

# THE AFIB REPORT

*Your Premier Information Resource for Lone Atrial Fibrillation!*

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13<sup>th</sup> YEAR



*Welcome to our 13<sup>th</sup> year of publication! When the first issue was published in January 2001, as the only journal exclusively devoted to research in the field of lone atrial fibrillation (LAF), I had no idea of the fascinating journey ahead. In our first two years alone we made several ground-breaking discoveries most of which have since been confirmed by major, no doubt very expensive studies reported in mainstream medical journals. Some examples are:*

- *Lone afibbers tend to be taller and more physically active than the norm.*
- *The prevalence of LAF is significantly higher among men than among women (80:20 ratio).*
- *LAF is not an old-age disease. The average age at diagnosis is 46 years.*
- *There is a strong genetic component in LAF.*
- *Emotional stress, physical overexertion, caffeine, MSG, alcohol, heavy meals, and cold drinks are common afib triggers.*
- *Amalgam (silver) dental fillings may be a major trigger for LAF.*
- *LAF is associated with magnesium deficiency.*
- *There is a strong correlation between digestive problems and LAF.*
- *Bowel disorders are more common among afibbers than among members of the general population.*
- *Flare-ups of GERD (gastro esophageal reflux disease) are a common trigger for LAF.*
- *Over 70% of afibbers with vagally-mediated afib were prescribed drugs that are known to worsen their condition (beta-blockers, digoxin, sotalol).*

*In this our 124<sup>th</sup> issue we continue our trail-blazing research with an intriguing report by George N. Hansen in which he provides convincing evidence that ginger may be highly effective in preventing vagally-mediated afib episodes. We also introduce a new feature, "Letters to the Editor", as a means of sharing the experiences of fellow readers.*

*Also in this issue we report that low serum magnesium levels are associated with an increased risk of developing atrial fibrillation, that acupuncture may be effective in preventing vagal afib episodes, that the anti-inflammatory drug colchicine is effective in preventing afib recurrence after catheter ablation, and that "real world" bleeding risk with warfarin is substantially higher than reported in clinical trials.*

*Last but not least, 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 very much appreciated.*

*Wishing you good health and lots of NSR,*

**Hans**

**Highlights**

Magnesium deficiency and AF	p. 3
Predicting cardioversion success	p. 3
Electroacupuncture and vagal AF	p. 4
Colchicine prevents early AF recurrence	p. 5
Contact force measurement in ablation	p. 6
AF statistics from the real world	p. 7
"Real-world" bleeding risk with warfarin	p. 8
Nonfluoroscopic catheter ablation	p. 9
<i>Ginger May Be Beneficial for Vagal Afibbers</i> , by George N	p. 9

**LETTERS TO THE EDITOR**

*Just wanted to thank you again. Your suggestion of magnesium and potassium supplementation has helped me immeasurably. In fact it has significantly improved the quality of my life.*

*I had my first Afib episode in August 2010 which required cardioversion. I have had about a dozen episodes in the 2 years plus since then. Very recently, I noticed that the Afib episodes all seemed to coincide (within 24-36 hours) with drinking either alcohol or caffeine. I also had almost daily PACs and PVCs, some coming every other or every third heartbeat. These general ectopic beats were not related to the alcohol or caffeine, or any other food as far as I could tell. Only the Afib episodes were related to the alcohol/caffeine. Fortunately the Afib episodes always remit an hour or so after I take 2 Flecainide tablets (pill in the pocket). I have been seeing a cardiologist since the first episode in 2010 and never has he mentioned magnesium/potassium supplementation. I will be sure to enlighten him about my success at my next visit (in March).*

*After receiving your email, and reading your articles on the Afibbers website, I began the potassium as you suggested (I had already been taking the 125 mg magnesium taurate capsules twice/day), via a teaspoon of NOW potassium gluconate powder in a glass of water every day at breakfast, and an 8 oz glass of low sodium V8 (with a couple shakes of NoSalt) at every lunch and dinner. Within a few days I noticed a decline in the frequency and intensity of the PACs and PVCs. Now, 6 weeks later I get the ectopic beats very infrequently, and when I do notice them-- typically in the evening around 8 or 9pm-- they cease about 20-30 minutes after an extra glass of V8. I was so pleased with the improvements that over the holidays I decided to test whether I could try alcohol and/or caffeine,*

