Stable Ischemic Heart Disease

HIGHER PLASMA TRIMETHYLAMINE-N-OXIDE IS ASSOCIATED WITH GREATER ATHEROSCLEROTIC BURDEN QUANTIFIED BY THE SYNTAX SCORE

Poster Contributions
Poster Hall B1
Monday, March 16, 2015, 9:45 a.m.-10:30 a.m.

Session Title: Coronary Plaque, Macro- and Microvessels
Abstract Category: 26. Stable Ischemic Heart Disease: Clinical
Presentation Number: 1264-371

Authors: Vichai Senthong, Xinmin Li, John Coughlin, Timothy Hudec, Sarah Neale, Lin Li, Yuping Wu, Zeneng Wang, Stanley Hazen, Wai Hong Tang, Heart and Vascular Institute, Cleveland Clinic, Cleveland, OH, USA

Background: Trimethylamine-N-oxide (TMAO), a gut microbiota metabolite from dietary of phosphatidylcholine, shows a mechanistic link to coronary artery disease (CAD) pathogenesis and adverse outcomes. We aimed to examine the relationship between fasting plasma TMAO levels and the complexity and burden of CAD.

Methods: We studies 303 consecutive patients with evidence of significance CAD based on elective coronary angiography between 2012-4. The SYNTAX score was used to quantify atherosclerosis burden, and fasting plasma TMAO was measured by mass spectrometry.

Results: In our study cohort (mean age 64 ± 11 years, 79% men), median TMAO was 5.6 µM (Interquartile range [IQR] 3.5-10.0 µM), median SYNTAX score was 11.0 (IQR 4.0-18.5), and 250 (82.5%), 34 (11.2%) and 19 (6.3%) had low (score=0-22), intermediate (score=23-32), and high (score≥33) SYNTAX score, respectively. Higher SYNTAX score was more likely to be older, with hypertension, and with diabetes. Plasma TMAO levels correlated with SYNTAX score (r=0.56; p<0.001, Figure). Following ordinal regression analysis adjusting for traditional risk factors, elevated TMAO levels remained independently associated with higher SYNTAX score (adjusted odds ratio 3.25 (95%CI 2.00-5.28, p<0.001).

Conclusion: Fasting plasma TMAO levels is an independent predictor for high atherosclerosis burden in patients with CAD.