



# Innovations in Cardiovascular Management

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## Cardiovascular Genetic Markers

### 9p21 Genetic Test: Predicting Early-Onset MI

The 9p21 genetic test predicts relative risk of coronary heart diseases (CHD) including early-onset myocardial infarction (EOMI), abdominal aortic aneurysm (AAA), and myocardial infarction/coronary heart disease (MI/CHD). The 9p21 genetic association with CHD is robust and is supported by a large body of evidence including at least 22 peer reviewed journal articles that studied 47 independent populations. Approximately 50% of Caucasians and Asians carry one copy of the 9p21 risk allele and have ~ 25% increased relative risk of MI/CHD, 36% increased relative risk of AAA, and up to 49% increased relative risk of EOMI, compared with noncarriers. Two copies of the 9p21 risk allele are carried by approximately 23% of Caucasians and Asians, who have ~ 56% increased relative risk of MI/CHD, 74% increased relative risk of AAA, and up to 102% increased relative risk of EOMI, compared with noncarriers. The 9p21 associated disease risk is independent of traditional risk factors such as age, sex, hypertension, lipid abnormalities, diabetes, or smoking. The 9p21 risk allele is a non-modifiable risk factor, similar to age or sex, but carriers may reduce their overall CHD risk by reduction of modifiable risk factors such as hypertension, diabetes, and lipid abnormalities. (1,2)

## Advanced CVD Markers

### New ACCORD Study Results

Hank Ginsberg, MD from Columbia University, announced the ACCORD study results at the Annual ACC Scientific Sessions on March 14, 2010. Paul Thompson, MD from University of Connecticut, presented the comment. It was published online on the same date. (3) At the presentation, Dr. Ginsberg noted that ACCORD was designed to answer the question of whether adding fenofibrate to statin therapy resulted in a statistically significant reduction in cardiovascular events in 5,518 Type 2 diabetes patients. The overall results indicated that the addition of fenofibrate did not significantly reduce the rate of fatal CV events, nonfatal MI or nonfatal stroke. The annual rate of the primary outcome was 2.2% in the fenofibrate + simvastatin group and 2.4% in the placebo + simvastatin group. For diabetic patients with elevated baseline triglycerides and low HDL-C, there may be greater reduction in events with the addition of fenofibrate to a statin. During the commentary, Dr. Thompson pointed out that this does not change the current clinical use of fenofibrate, which primarily focuses on patients with elevated fasting triglycerides and low HDL-C.

## Lifestyle Management

### Lifestyle Medicine - Diet Scoring

Food frequency questionnaires have been used for years in many research protocols to capture quantity and quality of food intake. These tools are not often used in the clinical setting due to complexity and time constraints. The Mediterranean diet score, a well-researched and easy to administer tool, assesses cardioprotective foods such as vegetables, legumes, nuts, cereals, fish, and seafood. Greater adherence to the Mediterranean dietary pattern as shown by a two-point increase in score is associated with lower total and cardiovascular mortality. "Possible mechanisms for cardiovascular protection offered by the Mediterranean dietary pattern include improvement of lipid values, and reduction in BP, insulin resistance and inflammatory markers." (4)

Incorporating a diet scoring tool as part of several 4myheart Program improvements (projected date July 2010) will provide a consistent baseline assessment while still allowing individualized patient-centered approaches to setting goals for improving nutrition. Use of the tool in follow-up will enable better assessment of the overall dietary pattern, as well as the quality of the diet.

## Other 2010 ACC Scientific Session News

### Federal Firefighter Heart Disease Study (FEMA #EMW-2006-FP-01744)

Four abstracts from the Firefighter Heart Disease Study were accepted for presentations at the annual ACC Scientific Meeting. The reports were covered by HeartWire and Heart.org (March 13, 2010). Dr. Superko reported on the test results that indicate that prothrombotic characteristics are significantly more common in professional firefighters with evidence of subclinical CHD. Dr. Pendyala reported in two abstracts that in asymptomatic active duty professional firefighters, 32.4% have evidence of coronary calcium. Dr. Gadesam's firefighter abstract was one of three selected for promotion at the Saturday morning press conference and revealed that aerobic fitness was more strongly associated with thrombotic factors than was fatness. The Fire Chief Bill Myers announced that a National Firefighter Heart Disease Prevention program would be of great help in combating the epidemic of heart disease in First Responders.

### Ethnic Groups and KIF6 Carrier Statin Benefit in CARE

At the annual ACC Scientific Meeting poster sessions, Dr. Olga Iakoubova reported on the pharmacogenetic study of the CARE trial, a study that extended the association between the *KIF6* genetic variant and a differential reduction of coronary events by statin therapy to all ethnic groups in CARE. CARE is a double blind randomized trial of heart disease reduction by pravastatin therapy. In this genetic analysis (adjusted for age, sex, and ethnicity) of the primary end-point among participants of all ethnic groups in CARE, pravastatin therapy reduced coronary events in *KIF6* 719Arg carriers (HR=0.63, 95% CI 0.49-0.83), but not in noncarriers (HR=1.01, 95% CI 0.69-1.45).

## The Berkeley Beat

### Laboratory Highlights 1Q 2010

Following an initial accreditation inspection on Feb. 2, Berkeley HeartLab received a Certificate of Accreditation from the College of American Pathologists (CAP) on February 19. The program is based on rigorous accreditation standards that are translated into detailed and focused checklist requirements. The checklists, which provide a quality practice blueprint for laboratories to follow, are used by the inspection teams as a guide to assess the overall management and operation of the laboratory. The CAP standards exceed the CLIA regulations and are designed to help clinical laboratories achieve the highest standards of excellence to positively impact patient care.

**Meetings of Interest:** Please come visit us in the Berkeley HeartLab booth at the following meetings:

May 13-15	National Lipid Association, Chicago <a href="http://www.lipid.org">www.lipid.org</a>
August 13-16	Tutorials in the Tetons, Jackson Hole National Park <a href="http://www.stjosephsatlanta.org/tetons">www.stjosephsatlanta.org/tetons</a>
October 7-9	AACVPR, Milwaukee <a href="http://www.aacvpr.org">www.aacvpr.org</a>
November 13-17	AHA, Chicago <a href="http://www.americanheart.org">www.americanheart.org</a>

If you have any comments or suggestions about the newsletter or topics in the newsletter, please feel free to email us at [BHLnewsletter@bhinc.com](mailto:BHLnewsletter@bhinc.com)

#### References:

1. Helgadottir, A, et al. Science 316 (5830): 1491-1493.
2. Helgadottir, A, et al. Nat Genet 40 (2): 217-224.
3. ACCORD Study Group. Effects of Combination Lipid Therapy in Type 2 Diabetes Mellitus. NEJM 2010 March.
4. Esposito et al, JAMA. 2004;292:1440-1446.