*which I had completely given up after noticing their relationship to the Afib episodes. Much to my delight, I tried one glass of wine and one cup of regular coffee, about a week apart. While both beverages increased the PACs and PVCs for a day or two, I did not have an Afib episode. I am going to continue slowly testing my capacity to tolerate a glass of wine and a cup of regular coffee more frequently in the next few weeks. In any case I am really heartened by my reaction to the supplementation and deeply appreciate you for suggesting this regimen.*

RW

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*Thanks for all your work, Hans. Just wanted to say that thanks to your site I have not had any more episodes of AFIB since I started making sure I had enough potassium and taking the magnesium, L Carnitine, Taurine you suggested. I think I must have been seriously magnesium deficient even though I was taking about 250 mg regularly. It took 1200 mg a day to keep me from having regular muscle cramps and afib. I'm keeping my fingers crossed -- the only time since that I had an episode was when I had food poisoning or stomach flu and had been vomiting all day -- once I was able to drink some potassium/magnesium powders the AFIB subsided.*

*And I owe it all to information from the AFIB Report! If I had gone the conventional route I would be on metoprolol and coumadin -- both of which were pretty depressing while I was on them!*

KF

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*I just wanted to express my great appreciation for your article entitled "Endurance Exercise -- Is It Worth It?". As a relatively young a-fib sufferer who was previously an endurance athlete, your article did a better job of summarizing the current research on this niche than any other I have seen. I was aware of several of the academic works you cited, but not all. Thank you.*

*I suspect you are busy and have since moved on to other a-fib topics, but I have a follow-up question in the off chance that you have seen subsequent research or written another piece on the subject. I have been able to virtually eliminate my own a-fib by cutting back on endurance exercise. I used to*

exercise 7 times a week, now I do just one bout. I suppose this demonstrates the "detraining" theory.

I have seen research on rats that suggests that after detraining they are sometimes able to "retrain" and do not suffer a recurrence of the same a-fib effects. The idea is that the prior damaging electrical pathways were disconnected by the detraining, and the heart happened to rebuild itself in a different fashion the next time. Have you ever heard of this tested on people? More generally, is there any scope for the heart to heal itself over the years, in terms of a thinner left ventricular wall and recovering from prior stressors? Your report makes this sound unlikely if researchers find that cyclists 30 years removed from their competitive days still experience elevated bouts of a-fib, but I thought I'd ask anyway.

Thank you,  
EL

Never having been an endurance athlete myself, I have no personal experience with the resumption of training after having eliminated AF by detraining. However, I posed your question on the LAF Bulletin Board and as you can see at <http://www.afibbers.net/forum/read.php?9,135750> it elicited several interesting responses. You may find GeorgeN's description of his use of the Body by Science program to keep in top shape of particular interest.

Hans

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## Magnesium deficiency associated with AF

FRAMINGHAM, MASSACHUSETTS. There is general consensus that anywhere from 60% to 80% of the US population does not consume the recommended daily intake of magnesium (420 mg/day for men, 320 mg/day for women). There is also evidence that close to 90% of all patients with lone atrial fibrillation have low levels of intracellular magnesium and that low serum levels of magnesium are associated with an increased risk of developing atrial fibrillation (AF) following cardiac surgery. There is, unfortunately, also evidence that serum and intracellular magnesium levels correlate poorly, if at all.[1]

A group of researchers associated with the Framingham Offspring Study now reports that low serum magnesium levels increase the risk of developing AF. Their study included 3530 men and women (52% female) with an average age of 44 years at enrolment. None of the participants suffered from AF or cardiovascular disease. During up to 20 years of follow-up, 228 participants developed new-onset AF. The incidence in the group (lowest quartile) with the lowest baseline serum magnesium level (below 1.77 mg/dL) was

0.94%/year as compared to only 0.63%/year in the group (highest quartile) with a baseline serum level above 1.99 mg/dL – a relative risk reduction of 50%.

The researchers found no correlation between serum potassium level and AF or between serum calcium level and AF. They point out that magnesium is an essential cofactor for the NA-K ATP pump, which controls the movement of sodium and potassium across the cell membrane. Magnesium also prolongs the effective refractory period and may alter the function of the inward rectifying potassium channel. The researchers suggest that additional studies are needed to see if magnesium supplementation reduces AF risk.

*Khan, AM, et al. Low serum magnesium and the development of atrial fibrillation in the community. Circulation, Vol. 127, January 1/8, 2013, pp. 33-38*

**Editor's comment:** It is certainly not news to readers of this newsletter that an adequate magnesium status is essential in keeping AF in check.

