

THE AFIB REPORT

Your Premier Information Resource for Lone Atrial Fibrillation!

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Welcome to our summer issue (or winter issue for those subscribers who are located downunder)! Afibbers often face the problem of somehow “proving” that their AF episode has lasted less than 48 hours when they arrive in the emergency department seeking cardioversion. A study by Greek researchers now reveals that a simple blood test can predict, with considerable accuracy, the elapsed time since the onset of the episode. The test can also predict the likelihood of finding blood clots or SEC (spontaneous echocardiographic contrast) in the left atrium or left atrial appendage when undergoing transesophageal echocardiography (TEE) prior to cardioversion or ablation. It is to be hoped that this test becomes routine.

Also in this issue, we report that statin drugs do not prevent atrial fibrillation, that fish oil supplementation improves electrophysiologic properties of the heart, that gluten intolerance is linked to AF, that a larger left atrial diameter is associated with a greater risk of ablation failure, and that a high level of plasma von Willebrand factor is associated with a marked increase in the risk of stroke, other cardiovascular events, and mortality.

Rounding out this issue is an inspiring description of Don P.’s 10-year “journey” learning to live with lone atrial fibrillation. Thanks for sharing!

And finally, if you need to restock your supplements, please remember that by ordering through my on-line vitamin store you will be helping to defray the cost of maintaining the web site and bulletin board. You can find the store at <http://www.afibbers.org/vitamins.htm> - your continuing support is truly appreciated.

Wishing you a safe and healthy summer,

Hans

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ARB therapy improves ablation outcome

NAGOYA, JAPAN. There is growing evidence that the renin-angiotensin system (RAS) is involved in the development and progression of atrial fibrillation (AF). Thus it is not surprising that angiotensin-converting enzyme inhibitors (ACE inhibitors) and angiotensin receptor blockers (ARBs) have received

considerable attention as possible candidates for use in therapy aimed at preventing AF. Now Japanese researchers report that treatment with ACE inhibitors and/or ARBs helps prevent AF recurrence following pulmonary vein isolation (PVI) procedures.

Their retrospective study included 94 paroxysmal afibbers and 170 patients with persistent AF. The average age of the participants was 63 years, 74% were male, less than 5% had structural heart disease, but 42% had been diagnosed with hypertension. Prior to their PVI procedure, 76% were taking a class I antiarrhythmic (most likely propafenone or flecainide) and 33% were taking an ACE inhibitor or ARB to control blood pressure.

The study participants all underwent an anatomically-guided PVI procedure and a right atrial flutter ablation. After the procedure antiarrhythmic agents were prescribed for all patients to be taken

for at least 3 months. They were discontinued at the 3-month mark if the left atrial diameter had decreased by more than 10% from the pre-procedure value (an indication of reverse structural remodeling).

Following the PVI the study participants were divided into 2 groups – group 1 (145 patients) was prescribed treatment with renin-angiotensin system blockers (ARBs: 129 patients, ACE inhibitors: 13 patients, both: 3 patients). The remaining 119 patients (group 2) received no renin-angiotensin system blockers (RAS-Bs). After an average 6.5 months of follow-up, AF had recurred in 13.8% of group 1 as compared to 26.1% in group 2. An assessment by Cox regression analysis showed that patients who had taken RAS-Bs after their PVI had a 59% reduced risk of recurrence. The beneficial effect of RAS-B therapy was only statistically significant after the first 3 months post-ablation. After these first 3 months the recurrence rate in the RAS-B group was 79% lower than in the group that had not taken RAS-Bs.

The Japanese researchers speculate that the antiarrhythmic properties of RAS-Bs may be due to their anti-inflammatory properties and their ability to

decrease atrial wall stress, modulate atrial refractoriness, produce favourable changes in autonomic tone, stabilize electrolyte concentrations, and promote reverse structural remodeling of the left atrium. They suggest that their findings need confirmation in a larger, prospective, randomized study.

Ishikawa, K, Hirayama, H, et al. Renin-angiotensin system blocker use may be associated with suppression of atrial fibrillation recurrence after pulmonary vein isolation. PACE, Vol. 34, March 2011, pp. 296-303

Editor's comment: The finding that renin-angiotensin system blockers markedly reduces the recurrence of AF after a PVI procedure is welcome news indeed and certainly would seem to warrant a larger and longer-lasting trial to confirm it. Such a trial should however keep a careful watch on overall and cancer-specific mortality in the RAS-B group and the placebo group in view of a recently published meta-analysis suggesting that therapy with angiotensin receptor blockers may modestly increase the risk of cancer[1].

