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A PREVIOUSLY VALIDATED PERIPHERAL BLOOD GENE EXPRESSION SCORE IS PRIMARILY INFLUENCED BY PLAQUE BURDEN, RATHER THAN ISCHEMIA, IN 371 PATIENTS FROM THE COMPASS MULTI-CENTER STUDY

Poster Contributions
Poster Sessions, Expo North
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Background: We previously validated a gene expression score (GES) based on age, gender and 23 genes from peripheral blood for diagnosis of obstructive coronary artery disease (≥50%) by invasive and CT angiography. Whether GES is primarily determined by plaque or ischemia is unknown; therefore, we examined the association between GES, plaque and ischemia in the COMPASS (NCT01117506) study.

Methods: 371 patients had GES, myocardial perfusion imaging and CT and/or invasive angiography. Patients were divided into 4 groups based on absence/presence of plaque and absence/presence of ischemia. No plaque by CT was defined as zero calcium score and normal CTA. Statistical relationships were determined by ANOVA and regression analyses.

Results: Mean age was 56 ±10; 52% were male. 195 (53%) patients had no plaque; of these 174 (47%) did not and 21 (6%) had ischemia. 176 (47%) patients had plaque; of these, 146 (39%) did not and 30 (8%) had ischemia. GES monotonically increased from no plaque/no ischemia to plaque/ischemia ($p<0.001$ by ANOVA) (Figure). In pairwise comparisons, GES did not significantly increase from no plaque/no ischemia to no plaque/ischemia and from plaque/no ischemia to plaque/ischemia, while it was significantly different in no-plaque vs. plaque patients (Figure). Regression analysis showed that the GES was more sensitive to plaque (9 point increase, $p<0.001$) than ischemia (3 point increase, $p=0.028$).

Conclusions: These data suggest the GES is primarily driven by plaque burden and less by ischemia.