MYELOPEROXIDASE PREDICTS FUTURE CARDIOVASCULAR RISK IN STABLE CARDIAC PATIENTS WITH PREDIABETES

ACC Poster Contributions
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Background: Recently, the American Diabetes Association (ADA) defined “prediabetes” by hemoglobin A1c (HbA1c) as 5.7-6.4%, but the cardiovascular risk profile of this population is uncertain. Myeloperoxidase (MPO) has been linked to inflammation and atherogenesis, and may predict future cardiovascular risk in the setting of prediabetes.

Methods: We measured plasma MPO and HbA1c in 2,575 non-diabetic subjects undergoing coronary angiography at the Cleveland Clinic, and followed them prospectively over 3 years for incident development of major adverse cardiac events (MACE = death, myocardial infarction, stroke).

Results: In our study cohort (mean age 62±11 years, 66% male, mean plasma MPO =103 pmol/L), 58% fulfilled the new ADA criteria for prediabetes. Overall, patients with prediabetes were more likely to be older and more likely to have a history of hypertension. In the prediabetes cohort (n=1,503), higher plasma MPO quartiles was associated with higher risk of future MACE (Q4 vs Q1: Hazard ratio [HR] 2.33, 95% CI 1.43-3.79, p<0.01). After adjusting for traditional risk factors, C-reactive protein, insulin/glucose ratio, and HbA1c, MPO still predicted future MACE (HR 1.67, 95% CI 1.02-2.74, p=0.05). In contrast, HbA1c itself did not predict risk of future MACE (Q4 vs Q1: HR 1.29, 95%CI 0.82-2.05, p=NS).

Conclusion: Prediabetes is prevalent in stable cardiac patients, and plasma myeloperoxidase can predict future cardiovascular risk independent of traditional cardiovascular risk factors and metabolic profiles.