[1] *Sipahi, I, Fang, JC, et al. Angiotensin-receptor blockade and risk of cancer: meta-analysis of randomised controlled trials. The Lancet Oncology, Vol. 11, July 2010, pp. 627-36*

Statin drugs do not prevent atrial fibrillation

OXFORD, UNITED KINGDOM. Several short-term, small-scale trials have shown a beneficial effect of statin therapy in patients undergoing cardioversion or cardiac surgery. Based on the outcome of these trials, it has been assumed that statins are effective in preventing atrial fibrillation (AF) in general. A groups of researchers from the University of Oxford, Royal Darwin Hospital (Australia), University Medical Center Utrecht (the Netherlands), University of Wurzburg (Germany), and the University of Glasgow now report that statin drugs are ineffective in preventing both new-onset and recurrent AF.

Their meta-analysis included over 130,000 participants who were followed for an average of 4 years. (NOTE: The above-mentioned short-term studies had an average follow-up of less than 4 months). Twenty-two of the studies included in the meta-analysis compared statin treatment to placebo treatment, while 9 studies compared standard statin therapy to intensified therapy (high dosage). In the statin/placebo trials a total of 2,535 AF events were documented – 1,240 in the statin group and 1,295

in the placebo group – a statistically non-significant difference. In the 9 statin/intensified statin trials, a total of 1,419 events were documented – 710 in the standard therapy group and 709 in the intensified therapy group – again, no statistically significant difference.

There was no evidence that statins were effective in preventing a first AF episode nor was there any evidence that the effect, or lack of it, of statins was different in patients with and without heart disease. The researchers speculate that the myth that statin drugs are effective in preventing AF may, at least in part, be due to publication bias (that is, the tendency for trial results to be more likely to be published if they have strikingly positive results than if the results are negative or null). They conclude that “Statin cannot currently be recommended for prevention of incident or recurrent atrial fibrillation.” *Rahimi, K, Macfarlane, PW, et al. Effect of statins on atrial fibrillation: collaborative meta-analysis of published and unpublished evidence from randomised controlled trials. British Medical Journal, Vol. 342, March 16, 2011*

Editor's comment: It is good to see the "statin myth" exposed once again. Certainly there is no valid reason whatsoever why an afibber would want

to take them in the hope that they would alleviate or prevent AF episodes.

Predicting elapsed time since onset of AF episode

ATHENS, GREECE. It is standard practice to postpone cardioversion if a patient has gone more than 48 hours since the onset of an AF episode. However, some emergency departments do not accept the patient's estimate of the time elapsed since onset, and routinely postpone the cardioversion for 3 weeks during which warfarin is administered to ensure (not always successfully) that no clots are present in the left atrium (LA) or left atrial appendage (LAA). Some hospitals will, however, perform immediate cardioversion if a transesophageal echo cardiogram (TEE) shows no evidence of thrombi (blood clots) or spontaneous echocardiographic contrast (SEC). Now Greek researchers propose that measuring the blood level of brain natriuretic peptide (BNP) in a patient arriving for cardioversion will give an accurate measure of time since onset and, more importantly, the risk of finding thrombi or SEC in the LA and LAA.

Brain natriuretic peptide, a cousin of atrial natriuretic peptide (ANP), is a hormone released from the walls of the ventricles when stretched, such as during unusually strenuous activity. It is stored as a prohormone within secretory granules in the ventricles and is secreted as a N-terminal fragment, N-terminal pro-brain natriuretic peptide (nt-pro-BNP), and the smaller active hormone BNP. BNP has effects similar to those of ANP, that is, it decreases sodium re absorption rate, renin release, and aldosterone release; it also increases vagal (parasympathetic) tone and decreases adrenergic (sympathetic) tone. Because nt-pro-BNP is easier to measure than BNP, it is often used as a marker for BNP.

Most afibbers are well aware that ANP and BNP levels are elevated in the early stages of an AF episode. Both are strong diuretics and are responsible for "the big pee". Research has shown that lone afibbers have elevated BNP (nt-pro-BNP) levels even when in sinus rhythm. There is also evidence that BNP levels decline significantly after a successful cardioversion and that a successful pulmonary vein isolation (PVI) procedure also results in a return to normal levels. Furthermore, an elevated BNP level is associated with an enlarged

left atrium and with heart failure and structural heart disease. See www.afibbers.org/resources/BNP.pdf.

