

# **DYNAMIC CHANGES IN BIOMARKERS CRP, PENTRAXIN-3 AND NEPRILYSIN IN ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION**

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**Conflicts of interest:** We confirm that we have no conflicts of interest to disclose.

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**Background:** CRP, pentraxin-3 (PTX3), and neprilysin have been associated with increased morbidity and mortality in chronic inflammatory disease and heart failure. We investigated the dynamic changes of these biomarkers in patients with ST-segment elevation myocardial infarction (STEMI).

**Methods:** Blood was collected from STEMI patients at three time points, acute, 1-3 days after, and 3 months after percutaneous coronary intervention (PCI) and from 40 healthy blood donors. Statistical analysis was performed using Kruskal Wallis or Friedman test. Survival curves were analyzed using the Log-rank test (Mantel-Cox method).

**Results:** When comparing the levels of biomarkers to samples from healthy donors, plasma levels of CRP and PTX3 were significantly increased in the acute samples and 1-3 days after PCI but not at 3 months. The CRP levels peaked at 1-3 days while PTX3 showed high levels in both acute and 1-3 days samples. For neprilysin, no significant differences were observed on a group level, but some individuals with increased levels were observed at all-time points and also among healthy donors. Patient survival was followed for approximately 8 years after the PCI, after which survival analysis was performed, comparing patients with levels of biomarkers above and below the median values at the different time points. Here, we found a significant reduction in long-term survival for individuals with high PTX3, both acute and 1-3 days after PCI ( $p=0.0001$  and  $p=0.0008$ , respectively). For CRP, no significant differences were observed using that approach, but patients above the reference range for the healthy donors in the acute samples showed significantly lower survival ( $p=0.0476$ ).

**Conclusions:** The analyzed biomarkers show differences in kinetics. Survival analysis suggested that PTX3 might be a new promising marker to predict mortality in this patient population.