in CKD patients than in HS [(929.1(575-1253) vs 678(544-777)pg/ml,p<0.0001]. BNP levels were in the normal range (25.5±20.8 pg/ml). High values of corin were assessed in hypertensive and diabetic patients [850.6(410.8-1035.2) and 945.6(684.4-1420.4)pg/ml,respectively]. Patients affected by myocardial infarction or chronic heart failure were characterized by high values of this protease. Corin was inversely and closely related to cardiac parameters, such as left ventricular (LV) diastolic diameter (p=0.01;r:-0.47), LV ejection fraction (p=0.01;r:-0.45) and BNP (P=0.02;r:-0.32). Moreover, an inverse correlation was found between corin and markers of CKD progression, such as microalbuminuria (p=0.003;r:0.36) and proteinuria (p=0.0007;r:0.41). A relationship was also found also with homocysteine levels (p=0.01;r:0.55) and pulmonary artery pressure (p=0.004;r:0.75). No correlations were assessed between corin and renal function tests. During the follow-up, 26 patients (16%) had CKD progression. Receiving operator curve analyses were performed in order to define the diagnostic profile of serum corin in identifying the decline of kidney function. The area under the curve (AUC) for corin was 0.873. At 1249 pg/ml as cut-off value, sensitivity and specificity were 80.8% and 85.8%.

Conclusions: in patients with CKD, corin closely reflects the entity of renal impairment, representing a strong and independent risk marker for progression of CKD.