A high BNP level is highly predictive of acute heart failure with the following age-dependent cut-off points:

- Age below 50 years – greater than 450 pg/mL
- Age between 50 and 75 years – greater than 900 pg/mL
- Age over 75 years – greater than 1800 pg/mL

The Greek study involved 86 patients (65% men) with an average age of 62 years. Fifty percent of the study participants had hypertension, 20% had coronary heart disease or other vascular disease, and 23% had diabetes. None had heart failure or severe valvular heart disease. Average left ventricular ejection fraction (LVEF) was 60% and average LA diameter was 42 mm. Patients were separated into 2 groups and had blood samples drawn upon admission and 6 and 12 hours after for BNP determination – group A consisted of 43 patients whose highest BNP level was above the age-adjusted cut-off (average of 1231 pg/mL), while group B consisted of 43 patients with maximum BNP levels below the age-adjusted cut-off (average of 537 pg/mL). The only significant difference between the two groups was that patients in group B had a larger LA diameter (43 mm vs. 41 mm).

All patients underwent a TEE. This detected thrombi in two group A patients (4.7%) vs. 13 among group B patients (30.2%). NOTE: The two patients in group A in whom thrombi were detected had grossly enlarged LA diameters (51 mm and 48 mm) and a high stroke risk score. SEC was detected in 14% of group A vs. 37.2% of group B. The presence of thrombi was also associated with advanced age, hypertension, diabetes, higher stroke risk score (CHAD₂DS₂VASc) and larger LA diameter.

However, multivariate analysis showed that a BNP level below the cut-off point was by far the most accurate predictor of thrombi. A patient with a BNP level below the cut-off had a 25 times greater

chance of having thrombi in the LA or LAA than did a patient with a BNP value above the cut-off. The researchers suggest that, if a patient admitted with AF of unknown time of onset has markedly elevated BNP levels in the absence of heart failure symptoms, it may mean that the episode began less than 36 to 48 hours before admission, and that immediate cardioversion would be safe.

Deffereos, S, Stefanadis, C, et al. Estimation of atrial fibrillation recency of onset and safety of cardioversion

using NTproBNP levels in patients with unknown time of onset. Heart, Vol. 97, 2011, pp. 914-17

Editor's comment: In view of the fact that BNP level can not only be used to predict risk of developing AF, estimate elapsed time since onset, predict the risk of thrombi in the LA and LAA, and to predict the success of cardioversion, it is to be hoped that cardiologists and electrophysiologists will make BNP determinants standard procedure when evaluating afibbers.

Fish oil and atrial fibrillation

PARKVILLE, VICTORIA, AUSTRALIA. Ectopic beats (heart beats initiated at a location other than the sinoatrial node) originating in the pulmonary veins (PVs) are a prime factor in the initiation and maintenance of paroxysmal atrial fibrillation (PAF). In addition, it is also well established that the PVs of patients with PAF exhibit distinct electrophysiologic properties that may form a substrate for AF maintenance. Long-chain omega-3 polyunsaturated fatty acids, in particular eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), the main components of fish oil, have consistently been shown to have anti-fibrillatory effects, but the evidence regarding chronic supplementation with fish oil on the initiation and maintenance of PAF is controversial.

Researchers at the Royal Melbourne Hospital now report the results of a clinical trial carried out to determine the effects on pulmonary veins and left atrium electrophysiology of 1-month (average 40 days) supplementation with a natural fish oil preparation providing a daily intake of 1500 mg of DHA and 300 mg of EPA. The trial involved 36 patients with PAF (18 to 75 years old) who were scheduled to undergo a pulmonary vein isolation (PVI) procedure. At least a month before the PVI the trial participants were randomly assigned to a control group or to the fish oil group.

On the day of the procedure all patients underwent continuous electrocardiographic monitoring for 4 hours before ablation. Blood samples were also drawn to determine fish oil concentration expressed as percent fraction of total fatty acids in the phospholipid fraction. After insertion of the necessary catheters, but prior to the actual ablation, the Australian researchers measured the following electrophysiological parameters. For further explanation see

www.afibbers.org/resources/heartbeat101.pdf.

