

CLINICAL SIGNIFICANCE OF HEAT SHOCK PROTEIN 70 (HSP-70) SERUM LEVEL IN PATIENTS WITH CHRONIC GLOMERULONEPHRITIS



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INTRODUCTION AND AIMS

Heat shock proteins (HSPs) are expressed under normal physiological conditions and have a role in the synthesis, transport and folding of new synthesized proteins and reparation of misfolded or denatured proteins. As immunodominant molecules, HSPs can regulate the chronic inflammation. Anti-HSP-70 antibodies are revealed in most of immunoinflammatory diseases (rheumatoid arthritis, lupus erythematosus, dermatomyositis etc.), its production is associated with diseases severity. The clinical significance of anti-HSP-70 in pathogenesis and prognosis of CGN is not clear.



Our study aim was to evaluate the serum levels of human anti-HSP-70 in patients with different CGN clinical forms and to define its significance in the assessment of CGN activity and severity.

METHODS

58 CGN patients were studied: 20 with inactive CGN (proteinuria (PU) < 1g/d) (I group); 23 active CGN with PU > 1g/d (including patients with nephrotic syndrome (NS)) and normal renal function (II group); 15 patients with severe CGN course (high arterial hypertension and transient renal failure (GFR<60 ml/min), nephritic syndrome) (III group). Patients with active infection, diabetes, advanced atherosclerosis were excluded from the study. The serum levels of anti-human HSP-70 antibodies were measured by ELISA.

RESULTS

The anti-HSP-70 levels in active CGN and normal renal function (II group) was significantly higher than in latent CGN course (I group) (table 1).

In NS direct correlation were revealed between the anti-HSP-70 levels and the total NS severity (serum albumin levels, PU, edema) ($R_s=0,404$, $p=0,04$) and negative correlation with serum albumin levels ($R_s=-0,5$, $p=0,01$). Our data may reflect the enhanced expression of protective HSP-70 and anti-HSP-70 intensive production in high activity CGN.

Anti-HSP-70 levels were lower in patients with CGN progressive course (III group) than in II group with normal renal function (table1) and negatively correlated with GFR ($R_s= -0,49$, $p=0,05$).

Table 1. Anti-HSP-70 antibodies serum level in patients with CGN (n=58)

Patients groups	N	Anti-HSP-70 antibodies serum level (ng/ml)	p
I. Inactive CGN	20	17,6 [12,0; 23,7]	PI-II <0,05 PI-III >0,05
II. Active CGN with moderate activity	23	29,6 [21,4; 31,3]	PII-I <0,05 PII-III <0,05
III. Active CGN with severe activity	15	17,6 [14,7; 24,3]	PIII-I >0,05 PIII-II <0,05

CONCLUSION

Thus, the anti-HSP-70 levels (as protective factors) were increased in active CGN, especially in patients with NS, in response to inflammatory kidney damage. Conversely, decreased levels of anti-HSP-70 can indicate on kidney self-defence system insufficiency in progressive CGN.

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