THE FEATURES OF ENDOTOXEMIA IN PATIENTS WITH CKD 5D AGAINST CHRONIC INFLAMMATION AND VIRAL HEPATITIS C BACKGROUND

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INTRODUCTION AND AIMS:

The patients with end-stage renal feature (ESRF) on hemodialysis (HD) are characterized by high morbidity on chronic hepatitis C (CHC). By-turn, CHC infection negatively affects both on system conditions of patients with CKD 5D or on dialysis efficiency, and on patient's quality of life as whole. Study objectives: characterizing of endotoxemia among the patients on hemodialysis infected by hepatitis C virus.

METHODS:

Toxicometric analysis of endotoxemic parameters with determination of molecule sizes and toxin particles (<10 nm, 10-200 nm, and >200 nm), damaging activity potentials (toxicity), prevalent accumulation sites in bloodstream on different plasma fractions (albumin, globulin, cell membranes, in free circulation), and it involvement in forming of toxin-inducing autoimmune and cytolytic reactions was executed among 43 patients with CKD 5D (25 with CHC in replication stage, basic group; 18 without CHC, comparing group). Autoleucocytes of patients was used as biological target for damaging activity assessment of endotoxins with different toxicometric characteristics.

RESULTS:

In patients of basic and control groups was noted the substantial increase of indexes of cytolytic (55.32 3.10% and 54.25 3.05%, respectively; p>0.05) and autoimmune (56.70 3.83% and 51.89 2.28%, respectively; p>0.05) activity of endotoxins in plasma whole blood. In was determined the high cytolytic activity (CA) level of toxin-carrying plasma fractions and free-circulation endotoxin fraction, representing the serious stage of endotoxemia, characterized by uniform distribution of endotoxins in all plasma fractions of patients from basic and comparative groups (p>0.05).

Correlation differences between endotoxin levels:

Fig.1 CA molecular size <10 nm

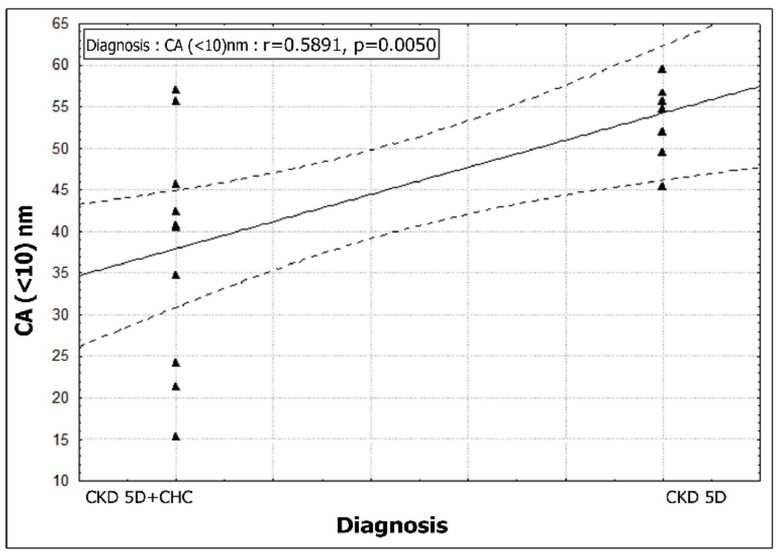
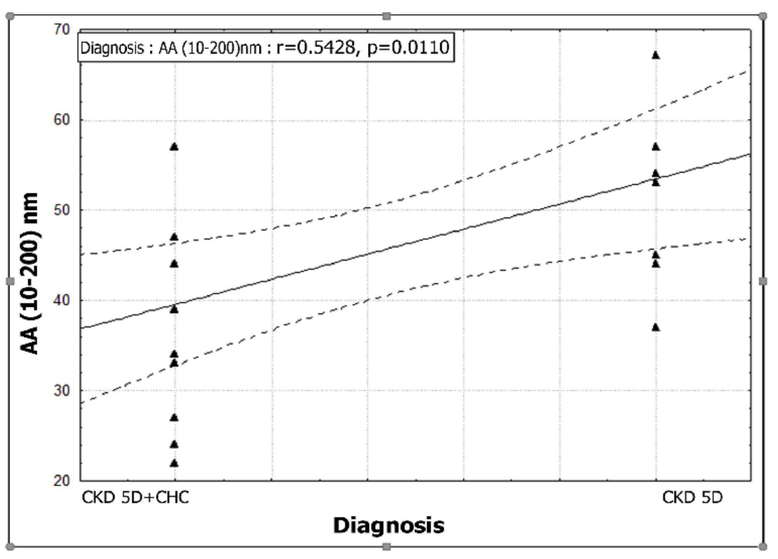


Fig.2 AA molecular size of 10-200 nm



In patients with CHC was noted the lower level of CA globulin-associated (41.60 3.95%) and albumin-associated (47.59 2.97%) endotoxins with molecule sizes less than 10 nm (p<0.05) – Fig.1. The level of CA endotoxins with particle sizes 10-200 nm (p>0.05) was higher as compared with patients of control group. Toxin-induced autoimmune activity (AA) of all toxin-carrying fractions was raised and conformed to moderate or serious grade of endotoxemia manifestations. In patients with CKD 5D and CHC the level of AA free-circulating endotoxins was 57.40 1.96% and was significantly (p<0.05) higher as in control group (46.56 3.13%) – Fig.2. Maximal level AA was noted for free-circulating endotoxins with particle sizes 10-200 nm.

CONCLUSIONS:

Clinical and laboratorial manifestations of endotoxemia in patients with CKD 5D and CHC have some distinctive features as compared with patients with CKD 5D, but without CHC. Toxicometric parameters of endotoxemia during CKD 5D and CHC was characterized with lower level of cytolytic activity globulin-associated endotoxins with molecule sizes less than 10 nm (p<0,05), and higher level of autoimmune activity globulin-associated endotoxins with particle sizes 10-200 nm or molecule sizes less than 10 nm (p<0,05).