- RR interval – The elapsed time between two heart beats measured in milliseconds
- P wave duration (atrial depolarization)
- Effective refractory periods (ERPs) of each pulmonary vein and left atrium
- Pulmonary vein and left atrium conduction times

There were no significant differences in RR interval, P wave duration, and pulmonary vein and left atrium conduction times between the two groups. However, ERPs in the pulmonary veins and the posterior (back wall) left atrium were significantly longer in the fish oil group. This is very significant as a longer ERP is associated with a lower risk of initiating ectopic beats and AF. The difference in ERP was substantial with all members of the fish oil group having an ERP (in the left and right superior PVs) of 200 ms or longer as compared to the control group where ERPs as short as 120 ms were recorded. The members of the fish oil group also exhibited less dispersion of pulmonary venous refractoriness, which has been associated with a decreased tendency to PAF initiation.

The researchers speculate that the beneficial effects of fish oil may be due to one or both of two mechanisms:

- A decrease in the frequency of AF episodes during the supplementation period resulting in reverse electrical remodeling.
- A beneficial effect of incorporated fish oil on PV cellular membranes.

Kumar, S, Sparks, PB, et al. Effects of chronic omega-3 polyunsaturated fatty acid supplementation on human pulmonary vein and left atrial electrophysiology in

paroxysmal atrial fibrillation. American Journal of Cardiology, May 28, 2011 [Epub ahead of print]

Editor's comment: It is unfortunate that this study did not distinguish between adrenergic and vagal AF as the effect of chronic fish oil supplementation

may differ. However, it certainly would seem a worthwhile experiment to try supplementing with a high DHA concentration fish oil for a couple of months to see if episode frequency is affected.

Gluten intolerance linked to atrial fibrillation

STOCKHOLM, SWEDEN. A group of researchers from Karolinska Institute recently reported an association between gluten intolerance (celiac disease) and heart disease. Now the same group reports an association between celiac disease (CD) and atrial fibrillation. Their study involved 28,637 patients with biopsy-verified CD and 141,731 age- and sex-matched individuals free of CD as verified by biopsy of the small intestine. Biopsies were performed between 1969 and 2008 and study participants were followed for an average of 9 years. During follow-up, 941 individuals (3.2%) in the CD group developed atrial fibrillation (AF) as compared to 2,918 individuals (2.1%) in the control group.

Thus, having been diagnosed with CD was associated with a 34% increase (relative) in the risk of later being diagnosed with AF. The risk estimate did not change significantly when adjusted for the presence of type 1 diabetes, rheumatoid arthritis, thyroid disease, and hypertension. The researchers also noted an association between a prior diagnosis of AF and an increased risk (45% relative) of subsequently developing CD. The researchers conclude that their findings support a role of autoimmune disease in the development of AF, potentially acting through systemic inflammation. They also made the following interesting observations:

- Most CD diagnoses (41%) were made before the age of 19 years. Only 18% were diagnosed after age 60 years.

- The majority (62%) of CD patients were female.
- The majority of AF diagnoses were made within a year following confirmation of CD.
- It is possible that part of the reason for the increased number of AF diagnoses made in the year following CD diagnosis is due to ascertainment bias (patients likely received more medical attention after their CD diagnosis).

Emilsson, L, Ludvigsson, JF, et al. Increased risk of atrial fibrillation in patients with celiac disease: a nationwide cohort study. European Heart Journal, June 8, 2011 [Epub ahead of print]

Editor's comment: This study once again confirms the association between systemic inflammation and AF. It, unfortunately, did not distinguish between heart disease-related AF and lone AF. However, other studies have confirmed an association between inflammation and lone AF. In view of the observation that AF is associated with a small increased risk of developing CD, it would seem prudent for afibbers to avoid gluten and to maintain an anti-inflammatory protocol based on natural supplements such as curcumin, bromelain, beta-sitosterol, boswellia, *Zyflamend* or *Moducare*.

Factors affecting outcome of ablation for persistent AF

REDWOOD CITY, CALIFORNIA. The most recent definitions for the duration-dependent types of atrial fibrillation (AF) are:

- **Paroxysmal** – episodes terminate spontaneously in less than one week (AF1)

- **Persistent** – episodes lasting more than one week but less than a year, or requiring electrical or pharmacological conversion within the first week following onset (AF2)
- **Long-standing persistent** – episodes lasting longer than one year (AF3).

NOTE: This category was previously known as “permanent”.

