concluded that CVD may be a "looming disaster" for Barbados as we are currently focused on treatment (ie, the of the disease cycle). Prompt measures are needed to change this focus to more preventative measures. The Barbados MoH is starting to effect this change through its surveillance and research study efforts, which will provide valuable information for future action.

Emerging Options for the Management of Atrial Fibrillation

Atrial fibrillation (AF) is a major public health burden that affects 7 million patients in the US and Europe, and a growing number of patients worldwide. In this session, Augustus O. Grant, MD, Duke University School of Medicine, Durham, North Carolina, USA, focused on new treatment options for the management of patients with AF.

The goals of AF therapy include symptom reduction, improvement in quality of life, prevention of stroke and systemic arterial embolism, restoration of atrial transport function, reversal of the remodeling process, reduction in hospitalizations, and prolonged survival. Several treatment options are available to help patients achieve these goals, including rate-controlling drugs, antiarrhythmic agents, and antithrombotic therapy. Some patients may also be candidates for cardiac ablation.

Treatment of AF typically begins with the selection of a rhythm control or rate control strategy. The Atrial Fibrillation Follow-up Investigation of Rhythm Management (AFFIRM) trial showed that patients who were assigned to rhythm control therapy tended to have a higher 5-year mortality than those who were assigned to rate control therapy (23.8% vs 21.3%; p=0.08) [Wyse DG et al. *N Engl J Med* 2002]. Patients who were treated with a rhythm control strategy also had a higher risk of hospitalization (80.1% vs 73.0%; p<0.001) and were more likely to experience adverse drug effects than those who were managed with rate control therapy.

Initial treatment strategies should be adapted to the unique needs of the individual patient. The benefits of a rate control strategy may not apply to all patients with AF, particularly younger patients without heart disease, patients in whom prior rate control therapy has failed, or patients with normal left ventricular function or no risk of stroke. Current guidelines provide algorithms for antiarrhythmic use in specific clinical conditions (Figure 1) [Fuster V et al. *Circulation* 2006].

New antiarrhythmic agents provide new options for improving outcomes in the management of AF. Dronedarone is structurally similar to amiodarone but lacks the iodine moiety. This structural change allows dronedarone to provide similar electrophysiological effects but without the thyroid and pulmonary toxicity that is associated with amiodarone therapy. Data from the European Trial in Atrial Fibrillation or Flutter Patients Receiving Dronedarone for the Maintenance of Sinus Rhythm (EURIDIS) and American-Australian-African Trial with Dronedarone in Atrial Fibrillation or Flutter Patients for the Maintenance of Sinus Rhythm (ADONIS) trials, as well as pooled data from both trials, show that dronedarone significantly delays the time to first recurrence of AF or atrial flutter compared with placebo (Figure 2) [Singh BN et al. *N Engl J Med* 2007]. In A Placebo-Controlled, Double-Blind, Parallel Arm Trial to Assess the Efficacy of Dronedarone 400 mg bid for the Prevention of Cardiovascular Hospitalization or Death from any Cause in Patients with Atrial Fibrillation/Atrial Flutter (ATHENA), dronedarone significantly reduced the time to first cardiovascular hospitalization or death by 24% compared with placebo (p<0.001) [Hohnloser HS et al. *N Engl J Med* 2009].

Figure 1. Options for Maintenance of Sinus Rhythm in Patients with AF.

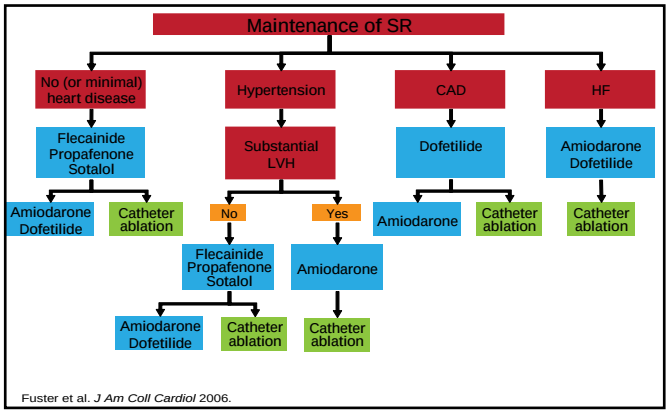

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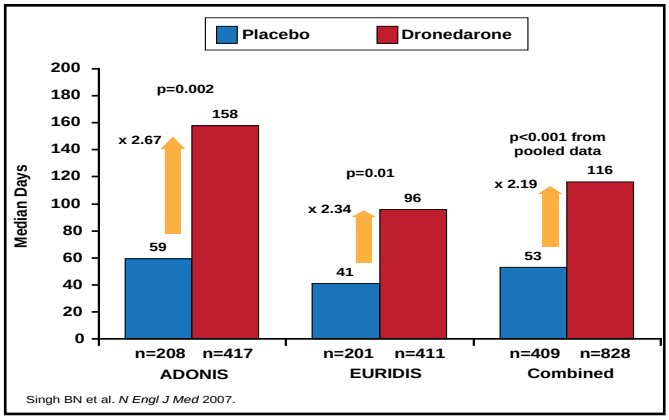
Figure 2. Dronedarone Prolongs Time to First Recurrence of AF or Atrial Flutter.



