

# Cardiovascular Disease Tied to Cognitive Decline

BY BRUCE JANCIN  
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NEW ORLEANS — Brachial artery endothelial dysfunction is strongly correlated with subtle neurocognitive abnormalities, primarily in the realm of attention and executive function, in older cardiovascular patients with no clinical evidence of cognitive dysfunction or dementia, Dr. Daniel E. Forman said at the annual meeting of the American College of Cardiology.

“The implication, which I think is very profound, is that cardiovascular disease predisposes to neurovascular changes and thereby to subtle changes in neurocognitive capacities that we don’t routinely look at. This raises the question of whether improving vascular health might delay cognitive decline. Executive function changes are common; they’re insidious and quite detrimental—and they are potentially avoidable,” said Dr. Forman, a cardiologist at Brigham and Women’s Hospital and

Harvard Medical School, Boston.

He provided an update on the work of a multidisciplinary team at the hospital exploring the relationship between brachial artery endothelial function and vascular-mediated neurocognitive function.

The premise underlying their work is that vascular-mediated cognitive function depends upon a well-functioning cerebrovascular endothelium, which serves to maintain cerebral perfusion in the face of hemodynamic fluctuations.

The availability of the vasodilator nitric oxide in one vascular bed has been shown to correlate with nitric oxide availability in other vascular beds. So impaired endothelial responses in the brachial artery might be expected to be associated with neurocognitive dysfunction secondary to endothelial dysfunction within the cerebral arteries, he explained.

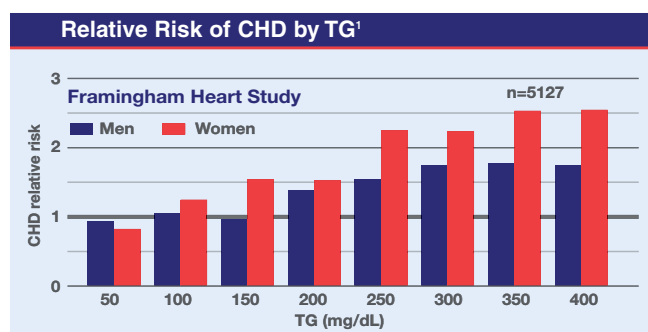
This is indeed what researchers found in their study of 88 patients with mild to moderate cardiovascular disease and no



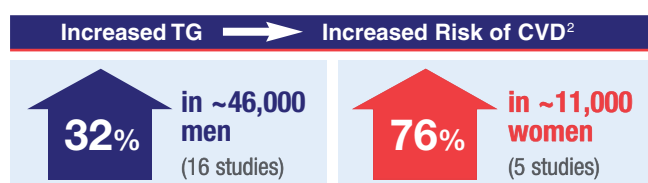
## What TG means to a woman's heart

### Elevated Triglycerides Make a Difference in Women's Risk of CHD

While great attention and clinical efforts have been directed toward LDL-C-lowering, the Framingham Heart Study 30-year follow-up clearly showed that elevated triglycerides (TG) are also associated with an increased relative risk of coronary heart disease (CHD) — especially in women.<sup>1</sup>



In addition, meta-analyses demonstrated that every 1 mmol/L (89 mg/dL) increase in TG increased cardiovascular disease (CVD) risk by:<sup>2</sup>



#### CHD is the #1 Killer of Women

The effect of elevated TG in women is important to keep in mind in view of the fact that CHD is the single leading cause of death among American women, claiming nearly 500,000 lives each year.<sup>3</sup> Menopausal women are particularly at risk, with CHD rates 2 to 3 times those of women the same age who are premenopausal.<sup>3</sup>

#### CHD Risks With Diabetes or Metabolic Syndrome\* in Women: Role of TG and HDL-C

Of the estimated 16 million Americans with diabetes, more than half are women.<sup>4</sup> In women, diabetes is a powerful risk factor for CHD, increasing CHD risk 3-fold to 7-fold compared to a 2-fold to 3-fold increase in men.<sup>5</sup> It has also been shown that metabolic syndrome is associated with a 2-fold risk of CHD mortality in women.<sup>6</sup> **It is important to note that the most common pattern of dyslipidemia in patients with type 2 diabetes is elevated TG levels and decreased HDL-C levels.<sup>7</sup>**

\*At least 3 of the 5 criteria: abdominal obesity with waist circumference >102 cm in men and >88 cm in women; triglycerides ≥150 mg/dL; HDL-C <40 mg/dL in men and <50 mg/dL in women; blood pressure ≥130/85 mmHg; fasting glucose ≥110 mg/dL.<sup>8</sup>

#### More Aggressive Guidelines for TG and HDL-C

While LDL-C lowering is recognized as the primary lipid target to reduce CHD morbidity and mortality, it does not remove all risk.<sup>9</sup> Recent data has shed more light on the role of increased TG and decreased HDL-C in CHD risk. It is critical that these lipid abnormalities be considered and managed, in addition to LDL-C. In fact, the current National Cholesterol Education Program (NCEP) guidelines recommend more aggressive TG and HDL-C target goals.<sup>8</sup> The American Heart Association (AHA) and American Diabetes Association (ADA) recommend similar aggressive goals for TG (<150 mg/dL) and HDL-C (>50 mg/dL) in CVD prevention for women.<sup>10,11</sup>

#### You Can Help Make a Difference

A majority of women are still not aware of the substantial CHD risks posed by abnormal lipid levels.<sup>12</sup> As a physician, you can help make a difference by raising your female patients' awareness of these issues, and by helping them achieve optimal lipid levels, as recommended by the NCEP, the AHA and the ADA.