There is ample evidence that the success of catheter ablation is greater in the case of paroxysmal AF (AF1) than in the case of persistent (AF2), and that the poorest success rates are associated with long-standing persistent AF (AF3).

Now electrophysiologists at the Sequoia Hospital suggest that the persistent AF category may need to be split into two types – AF2a and AF2b. The AF2a category would relate to afibbers whose episodes are terminated in less than a week by electrical/pharmacologic means, while the AF2b category would encompass afibbers whose episodes last longer than one week but less than a year.

In order to investigate whether ablation outcomes vary between the two categories the Sequoia researchers evaluated the success rates in a group of 179 AF2a patients compared with a group of 244 AF2b patients. The average age of the patients was 62 years, 74% were male, and 15% had coronary artery disease. There were no significant differences between the two groups except for left atrial diameter, body mass index (BMI), and percentage with dilated cardiomyopathy, which were significantly higher in the AF2b group, and duration of AF which was significantly longer in the AF2b group (7.5 vs. 6.0 years). Members of group AF2a had also tried more pharmacological drugs in an effort to control their condition. The AF episodes in group AF2a were terminated by pharmacologic means (antiarrhythmics) in 25% of cases, many through the use of the pill-in-the-pocket approach, and by electro-cardioversion in the remainder. Propafenone (Rythmol) was the most common drug used in chemical conversion.

All study participants underwent a circumferential pulmonary vein isolation (PVI) procedure with additional lesions (including right atrial flutter ablation) as required. Freedom from AF was defined as no AF, flutter or tachycardia episodes lasting more than 30 seconds after a 3-month blanking period. NOTE: It is not clear whether patients who only managed to remain AF-free using previously ineffective antiarrhythmics were included as being AF-free.

Patients with AF continuing at 3 months or with late recurrences were encouraged to undergo repeat ablations and 125 patients did so. At the 1-year

mark following the final ablation, 80.1% of the members of group AF2a were free of AF as compared to 72.9% in the AF2b group. Corresponding numbers at the 3-year mark were 75.1% and 64.1%. In comparison, the 1- and 3-year success rates for a group of 270 paroxysmal afibbers were 85.1% and 83.6% respectively. The researchers made the following interesting observations:

- Members of the AF2b group whose longest episode lasted from 1 week to 1 month had no better ablation outcome than did AF2b patients whose episodes lasted from 1 to 12 months.
- There was a linear correlation between the duration of the longest episode and left atrial diameter.
- Adverse atrial remodeling begins very quickly in persistent AF and the window to restore sinus rhythm to optimize AF ablation outcome may be less than one week.
- A longer duration of AF episodes such as found in the AF2b group is associated with greater body mass index and more cardiomyopathies suggesting that persistent AF can “make you fatter and wear out your heart”.

Winkle, RA, Patrawala, RA, et al. Relation of early termination of persistent atrial fibrillation by cardioversion or drugs to ablation outcomes. American Journal of Cardiology, May 18, 2011 [Epub ahead of print]

Editor’s comment: The above findings support the evidence that afibbers with long-lasting episodes and those with an enlarged left atrium will obtain better outcomes the sooner they undergo an ablation. The following remark made by the authors of the report supports my long-held belief that AF on its own is not a risk factor for stroke. It is the comorbid conditions that often accompany it that is the problem. *“For determining thromboembolic risk, AF classifications have little value because thromboembolic risk is not related to type and/or duration of AF but instead to clinical factors such as congestive heart failure, hypertension, age, diabetes, or previous stroke.”*

Ablation for permanent AF should not be delayed

LONDON, UNITED KINGDOM. It is becoming clear that long-standing persistent (permanent) atrial fibrillation (AF) is a different entity than paroxysmal (intermittent) AF. The main difference being that the heart tissue (substrate) in persistent afibbers is more abnormal because it has undergone more extensive electrical and structural remodeling resulting in a greater degree of left atrial enlargement and hypertrophic cardiomyopathy (thickening of the heart muscle). Not surprisingly, success rates for ablation of persistent and long-standing persistent AF are consequently very much lower than the success rates for paroxysmal AF.

Electrophysiologist at the University College Hospital now report that left atrial size is a crucial determinant of ablation outcome in persistent afibbers. Their study involved 191 patients with persistent AF, the majority (88%) of which had been in AF for at least a year prior to undergoing their first ablation. The average age of the patients was 58 years, 79% were male, average left atrial diameter (parasternal long-axis view) was 47 mm, prevalence of coronary artery disease was 11%, and 7% had been diagnosed with hypertrophic cardiomyopathy.

