

Clinic, Rochester, Minnesota, USA, discussed risk factors for AF in women in an urban setting.

The latest European Society of Cardiology (ESC) Guidelines for the Management of AF [Camm AJ et al. *Europace* 2012] report an estimated prevalence in the developed world of approximately 1.5% to 2.0%, with the average age of patients steadily rising to between 75 and 85 years. AF confers a 5-fold risk of stroke and a 3-fold incidence of congestive heart failure and higher mortality.

AF is less prevalent in women, but the absolute number with the condition is higher because incidence increases with age and women live longer than men [Gowd BM, Thompson PD. *Cardiol Rev* 2012]. AF risk rises with increased left atrial volume, which is associated with high body mass index (BMI) [Stritzke J et al. *J Am Coll Cardiol* 2009]. Dr. Scantlebury and colleagues postulated that obesity would be a risk factor for AF in women in the Kentucky Women's Health Registry (KWHR).

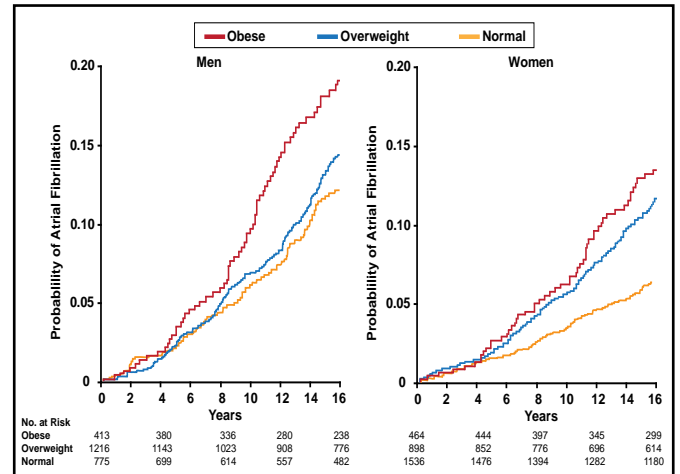
Online or paper questionnaires were administered to women who had indicated interest in being enrolled in research studies on the KWHR survey; content targeted gender-specific risk factors for AF. A total of 708 respondents—117 with AF and 591 controls—took part in the study.

Conventional risk factors significantly associated with AF included hypertension, coronary artery disease, rheumatic heart disease, valvular heart disease, and congestive heart failure ($p < 0.001$). Obstructive sleep apnea, chronic obstructive pulmonary disease ($p < 0.001$), and hyperthyroidism ($p < 0.05$) were also significantly associated with the condition. Among those with AF, 60.3% were obese (BMI $> 30 \text{ kg/m}^2$); 68.6% of those without AF were obese. The authors failed to show a significant relation between obesity and AF ($p = 0.08$).

Conversely, in multivariable models adjusted for cardiovascular risk factors and interim myocardial infarction or heart failure, Wang et al. [*JAMA* 2004] observed a 4% increase in AF risk per 1-unit increment in BMI in men ($p = 0.02$) and women ($p = 0.009$). Adjusted HRs for AF associated with obesity were 1.52 ($p = 0.02$) and 1.46 ($p = 0.03$) for men and women, respectively, compared with normal-weight individuals (Figure 1).

Prospective data raise the possibility that interventions to promote normal weight may reduce the population burden of AF [Wang TJ et al. *JAMA* 2004]. Henry [*West Indian Med J* 2011] contends that preventing obesity is a critical factor in controlling noncommunicable diseases, the main public health problem in the Caribbean (Figure 2), and that effective obesity control will require strategic environmental changes. Findings from Im et al. [*West J Nurs Res* 2012] suggest that unique programs that promote physical activity should be developed that consider women's ethnic-specific attitudes.

Figure 1. Framingham Study Data Show Higher Hazard Ratios for Obesity-Related AF.



Reprinted with permission from *JAMA* 2004;292(20):2471. Wang TJ et al. Obesity and the risk of new onset diabetes; with permission from the American Medical Association.

CCTA Proves Safe and Effective in Barbados

Written by Rita Buckley

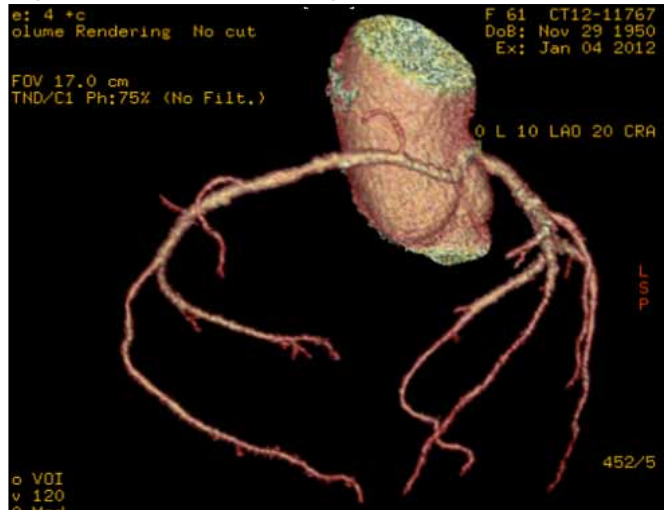
Coronary computed tomographic angiography (CCTA) is an emerging tool for the noninvasive assessment of coronary artery disease (CAD) [Arbab-Zadeh A et al. *J Am Coll Cardiol* 2012]. Although coronary angiography (CA) is the gold standard for diagnosing CAD, it is an invasive and expensive procedure with a small (0.1% to 0.2%) risk of major complications, such as death, myocardial infarction, and stroke [Mowatt G et al. *Health Technol Assess* 2008]. Raymond Massay, MD, Bracebridge Medical Center, St. Michael, Barbados, discussed a study on the correlations between outcomes from 64-slice CCTA with retrospective gating and CA (Figure 1 and 2).