[1][www.afibbers.com/atrial\\_fibrillation/prevention\\_general/F87g.htm](http://www.afibbers.com/atrial_fibrillation/prevention_general/F87g.htm)

## Predicting cardioversion success

TURIN, ITALY. Electrical cardioversion (ECV) is considered first-line treatment for persistent atrial fibrillation (AF) defined as paroxysmal (intermittent) AF which does not self-terminate, or is sustained

beyond 7 days. Although the acute (immediate) success rate of cardioversion is acceptable, only about 50% or less of patients undergoing ECV

remain in normal sinus rhythm (NSR) a year following their cardioversion.

A group of researchers from the University of Turin recently released the results of a study aimed at determining the main factors influencing cardioversion outcome. Between January 2005 and December 2009 a total of 521 persistent afibbers were enrolled in the study. About half the participants had structural heart disease, 67% had hypertension, and 11% had suffered a previous stroke or TIA. Only 5% were classified as having idiopathic (lone) AF.

The study participants were divided into 4 groups according to the length of time they had spent in AF prior to undergoing ECV. Group A consisted of 141 patients who had been in AF for 2 months or less,

group B comprised 176 patients who had been in AF for more than 2 months but no more than 4 months, group C comprised 89 patients who had been in AF for more than 4 months but no more than 6 months, while group D consisted of 115 patients who had been in AF for more than 6 months. Eighty-five percent of participants were on antiarrhythmic drugs (53% on amiodarone and 28% on flecainide or propafenone) prior to ECV and continued on these drugs after their cardioversion. They were also anticoagulated for 4 weeks before and 12 weeks after ECV.

All participants underwent direct-current biphasic shock with an initial energy of 200 Joule. Acute and long-term success rates for the 4 groups are shown below.

	Group A	Group B	Group C	Group D
NSR at discharge	98.5%	97.1%	98.9%	96.5%
NSR at 1 year	66%	60%	61%	45%
NSR at 3 years	52%	47%	44%	29%
NSR at 5 years	50%	44%	42%	25%

The researchers conclude that waiting more than 6 months for cardioversion is associated with a significantly reduced chance of remaining in sinus rhythm over the long term. They also observed that having an enlarged left atrium, as well as having had a previous cardioversion, markedly reduced the chance of a successful long-term outcome. Thus, the combination of AF duration more than 6 months, an enlarged left atrium, and a previous ECV reduced 5-year success rate to 13%.

During the first 30 days after the ECV, one 79-year-old woman (CHA<sub>2</sub>DS<sub>2</sub>-VASc score of 8) suffered a stroke and one 78-year-old man (CHA<sub>2</sub>DS<sub>2</sub>-VASc score of 7) suffered a TIA (transient ischemic attack). Both were on warfarin within therapeutic

range (INR of 2.41 and 2.63 respectively) at the time of their event. A total of 13 symptomatic ischemic events (mainly strokes and TIAs) occurred during the entire follow-up – all in patients having a CHA<sub>2</sub>DS<sub>2</sub>-VASc score greater than 2.

The researchers conclude that properly conducted ECV is associated with a high acute success rate and low complication rates. However, long-term success declines dramatically in patients having been in persistent AF for more than 6 months prior to their cardioversion.

*Toso, E, et al. Electrical cardioversion of persistent atrial fibrillation: acute and long-term results stratified according to arrhythmia duration. PACE, Vol. 35, September 2012, pp. 1126-34*

## Electroacupuncture and vagal AF

XI'AN, SHAANXI, CHINA. Orthostatic intolerance (OI) affects an estimated 500,000 Americans and manifests itself through a wide range of symptoms including headaches, nausea, diminished concentration, and even fainting. It is particularly likely to occur when changing position from supine (lying down) to upright. It is believed that the condition is caused by inadequate blood flow to the brain, at least partially mediated by a weak

sympathetic response from the autonomic nervous system (ANS).

The presence and severity of OI is evaluated in the laboratory through the means of a head-up tilt (HUT) test, or the application of lower body negative pressure (LBNP). In the HUT test the patient starts out lying flat on their back on a tilt table. The table is then tilted towards the upright position and the

patient's vital signs (heart rate, blood pressure, heart rate variability, etc) are measured whilst watching out for signs of fainting. The LBNP test is more complex. It involves placing the lower part of a patient's body in an airtight chamber and then creating a partial vacuum resulting in a transfer of blood from the upper part of the body, including the brain, to the lower part.