All study participants underwent an initial circumferential pulmonary vein isolation (PVI) procedure using a 3D mapping system (CARTO or NavX) and a 3.5-mm irrigated tip ablation catheter. In addition, linear ablation in the left atrium roof (in 71% of procedures) or mitral isthmus (in 44% of procedures), and ablation of complex fractionated electrograms (in 42% of procedures) were performed at the discretion of the operator. After a mean follow-up of 13.5 months (excluding recurrences during a 3-month blanking period), 32% of patients were in normal sinus rhythm.

Follow-up ablations were carried out in 101 patients – 48 had two procedures, 17 had three, 1 had four, and 1 had five procedures. After a mean follow-up

of 13 months from the last procedure, 47% of patients were in normal sinus rhythm without the use of antiarrhythmics, while another 17% remained free of AF with the aid of previously ineffective antiarrhythmics, resulting in an overall success rate of 64%.

The outcome was found to be highly dependent on left atrial size with patients with a LA diameter less than 43 mm having an estimated success rate (freedom from AF with or without antiarrhythmics) of 91% at year 1 and year 2 after their final ablation. Corresponding numbers for the 127 patients whose LA diameter exceeded 43 mm were 54% at year 1 and 51% at year 2. A steady decline in favourable outcome was noted as LA diameter increased from 43 mm to 46 mm, but no further decline was observed above 46 mm. The final outcome in patients with a LA diameter greater than 43 mm was also markedly poorer in patients with hypertrophic cardiomyopathy.

The researchers conclude that left atrial size is the major determinant of procedural success in ablation for persistent, especially long-standing persistent, AF. They found no correlation between outcome and the presence or absence of coronary heart disease, low ventricular ejection fraction, prior TIA or stroke, dilated cardiomyopathy, hypertension or diabetes. Nor did they observe any effect of age or gender on outcome.

McCready, JW, Chow, AW, et al. Predictors of recurrence following radiofrequency ablation for persistent atrial fibrillation. Europace, Vol. 13, 2011, pp. 355-61

Editor's comment: There is considerable evidence that long AF episodes results in atrial enlargement. In view of the findings of this study, it would appear that persistent afibbers should arrange for an ablation before their left atrial diameter exceeds 43 mm.

Plasma von Willebrand factor and stroke risk

BIRMINGHAM, UNITED KINGDOM. Platelet activation and aggregation is a crucial first step in the formation of blood clots (thrombi) that may cause an ischemic stroke. Platelets, like red and white blood cells, are an integral part of normal blood. In spite of their small size they contain an

amazing variety of enzymes that interact with other plasma components crucial to the formation of blood clots. Among the more significant of these components are thromboxane A₂, ADP (adenosine diphosphate) and von Willebrand factor (vWF). The first step in the platelet aggregation process

involves the adherence of platelets to sub-endothelial tissue or a foreign object. Von Willebrand factor is the main “glue” involved in platelet sticking to each other and to the vessel wall.

There is evidence that thrombosis in the left atrial appendage (LAA) may be related to elevated levels of vWF. There is also evidence that a high plasma level of vWF increases the risk of stroke and cardiovascular events in non-anticoagulated atrial fibrillation (AF) patients. Now a group of researchers from the University of Birmingham and the University of Murcia in Spain reports that high vWF levels are also associated with an increased risk of stroke, cardiovascular events, bleeding, and death in AF patients on warfarin therapy.

The study included 829 older patients with permanent (long-standing persistent) AF (50% male with a median age of 76 years) who were on warfarin therapy and had maintained an INR between 2.0 and 3.0 for at least 6 months prior to having their medical history recorded and blood samples drawn for the measurement of plasma concentration of vWF and D-dimer. The study participants were, not unexpectedly, an unhealthy lot. Eighty-two percent had hypertension, 37% had heart failure, 31% had high cholesterol levels, 25% had diabetes, and 18% had a history of stroke or TIA (transient ischemic attack).

