Diagnostic and prognostic value of neopterin and RNA-ase in patients with STEMI and NSTEMI

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Background: Neopterin and RNA-ase are markers of inflammation with low disclosed role in diagnosis and prognosis of either STEMI or NSTEMI, although inflammation is well documented as a leader pathogenic mechanism in these pathologies.

Aim: Evaluation of serum admission levels of neopterin and ARN-ase in pts with STEMI and NSTEMI and their prediction value concerning the risk of MACE in 1 year of follow up period.

Material and methods: The admission serum concentration of neopterin and ARN-ase was determined by ELISA in 94 pts with STEMI and 92 pts with NSTEMI which was compared with normal markers appreciated in 32 healthy persons. Likewise, the rate of MACE in both groups was estimated during 1 year of post-infarction period. Diagnostic worth and MACE prediction power of markers have been established using respectively ROC curve and odds ratio.

Results: In patients with STEMI the serum level of neopterin was significantly increased compared with normal index by 3,5 times (11,6±3,4 vs 3,3±1,4 nM/L), but RNA-ase was significantly decreased by 43,4% (24,1±3,2 vs 42,6±5,2 nM/ml). In pts with NSTEMI neopterin level was lesser than STEMI, but significantly elevated by 39% (4,6±2,5 vs 3,3±1,4 nM/L) vs normal marker. RNA-ase level didn't significantly differ from normal level. However, adjusted to diabetes mellitus established in 19 pts, RNA-ase significantly diminished (36,4±3,9 vs 42,6±5,2 nM/ml), and its diagnostic value of NSTEMI according to ROC was 69,6% (RNA-ase level indicates inversely inflammation response, such as it breaks down extracellular RNA which has proinflammatory ability). Both markers in pts with NSTEMI and diabetes mellitus demonstrated a diagnostic value of 77,6%. In pts with STEMI highest tertile level of neopterin and lowest tertile level of ARN-ase had 2,8fold (adds ratio=2,8; CI=1,98–4,62; $p<0,05$) and 2,3fold (adds ratio=2,3; CI=1,71–3,89; $p<0,05$) higher risk of MACE development. In pts with NSTEMI the combination of these markers (highest and lowest quartile levels) also had a significant prediction regarding MACE risk (adds ratio=2,1; CI=1,86–3,77; p=0,029).

Conclusions: 1. In STEMI both neopterin and RNA-ase could be as diagnostic markers, due to their significant change. In NSTEMI neopterin significantly elevated, but RNA-ase didn't shift from normal. In diabetic pts with NSTEMI, however, their combination demonstrated in ROC estimation a diagnostic value of 77,6%.

2. Prediction value of markers combination regarding MACE risk in pts with NSTEMI is significant and close to each marker in partly prediction of MACE for pts with STEMI.