American Heart Association

Los mejores 10 trabajos en medicina cardiovascular de 2009

The 2009 highlights include the following (listed by manuscript title in no rank order):

1. Comparison of weight-loss diets with different compositions of fat, protein and carbohydrates

This study found that it wasn't so much what types of food dieters ate that helped them lose weight as it was the number of calories they consumed. Over a two-year period, 811 overweight adults were assigned to one of four diets that differed from high to low fat, average to high protein and highest to lowest carbohydrates. Participants in all comparison groups successfully lost weight on the reduced-calorie diets, with no one diet type resulting in any marked superiority.

Source: *New England Journal of Medicine,* Feb. 26, 2009; *N Engl J Med* 2009;360:859-73; **www.nejm.org**

Funding: Supported by grants from the National Heart, Lung, and Blood Institute and the General Clinical Research Center, National Institutes of Health.

2. Declines in acute myocardial infarction after smoke-free laws and individual risk attributable to secondhand smoke

This study found that enacting strong smoke-free legislation is associated with rapid and substantial reductions in heart attacks. One year after passing smoking bans, communities in North America and Europe had 17 percent fewer heart attacks compared to communities without smoking restrictions, and the number of heart attacks kept decreasing with time.

Source: *Circulation: Journal of the American Heart Association* e-published Sept. 21, 2009; *Circulation* 2009;120;1373-1379; **www.ahajournals.org**
Funding: Funded by National Cancer Institute grant CA-061021

3. Hospital performance recognition with the Get With The Guidelines Program and mortality for acute myocardial infarction and heart failure

Researchers found that a commitment to quality healthcare can result in lower mortality rates for heart attack and heart failure patients. Hospitals receiving performance awards from the American Heart Association's Get With The Guidelines (GWTG) quality improvement initiative showed lower death rates for heart attack and heart failure patients than other hospitals. According to study authors, while hospital characteristics explained some of this reduction in mortality, improved process of care was also an important factor. The study provides evidence that quality improvement programs that improve processes of care for heart disease may also improve patient outcomes.

Source: *American Heart Journal,* Sept. 2009*; Am Heart J* 2009;158:546-53; **www.ahjonline.com**

Funding: GWTG is a program of the American Heart Association supported in part by unrestricted educational grants from GlaxoSmithKline and Merck/Schering-Plough Partnership

4. Ticagrelor versus clopidogrel in patients with acute coronary syndromes (From the Study of Platelet Inhibition and Patient Outcomes – PLATO – investigators)

The new anti-clotting drug appeared to work better than the current standard in reducing deaths from heart attacks and stroke. In this multicenter, double-blind, randomized trial 18,624 patients admitted to the hospital with an acute coronary syndrome were given either the new drug, ticagrelor, or clopidogrel to gauge the drugs' effectiveness in preventing cardiovascular events. After one year, deaths from vascular causes, heart attack or stroke had occurred in 9.8 percent of patients receiving ticagrelor as compared with 11.7 percent of those receiving clopidogrel.

Source: *New England Journal of Medicine*, Sept. 10, 2009; *N Engl J Med* 2009;361:1045-57; **www.nejm.org**

Funding: Supported by AstraZeneca

5. Circulating transforming growth factor-β in Marfan syndrome

This study presented evidence that circulating transforming growth factor-β (TGF- β) may be a biomarker useful for monitoring treatment in patients with Marfan syndrome, an inherited connective tissue disorder that affects nearly one in 5000 people. Marfan syndrome affects many parts of the body, including the aorta which may be weak and need surgical treatment. Researchers in this study tested treatments of losartan and beta-blockers in mice and humans and found that blood levels of TGF- β, which are elevated in Marfan syndrome, decreased after patients received either or both therapies.