The patients were followed for an average of 2 years. During this time, 32 (1.7% per year) suffered a stroke or TIA, 36 (1.9% per year) experienced acute coronary syndrome events (heart attack, unstable angina, etc), 27 (1.5% per year) had acute heart failure, and 68 (3.6% per year) suffered a major bleeding event. Sixty-nine patients (3.7% per year) died during follow-up of which 25 deaths (1.13% per year) were related to cardiovascular causes. Multivariate Cox regression analysis showed that patients 75 years and older had a two-fold increase in risk of an adverse cardiovascular event (stroke/TIA, acute coronary syndrome, acute heart failure, peripheral embolism, and cardiac death). A history of stroke or heart failure was associated with an 80% increased risk of an adverse cardiovascular event, while a vWF level at or above 221 IU/dL was associated with an almost

three-fold (HR = 2.71) increase in risk. The association between stroke risk and vWF level was particularly pronounced with a level at 221 IU/dL or above associated with a five-fold increase in stroke risk.

A high vWF level was also associated with a four-fold (HR = 4.47) increase in the risk of major bleeding, a three-fold increase in the risk of cardiovascular death and a doubling of all-cause mortality. Age of 75 years or older, current smoking, and diabetes were also major risk factors for increased overall mortality. High cholesterol levels, on the other hand, were associated with a significantly lower risk of cardiovascular death (HR = 0.27) and overall mortality (HR = 0.46). Somewhat surprisingly, vWF level was significantly more predictive of the risk of cardiovascular events, bleeding and death than were the commonly used risk scores of CHADS₂, CHA₂DS₂VASc, and HAS-BLED. The authors of the study conclude that the addition of vWF level to these risk scores will materially increase their predictive ability.

Roldan, V, Lip, GYH, et al. Plasma von Willebrand factor levels are an independent risk factor for adverse events including mortality and major bleeding in anticoagulated atrial fibrillation patients. *Journal of the American College of Cardiology*, Vol. 57, No. 25, June 21, 2011

Editor's comment: Although the patient population in the study bears no resemblance to a group of otherwise healthy lone afibbers, it may nevertheless be a good idea to have a vWF measurement and take steps to reduce it if necessary. It is surprising, or maybe not, that the authors do not suggest that it may be a good idea for afibbers with a high vWF level to take steps to reduce it. There is ample evidence that this can be accomplished by supplementation with vitamin C and vitamin E[1,2,3]
[1] Antoniadou, C., et al. Effects of antioxidant vitamins C and E on endothelial function and thrombolysis/fibrinolysis system in smokers. *Thromb Haemost*, Vol. 89, June 2003, pp. 990-95
[2] Tousoulis, D, et al. Vitamin C affects thrombolysis/fibrinolysis system and reactive hyperemia in patients with type 2 diabetes and coronary artery disease. *Diabetes Care*, Vol. 26, October 2003, pp. 2749-53
[3] Huang, N, et al. Alpha-tocopherol, a potent modulator of endothelial cell function. *Thromb Res*, Vol. 50, No. 4, May 1988, pp. 547-57

LAF is Not a Death Sentence

by Don P.

I wanted to share my journey with, what was described at the time as, lone atrial fibrillation. It may help others, it may not.

It seemed like I always had episodes of PACs and 'skipped beats' from my early teens. Most of them evolved around stressful situations and caffeine. As I entered college, I had access to better medical care and underwent several Holter monitor tests, EKGs, etc. The EKGs of course showed normal cardiac rhythm but I knew there were times when something wasn't right. Holter monitor showed a few episodes of PACs. They continued to come on a regular basis...they always came when I was tired, drinking caffeine or stressed out. And they continued to be a source of worry for me.

One night, my heart went into hyper mode...it was the most terrifying event of my life at the time. Typical atrial fibrillation episode but I had no idea what it was. Eventually made it to the ER and was told I had a pulse of 180+. I was rushed into the ER to see a cardiologist and several doctors were surrounding me as they started a blood thinner drip and a beta blocker drip.

I was convinced I was dying because they hadn't made the atrial fibrillation diagnosis and the doctors seemed very concerned. I was admitted and was told that if I didn't convert to sinus rhythm within 24 hours, they would have to electrically convert me and they told me a little about the process. At about the 22 hour mark, I spontaneously converted to sinus rhythm. One of the nurses came running into my room...I couldn't even feel it at that point. I don't know if my body got used to it or if the drugs somehow dulled the activity enough to make it seem less pronounced. I was assigned the worst cardiologist in the world. He told me it was paroxysmal atrial fibrillation and that I'd have to be on a course of drugs for the rest of my life – a beta-blocker, a blood thinner and the dreaded digoxin.