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Stroke prevention is another important therapeutic goal for patients with AF. Vitamin K antagonists, such as warfarin, are currently the treatment of choice for the prevention of stroke in high-risk patients with AF. In the ACTIVE W trial, warfarin reduced the risk of thrombotic events without raising the risk of major bleeding compared with dual antiplatelet therapy with clopidogrel and aspirin [Connolly SJ et al. *Circulation* 2008]. Despite the clear benefits of warfarin therapy in stroke prevention, many patients with high-risk AF are suitable candidates for oral anticoagulation therapy due to bleeding risk, patient preference, or an inability to maintain warfarin within the therapeutic range. Therefore, patients with AF require new options for long-term stroke prevention.

Dabigatran is a novel antithrombotic agent that reversibly binds to free and fibrin-bound thrombin. In the Randomized Evaluation of Long-Term Anticoagulant Therapy (RE-LY) trial, once-daily dabigatran 150 mg reduced the risk of stroke and systemic embolism by 33% ($p<0.001$) compared with warfarin. The net clinical benefit, which incorporated the absence of stroke or systemic embolism, death, myocardial infarction, pulmonary embolism, and major bleeding, favored treatment with dabigatran [Connolly SJ et al. *N Eng J Med* 2009].

In summary, treatment options AF are expanding. New antiarrhythmic options may improve long-term cardioversion and enhance clinical outcomes in patients with AF. In addition, novel anticoagulants may reduce the risk of thrombotic events while minimizing the risk of bleeding, particularly in high-risk populations.

RAAS Inhibitors and the Prevention of Vascular Damage in Patients with Prehypertension

Hypertension is a primary mechanism that is responsible for the progression of cardiovascular and renal damage in patients with elevated blood pressure (BP). In particular, functional and structural changes in the vessel wall may represent the key pathological event in the development of hypertension. Within this disease model, prehypertension may be a marker for subclinical vascular disease. In this session, Carlos M. Ferrario, MD, Wake Forest University School of Medicine, Winston-Salem, North Carolina, USA, reviewed evidence that supports the treatment of patients with prehypertension, which is defined as a systolic BP (SBP) from 120 mm Hg to 139 mm Hg or a diastolic BP (DBP) from 80 mm Hg to 89 mm Hg.

The Trial of Preventing Hypertension (TROPHY) was designed to evaluate whether early treatment of patients with high-normal BP levels could slow or prevent the development of hypertension (≥140/90 mm Hg) [Julius S et al. *N Engl J Med* 2006]. In TROPHY, 809 patients with prehypertension were randomly assigned to treatment with the angiotensin receptor blocker (ARB) candesartan at a dose of 16 mg or a matching placebo for 2 years; then, all patients were treated with placebo for an additional 2 years. Data for analysis were available for 772 patients at the end of the study. Compared with those in the placebo group, patients in the candesartan group were 66.3% less likely to progress to stage 1 hypertension after 2 years ($p<0.001$) and 15.6% less likely to develop hypertension after 4 years ($p<0.007$) [Julius S et al. *N Engl J Med* 2006].

In the Prevention of Hypertension with the Angiotensin-Converting Enzyme Inhibitor Ramipril in Patients with High-Normal Blood Pressure (PHAROA) study, ramipril reduced the 3-year risk of progression from prehypertension to hypertension by 34.4% compared with placebo (42.9% vs 30.7%; $p=0.0001$) [Lüders S et al. *J Hypertens* 2008]. Together, findings from TROPHY and PHAROA indicate that a large proportion of patients with untreated high-normal BP will develop hypertension within 2 to 3 years. Moreover, treatment with a renin-angiotensin-aldosterone system (RAAS) inhibitor significantly reduced the risk of progressing to hypertension within the follow-up period that was studied [Julius S et al. *N Engl J Med* 2006; Lüders S et al. *J Hypertens* 2008].

Studies of RAAS blockade in patients with established hypertension demonstrate that it is possible to slow or even reverse vascular damage that is associated with elevated BP. In the Vascular Improvement with Olmesartan Study (VIOS), treatment with an ARB provided greater reversal of vascular hypertrophy compared with beta blockade after 1 year in patients with essential hypertension (Figure 1) [Smith RD et al. *J Am Soc Hypertens* 2008]. The improvements in vascular resistance were independent of the magnitude of BP reduction that was achieved by ARB or β-blocker therapy.

The Multicentre Olmesartan Atherosclerosis Regression Evaluation (MORE) study was designed to compare the effects of olmesartan and atenolol on the progression of atherosclerotic plaques in 165 patients with hypertension and established atherosclerosis [Stumpe KO et al. *Ther Adv Cardiovasc Dis* 2007]. Patients were randomly assigned to treatment with olmesartan or atenolol for 2 years, and ultrasound evaluations were performed at 28, 52, and 104 weeks to monitor the progression of atherosclerosis and changes in common carotid intima-media thickness (CC-IMT) and plaque volume (PV). Olmesartan and atenolol produced similar reductions in blood pressure levels and