SUCCESSFUL PERCUTANEOUS CORONARY INTERVENTION IMMEDIATELY SUPPRESSES AND FURTHER NORMALIZES METALLOPROTEINASE-9 ACTIVITY IN GREATER EXTENT IN ACUTE CORONARY SYNDROME THAN IN CHRONIC CORONARY ARTERY DISEASE PATIENTS

ACC Moderated Poster Contributions
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Background: Matrix proteases (MMPs) MMP-2 and MMP-9 are regarded as biomarkers of plaque rupture and elevate in the patients with acute coronary syndrome (ACS); also they play a key role in intimal growth and are responsible for ventricular remodeling and heart failure progression. However, little is known about early coronary and systemic changes of MMPs 2, 9 and tissue inhibitor of matrix protease (TIMP) activity after stent implantation both in chronic coronary artery disease (CAD) and in ACS patients (pts).

Methods: We investigated the serial changes of intracoronary and venous serum MMP-9, MMP-2 activity (gelatin-zymography; referent value _100% from normal subjects plasma pool) and TIMP1 (Millipore TIMP-1 immunoassay kit) levels in 110 samples from 10 pts with ACS and 14 pts with chronic CAD before and after procedure and at discharge (7th day) after uncomplicated stent implantation. Statistic data are presented like: median (M) (25%; 75% percentiles).

Results: The MMP-9 activity was greatly increased in all pts M=237(147; 420) both intracoronary and in systemic blood before and abruptly decreased after procedure and nearly normalized at discharge in ACS pts M=140(84;286), p=0,028 (for intracoronary p=0,007; systemic blood p=0,021) with strong trend in chronic CAD without concomitant MMP-2 activity changes (M1=189,5%, M2=178,5; p=0,097) and high decrease of MMP-9/MMP-2 activity interrelation (M1=1,84, M2=0,6; p= 0,007 ). TIMP1 levels were moderately increased in all patients and in chronic CAD pts remained unchanged (M1=92,5, M2=84,0; normal value= 68± 13 ng/ml), but negative correlation in Spearman test (-0,56; p=0,002) with MMP-9 activity was revealed.

Conclusions: Local and systemic matrix degradation with high level of MMP9, 2 and TIMP1 activity is characteristic for all CAD pts. Uncomplicated PCI immediately decreases MMP-9 activity after procedure especially in ACS pts leading to lower level of further pathologic ventricular and vascular remodeling.