I got out of bed to be released and found I had zero energy. I could barely walk from the car to my house after being driven there. Twelve hours later, my heartbeat was at 40 bpm thanks to Betapace (a very high dose from what I understand). I called the doctor and he told me to take half instead of the full dose. That did very little in giving me back any kind of energy. So I decided to quit taking it altogether. I was still taking digoxin and the blood thinner...I was horribly depressed, nervous, stressed, basically spending each day waiting for the next episode and the accompanying rushed trip to the ER. I was afraid to drive, I was afraid to go to work. I was afraid to eat much food. I was afraid of EVERYTHING. It was like living in full terror....I spent as much time in bed as possible.

I had just got an internet connection and found *The AFIB Report* by Hans Larsen. I spent literally days and nights reading others' stories, research, triggers, etc. I became obsessed with it. And I was obsessed with dying as well. I participated in a study of afib by Mr. Larsen and was absorbing constant information about the situation. I printed out a lot of info and went to my general physician for an update. He knew a cardiologist whose mother has Afib and he referred me to her. That was the best break ever. My new cardiologist tapered me from digoxin and discontinued it completely. She also started me on atenolol at the lowest dose to be taken as needed.

I didn't have any dental fillings at the time so I was sure mercury wasn't an issue. So I was basically off of all heart meds for the first time in 4 months.

I did try to live a healthier lifestyle... I discontinued caffeine completely and quit smoking and drinking alcohol. I started drinking a lot of water, exercising lightly daily and ate smaller meals (though I was never overweight). I also went to a hypnotist for some relaxation advice and education.

Literally 10 years later, after spending a year in sheer terror afraid of the next attack, I've had one episode that led me back to the hospital that was the direct result of no sleep and extreme fatigue and heat.

I still get PACs from time to time (generally after a large meal or when I'm tired or stressed) but I know now that I have to take care of my body and mind and that will take care of my heart. There are times when I have to do spontaneous meditation during stressful events but I cannot believe how blessed I have been in the past 10 years since my first real episode of LAF. I would have dreams and nightmares about ablation procedures, I struck up friendships with people who had undergone the MAZE procedure, I was constantly checking my pulse and afraid to drive long distances and fly.

These days, I have travelled the world without much thought of AF. I did decide that mine was vagal in nature without doubt...I had read a story where a man claimed to have cured himself of atrial fibrillation by taking a dose of an antacid every day. His theory was that gas and pressure pressed against the vagus nerve and would trigger his episodes. I noticed that there was a direct connection to feeling full and having indigestion during a lot of pre-afib activity in my chest.

Regardless, I really did have to wait to tell this story until the 10 years was up. My hope is that I can keep people who have a single episode from freaking out the way I did. I was convinced that it was all downhill from there – I'd have constant problems, a huge array of medications I'd have to take, etc. I was 30 years of age when it first started and I'm 40 now. Having said that, I know there is no way of knowing what tomorrow brings. I do know that as we get older, it tends to appear more frequently. And I'm ready for whatever may come, I hope. But my message is this: LAF isn't the death sentence I was convinced it was a decade ago. If you have an episode and you're young and otherwise healthy, realize that you may not have another one for 10 years even if you take ZERO medication for it. It's hard to find a cardiologist who is sympathetic and understanding of atrial fibrillation but try to find one who will keep you off the heavy beta blockers and digitalis (if my experience is worth anything....though I am not a doctor and do NOT suggest taking your med regime into your own hands.)

My sincere thanks to Hans Larsen (who answered a few emails back when this all started and included me in a survey) and to all the members in the forum. I met a lot of nice, supportive people there. Each of us have our own unique journey with atrial fibrillation...10 years later, I cannot say I don't think about it altogether; I can only say that I look back at the constant fear I lived in and am grateful that I had only one further episode that I am aware of (and I felt my Afib BIG TIME). Fear causes adrenaline, adrenaline, in turn, causes an increase in heart rate, etc. Do not fall for the fake fear. Get as healthy as you can without overdoing it, eat smaller meals, light exercise, drink plenty of water to stay hydrated, consider transcendental meditation or some other kind of meditation, manage your stress and see if you find any improvement. I was never a heavy drinker of alcohol but cutting out that and caffeine I believe played a big part in the 'success' I had.

If the ugly beast ever rears its head again, I will be back to *The AFIB Report*...you can bet on that. In the meantime, I say a little prayer every night that I remain in sinus rhythm and do the best to not over indulge in anything or drive myself too hard mentally or physically.

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