Use of a Gene Expression Score in a Primary Care Setting to Evaluate African American Patients Presenting with Symptoms Suggestive of Obstructive Coronary Artery Disease

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Purpose: Approximately 3 million pts without diabetes present annually to primary care clinicians with symptoms suggestive of obstructive coronary artery disease (CAD). After a detailed examination, physicians still rely heavily on advanced imaging diagnostic tests, to determine the etiology of symptoms. Given the heterogeneity in clinical manifestations of CAD amongst different ethnic populations in the US, the use of a gene expression score (GES) may allow clinicians to more consistently evaluate across the spectrum of primary care pts, thereby appropriately avoiding unnecessary referrals and advanced diagnostic tests. We hypothesized that use of the GES would show clinical utility for a clinician evaluating African Americans pts presenting with symptoms suggestive of CAD.

Methods: A previously validated gene expression diagnostic test (Corus® CAD, CardioDx, Inc.) has a 96% NPV in ruling out obstructive CAD among symptomatic pts with no previous history of diabetes or myocardial infarction. GES results are predefined as low (GES ≤15) or elevated (GES >15), with low score pts having a low likelihood of obstructive CAD. Previous evaluation showed no significant difference in test performance between non-white and white populations. This was a single primary care practice study with a large African American pt population. De-identified pt data from 2011–2013 was collected.

Results: This cohort included 582 African American pts who received a GES, with 325 (56%) female pts and 201 (35%) being >65yrs. Approximately 90% (518/582) of pts presented with typical or atypical symptoms suggestive of obstructive CAD. Mean GES was 19 (range, 1-40), and 245 pts (42%) had low scores. In this analysis, 11/245 (5%) of low GES pts were referred to cardiology and/or further diagnostic testing, whereas 248/337 (74%) of elevated GES pts were referred to cardiology and/or further diagnostic testing (p-value < 0.0001).

Conclusions: The personalized GES showed clinical utility in the evaluation of symptomatic African American pts. The findings show fewer cardiology referrals and/or further diagnostic testing for those African American pts with low GES, thereby improving pt care by avoiding unnecessary, and potentially harmful, advanced diagnostic testing. This low rate of referral among low GES pts is

similar to that observed in largely non-minority pt cohorts from previous GES studies: COMPASS, IMPACT-PCP, IMPACT-Cardiology, Registry I, and the PRESET Registry.

Reference: Brown MR, Smith D, Rhees B, et al. Use of a Gene Expression Score in a Primary Care Setting to Evaluate African American Patients Presenting with Symptoms Suggestive of Obstructive Coronary Artery Disease. American Society of Human Genetics Annual Meeting 2014. 2014;http://abstracts.ashg.org/cgi-bin/2014/ashg14s.pl?pgmnr=2062M&sort=ptimes&sbutton=Detail&absno=140121932&sid=793360