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Chronic CAD/Stable Ischemic Heart Disease

MYELOPEROXIDASE MODULATES CARDIOVASCULAR RISK PROTECTIVE FUNCTION BY PARAOXONASE-1 AS DETECTED BY SERUM ARYLESTEARSE ACTIVITY

Poster Contributions
Poster Sessions, Expo North
Saturday, March 09, 2013, 3:45 p.m.-4:30 p.m.

Session Title: What's New with Risk Stratification in SIHD: Biomarkers, Genes and ECG
Abstract Category: 10. Chronic CAD/Stable Ischemic Heart Disease: Clinical
Presentation Number: 1154-68

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Background: Leukocyte-derived myeloperoxidase (MPO) promotes oxidation of lipoproteins, and has been shown to modulate high-density lipoprotein (HDL) associated paraoxonase-1 (PON-1), rendering it dysfunctional.

Methods: We measured plasma MPO and serum PON-1 (indicated by serum arylesterase activity, ARYL) in 4,490 subjects undergoing coronary angiographic evaluation, with incident major adverse cardiac events (MACE=death, myocardial infarction, stroke) over 3-year follow-up.

Results: In our study cohort (mean age 63±11 years, 67% male, median MPO 110.5 [IQR 73-232] pM, mean ARYL 103±25 μmol/min/mL), subjects with high MPO/low ARYL levels (ie. highest MPO/ARYL ratio) had the highest risk for future cardiovascular events, whereas elevated MPO was still associated with increased MACE risk in the setting of high ARYL (figure). Subjects with the high (quartile 4th vs 1st) MPO/ARYL ratio had the highest MACE risk (Hazard ratio [HR] 2.19 [95%CI 1.71-2.80], p<0.001), and in either primary prevention (HR 2.43 [95%CI 1.72-3.44], p<0.001) and secondary prevention (HR 2.01 [95%CI 1.40-2.87], p<0.001) cohorts.

Conclusion: These results indicate that MPO can modulate cardiovascular risk protective function of PON-1.