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GRFW AND UNDERREPRESENTED POPULATIONS
SESSION TITLE: PREVENTION AND TREATMENT OF CAD IN WOMEN

Abstract 9773: Nourin Mirnas: Novel Blood Biomarkers for Early Identification or Exclusion of Myocardial Ischemia in Women Suspected of Having Coronary Artery Disease (CAD)

Salwa A Elgebaly, Robert H Christenson, Michael Azrin, Hussien Rizk, Nashwa El-Khazragy, Don Kreutzer, Charles Van Buren and Robert Poston

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Abstract

Introduction: Women are frequently present with *questionable angina*. Lack of specificity and sensitivity in imaging procedures and absence of a blood-based biomarker that can detect myocardial ischemia *earlier than cell death,* may contribute to women being under-investigated and under-treated, with worse outcomes. *The blood-based biomarkers,Nourinprotein and its regulatory miRNAs (miR-137 and miR-106b) are elevated in the setting of*myocardial ischemia before it progresses to infarction.

Hypothesis: Unlike hs-TnI, Nourin-dependent miR-137 and miR-106b can identify or exclude myocardial ischemia in patients suspected of having CAD, as proven by stress test results.

Methods: Serum levels of Nourin miRNAs (qPCR) and plasma hs-TnI were measured *blindly* in: 1) chest pain patients suspected of having CAD (n=12) both before stress ECHO/ECG test (pre-test) and 30 minutes after test completion (post-test); 2) STEMI patients (n=16); and 3) healthy subjects (n=16).

Results: 1) very low baseline levels of Nourin miRNAs in healthy (range: 1.38 to 1.43) and CAD negative (range: 1.84 to 4.53); 2) significant upregulation of *miR-137* (2,156 pre and 2,574 post) and *miR-106b* (423 pre and 521 post) in CAD positive (n=5) compared to CAD negative (n=7) (range: 1.84 to 4.53) pre-test (continuous release in response to chronic myocardial ischemia) and post-test; 3) higher levels in STEMI (4,509 (miR-137) and 950 (miR-106b) pre) compared to CAD (2,156 and 423 pre); 4) over 86% sensitivity and *100% specificitythat can"rule out" myocardial ischemia,just as*

NT-proBNP for heart failure and D-dimer for deep vein thrombosis; and 5) hs-TnI was elevated only in STEMI, but not in CAD patients, pre & post.

Conclusions:*Assessment of Nourin miRNAs enables the identification of a population of patients with ischemia, but without injury or infarction, and exclusion of myocardial ischemia, based on its strong negative predictive value, thus potentially improving the treatment algorithms for women*.

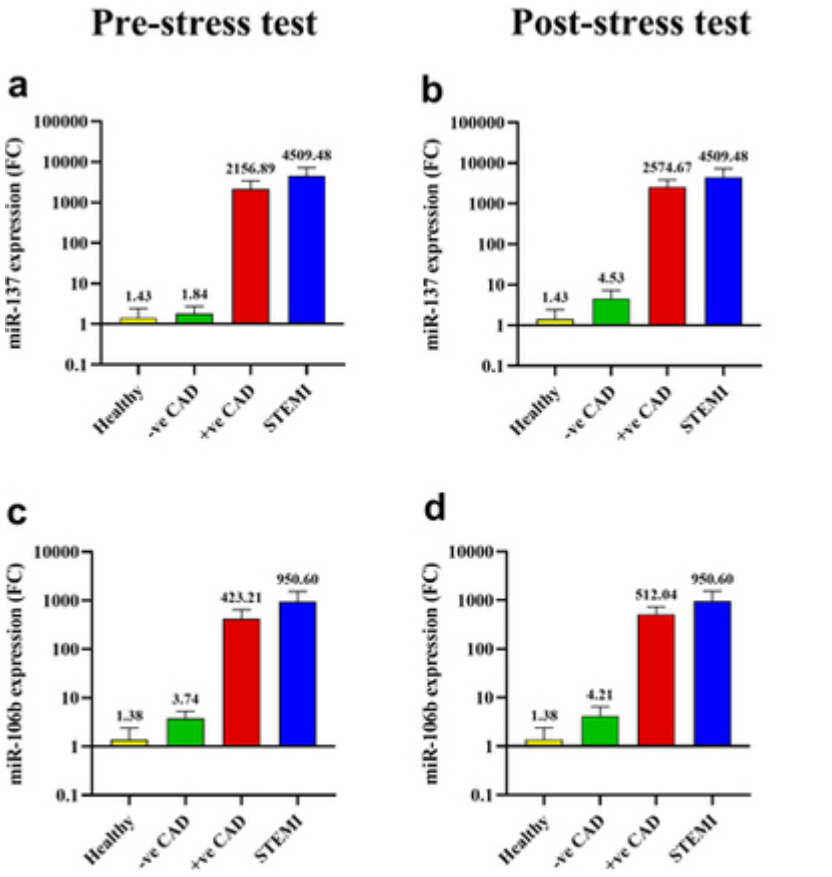

Figure 1: Serum levels of miR-137 and miR-106b measured at baseline "pre-stress test" (a and c) and 30 minutes after ECHO/ECG stress test "post-stress test" (b and d) in positive (+ve) CAD patients (n=5), negative (-ve) CAD patients (n=7), and STEMI patients (n=16) compared to healthy subjects (n=16). Data are expressed as mean and SE. Abbreviations: CAD: Coronary artery disease, STEMI: ST-elevation myocardial infarction, and SE: Standard error of mean.

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