Figure 1. Left Anterior Descending Artery Angle: -44.0.



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Figure 2. Volume Rendering; No Cut.



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The study staff at Dr. Massay's center includes 2 cardiologists, 2 radiologists, a visiting cardiac radiologist, and 2 CT radiographers. Eligible patients for CCTA included those who were asymptomatic with abnormal baseline electrocardiograms (ECGs; ie, complete left bundle branch block, T-wave changes, and marked ST) that made it difficult to interpret stress ECGs, symptomatic patients unable to do a treadmill stress test, and those with an equivocal treadmill stress test (ie, symptomatically negative but electrically positive or symptomatically positive but electrically negative).

Minor indications included a high Framingham Risk Score; dilated cardiomyopathy; recurrence of clinical symptoms in a population with metabolic syndrome; or patients >50 years of age with coronary heart or valve disease needing heart surgery/intervention. Patients with active arrhythmias were excluded from the study.

To achieve the low and regular heart rate necessary for optimal imaging (ie, <70 beats per minute [bpm]), patients were administered atenolol 100 mg daily x 5 days, nadolol 80 mg daily x 5 days, bisoprolol 5 mg daily x 5 days, and/or metoprolol 5 to 10 mg intravenously (IV) if still needed to bring the heart rate to <70 bpm. Sublingual glyceryl trinitrate was used for coronary dilation. Patients avoided stimulants and ate a light breakfast.

Enrollment began in February 2010 and ended in May 2012. The sample included a total of 211 patients (57% male). The median age was 55 years, with a range from 34 to 85 years. Complications included 1 case of acute bronchospasm, an allergic reaction in 1 patient, incomplete tests in 2 patients; an inability to get good IV access in 1 patient, and claustrophobia in 1 patient. A total of 16 patients had CA. The association with CCTA was positive in 12 cases and

negative in 4. Among those who had CA, 6 patients had percutaneous coronary intervention and 2 had coronary artery bypass graft surgery.

According to Dr. Massay, CCTA service in Barbados is now well established and safe, with an acceptable degree of accuracy. Future plans for the use of the technology call for myocardial tissue characterization and identification of valve disease. CCTA will also serve as an adjunct to intervention for assessment of fractional flow reserve and see increased use in the management of chest pain in the acute setting.

Metabolic Syndrome Disease Markers and CIMT Differ by Ethnicity as Predictors of CVr Event Risk

Evidence suggests that metabolic syndrome is associated with significantly increased risk of incident cardiovascular disease (CVD) and all-cause and cardiovascular (CV) death [Mottillo S et al. *J Am Coll Cardiol* 2010]. A clinical priority is to identify patients at risk for stroke and other CV events to enable preventive interventions and promote lifestyle modifications [Timóteo AT et al. *J Clin Hypertens* 2012].

Most studies in primary prevention settings have shown a relationship between metabolic syndrome and carotid intima-media thickness (CIMT) [Khan UI et al. *Atherosclerosis* 2011; Magnussen CG et al. *Circulation* 2010; Antonini-Canterin F et al. *Angiology* 2010]. Kenneth Connell, MB, BS, DM (Internal Medicine), The University of the West Indies, Cave Hill, Barbados, presented outcomes from an investigation of the relationship between traditional markers of metabolic syndrome and CIMT. The study also examined ethnic differences in metabolic profiles.

A total of 114 healthy volunteers (84 black, 59 white) recruited from South East London participated in the study. Standard anthropometric measures were collected, along with laboratory tests of lipids and glucose. Ambulatory blood pressure (BP) was monitored for 24 hours. CIMT measurements of the central carotid artery were taken using high-resolution ultrasound and special edge-detection computer software. Other than body mass index (BMI; $p < 0.0001$), 24-hour ambulatory systolic BP ($p = 0.003$), and glucose ($p = 0.003$), there were no significant differences in baseline characteristics.

There were statistically significant ethnic differences in both BMI (26.7 kg/m² black vs 24.1 kg/m² white; $p < 0.0001$) and triglycerides (0.74 black vs 0.92 white; $p = 0.005$), with no significant difference in mean systolic BP (117 mm Hg