## Post-CABG Quitters Will Live Longer

NEW ORLEANS — Patients who quit smoking within a year after coronary artery bypass graft surgery prolong their life expectancy by an average of 3 years, Dr. Don Poldermans said at the annual meeting of the American College of Cardiology.

“This [information] is a practical tool for physicians ... It may be the ultimate reason for the patient to quit smoking,” said Dr. Poldermans of Erasmus University, Rotterdam, the Netherlands.

It is well accepted that smoking cessation after coronary revascularization or MI reduces mortality risk. Dr. Poldermans presented the first study to quantify this benefit in years of life saved. He reported on 30-year outcomes for 1,041 consecutive patients who underwent venous CABG at the medical center during 1971-1980. At the time, 551 of the patients were smokers, of which 43% quit within the following year.

The 10-year survival was 88% in the smoking cessation group, compared with 77% in the persistent smokers. Survival at 15 and 30 years was 70% and 19%, respectively, in those who quit smoking, compared with 53% and 11% in those who did not.

The average life expectancy was 20 years for patients who quit smoking and 17 years for persistent smokers.

Smokers who were younger than 50 years at the time of CABG and who quit smoking within the next year lived an average of 3.5 years longer than those who continued smoking. Patients aged 50-60 years at surgery and who ceased smoking gained an average of 2.8 years, compared with persistent smokers. Those who quit after CABG after age 60 had a 1.7-year greater life expectancy than those who didn't quit.

Dr. Poldermans said these estimates are conservative because they derive from the early 1970s when CABG was reserved mostly for younger, otherwise healthy patients. The average age of the study population was 53 years; diabetes and other comorbid conditions were uncommon. Today's CABG patients are sicker, older, and higher risk than those of 30 years ago—and the greater a patient's risk, the greater the benefit of an effective intervention.

—Bruce Jancin

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history of neurologic disease, depression, or dementia.

The community-dwelling, independent patients, who averaged 70 years of age, underwent comprehensive neurocognitive testing that assessed global cognitive function, language skills, visual-spatial function, and learning and memory. There was a particular emphasis on test batteries that evaluated executive function—the capacity to control and apply one's mental resources using strategic thinking—which includes attention and psychomotor capabilities.

The patients' mean score on the Mini-Mental State Examination was 28.4, with

an average score of 136.9 on the Dementia Rating Scale, underscoring the point that the study population did not have dementia.

Both brachial artery flow-mediated vasodilation as well as nitroglycerin-mediated endothelium-independent vasodilation, as assessed by ultrasound, were found in multiple regression analyses to correlate significantly with measures of attention, executive function, and processing speed, including the Stroop test, the Controlled Oral Word Fluency Test (COWAT), and the Trail-Making Test, Part B.

"The measures of executive function were very predictive of endothelial per-

formance. The COWAT is a test of word-generation capacity, and the Stroop score reflects the ability to discriminate between a color on a page and a word identifying a different color, so you have here a realm of neurocognitive function that has nothing to do with memory. These are people who are arguably normal in terms of dementia but really have some pretty severe deficits," the cardiologist noted.

The presence of cardiovascular risk factors, including hypertension, diabetes, smoking, and hypercholesterolemia, didn't affect the relationship between brachial artery endothelial function and neurocognitive status, he added. ■

## VERBATIM

*'When it comes to treatment...It's like going back to the influenza epidemic after the First World War, when there were no antibiotics'*

Dr. Ian Gould,  
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## Watch Blood Pressure in NSAID Users

ORLANDO — Chronic use of non-steroidal anti-inflammatory agents promotes sodium-retention weight gain and can cause blood pressure to rise by an average of 5 mm Hg, Dr. Matthew R. Weir said at a meeting sponsored by the National Kidney Foundation.

The increase is "not insignificant" when one considers how widely used these



**The increase is 'not insignificant' when one considers how widely used these drugs are.**

**DR. WEIR**

drugs are, said Dr. Weir, professor of medicine at the University of Maryland, Baltimore.

"Depending on how much salt you eat, the actual dose of the NSAID you are taking, and your preexisting levels of blood pressure, you can get very different effects on overall changes in blood pressure over time."

The age-related changes in renal blood supply that occur over time may be an important issue in older patients, who are more likely to be using NSAIDs for conditions such as arthritis.

To avoid adverse cardiovascular effects, always use the lowest possible dose of anti-inflammatory drug, regardless of class. Consider using shorter-acting agents, which may allow the kidney to restore its sodium and water balance, Dr. Weir advised.

Advise patients taking NSAIDs to try to avoid dietary sodium. Blood pressure must be monitored carefully in persons taking NSAIDs, and blood pressure medications adjusted accordingly.

Calcium channel blockers in particular appear to retain their lowering effect on blood pressure despite chronic NSAID use.

"We should take a careful history on the use of over-the-counter nonsteroidal anti-inflammatory drugs," Dr. Weir concluded. "They don't often appear on medication lists."

—Fran Lowry

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