Source: *Circulation: Journal of the American Heart Association*, e-published July 27, 2009; *Circulation* 2009;120;526-532; **www.ahajournals.org**

Funding: Supported by a number of funding sources including the Swiss National Foundation, the Novartis Foundation, The National Institutes of Health, the Daniel P. Amos Family Foundation, the Institute for Clinical and Translational Science, the Howard Hughes Medical Institute, the William S. Smilow Center for Marfan Syndrome Research and the National Marfan Foundation

6. Dabigatran versus warfarin in patients with atrial fibrillation (from the Randomized Evaluation of Long-Term Anticoagulation Therapy – RE-LY – study group)

A new class of oral blood thinners proved beneficial for preventing stroke in patients with atrial fibrillation. Researchers randomized 18,113 patients who had atrial fibrillation and a risk of stroke to receive dabigatran — 110 mg or 150 mg twice daily — or adjusted-dose warfarin. Over a two-year follow-up, the patients receiving 110 mg of dabigatran had rates of stroke and systemic embolism similar to those on warfarin, as well as lower rates of major hemorrhage. Rates of stroke and system embolism were lower in those patients receiving 150 mg of dabigatran, compared with warfarin patients, but the rate of major hemorrhage was similar.

Source: *New England Journal of Medicine,* Sept. 17, 2009; *N Engl J Med* 2009;361:1139-51; **www.nejm.org**

Funding: Supported by a grant from Boehringer Ingelheim

7. Generation of functional ventricular heart muscle from mouse ventricular progenitor cells

In this study, scientists grew a piece of spontaneously beating heart muscle using stem cells from a mouse embryo. This is a major advancement toward one day repairing damage caused to the heart muscle by a heart attack.

Source: *Science*, October 16, 2009; *Science* 2009;326;426-29 ; **www.sciencemag.org**

Funding: Supported by the de Gunzburg Family Foundation, the National Institutes of Health, the Netherlands Organization for Scientific Research and the Leducq Foundation

8. Genome-wide association study of blood pressure and hypertension; Genome-wide association study identifies eight loci associated with blood pressure

These studies identified specific genes associated with hypertension, a major risk factor for heart disease and stroke. The findings could significantly improve the understanding of high blood pressure and could lead to potential targeted drug therapies for preventing and treating this disease.

Source: *Nature Genetics*, June 2009; *Nat Genet* 2009; 41; 666-77; 677-87; **www.nature.com/naturegenetics**

Funding: Supported by numerous funding sources, see papers for more details

9. Prevalence and progression of subclinical atherosclerosis in younger adults with low short-term but high lifetime estimated risk for cardiovascular disease: The Coronary Artery Risk Development in Young Adults Study (CARDIA) and Multi-Ethnic Study of Atherosclerosis (MESA)

In this study, researchers found that even younger people who did not have a high short-term risk of heart disease (over the next 10 years or less) may have a significant lifetime risk of developing heart disease if they have several risk factors that contribute to the disease. These patients often experienced more severe disease over the course of their lifetime and also experienced atherosclerosis (plaque deposits causing hardening of the arteries) at a younger age than those people who had fewer or no risk factors. This study is an important look at how the presence of risk factors early in life can be crucial to the lifetime risk of cardiovascular disease.

Source: *Circulation: Journal of the American Heart Association*, e-published Jan. 29, 2009; *Circulation* 2009;119;382-389; **www.ahajournals.org**

Funding: Supported by numerous grants from the National Heart, Lung, and Blood Institute

10. Functional cardiomyocytes derived from human induced pluripotent stem cells

This paper shows that functional heart muscle cells can be produced from induced pluripotent stem (iPS) cells in humans. These findings support the concept that cardiac regeneration can be approached using iPS cells from the individual as a source of new tissue.

Sources: *Circulation Research: Journal of the American Heart Association,* e-published Feb. 12, 2009; *Cir Res* 2009;104;e30-e41; **www.ahajournals.org**

Funding: Supported by grants from the National Institutes of Health, the National Science Foundation and the Wisconsin Institutes for Discovery