**Nei Guan (PC6)** is located on the pericardium meridian about two and a half fingers width above the crease of the wrist on the inner arm between the two tendons. The pericardium meridian controls blood flow as well as pulse rate. Stimulation of the Nei Guan point has been used to counteract palpitations and a sense of fullness in the chest. There is also evidence that it helps restore ANS balance. Nei Guan is also the number one point for treating nausea, seasickness, and morning sickness.

Their clinical trial involved 30 healthy young individuals (21 men and 9 women with an average age of 23 years) who were assigned to receive EA at Nei Guan points, EA at sham acupuncture points on the shoulders, or no EA treatment (controls). Twenty of the participants had their EA administered for 30 minutes prior to HUT/LBNP testing (group A), whilst 10 had EA treatment during HUT/LBNP testing (group B). All participants served as controls, or were given real or sham acupuncture on three separate days in random order.

There was a significant increase (about 15%) in the time elapsed from the start of the HUT/LBNP testing to the development of signs of presyncope (precursor to fainting) amongst those in both groups A and B who had received EA at the Nei Guan points. Diastolic blood pressure was also significantly higher amongst Nei Guan EA recipients than amongst controls and those who received sham acupuncture (76 vs 69 mm Hg). Nei Guan EA decreased the high frequency (vagal) ranges of heart rate variability, whilst increasing the low frequency (adrenergic) ranges whilst in the supine position. Finally, Nei Guan EA resulted in an increase in the concentrations of epinephrine

A group of researchers from the Fourth Military Medical University in China now reports that OI can be significantly relieved by the application of electroacupuncture (EA) to the Nei Guan (PC6) acupuncture points.

(adrenalin) and norepinephrine (noradrenalin), thus indicating increased sympathetic (adrenergic) activity of the ANS.

The researchers conclude that EA at the Nei Guan points improves orthostatic tolerance via up-regulation of both the cardiac and peripheral sympathetic nervous system.

*Sun, J, et al. Electroacupuncture improves orthostatic tolerance in healthy individuals via improving cardiac function and activating the sympathetic system. Europace, Vol. 15, 2013, pp. 127-34*

**Editor's comment:** The finding that acupuncture at the Nei Guan points (PC6) increases sympathetic activity in the supine position could be of great interest to vagal afibbers who often experience excessive parasympathetic (vagal) dominance when lying down or resting, triggering an AF episode. Although electroacupuncture is obviously not accessible to everyone, it is possible that wearing a bracelet designed to combat nausea and seasickness when resting may be beneficial for vagal afibbers. Such bracelets are available in pharmacies and health food stores, and are specifically designed to put pressure on the Nei Guan point.

## Colchicine prevents early AF recurrence

ATHENS, GREECE. Radiofrequency ablation, not surprisingly, causes significant inflammation of heart tissue which, in turn, increases the likelihood of experiencing tachyarrhythmias (atrial fibrillation, atrial flutter or inappropriate sinus tachycardia) during the 3- to 6-month period following the ablation. Arrhythmia recurrence during this early follow-up period is strongly associated with long-

term failure. Early recurrence can be suppressed by the administration of corticosteroids (cortisone). However, these powerful drugs have several unwanted side effects that preclude their mid-term or long-term use in post-ablation patients, especially if they suffer from hypertension, or coronary or structural heart disease.

A group of Greek researchers now report that the post-procedure administration of colchicine, a powerful anti-inflammatory, markedly reduces the incidence of early recurrence, and also causes a significant drop in the inflammatory markers C-reactive protein (CRP) and interleukin-6 (IL-6). Colchicine was isolated from the herb autumn crocus in 1820 and has since been used primarily in the treatment of gout and rheumatism. The main side effects of colchicine are nausea and gastrointestinal upset. However, in large doses it is highly toxic and is absolutely contraindicated in patients with impaired kidney function.

The clinical trial of colchicine for the prevention of atrial fibrillation (AF) recurrence involved 160 patients who had undergone anatomically-guided radiofrequency catheter ablation for paroxysmal AF. The average age of the group was 62 years and 71% were male. Average left atrial diameter was 44 mm and average left atrial ejection fraction was 55%. The incidence of hypertension, diabetes, coronary artery disease, and heart failure in the group was 38%, 26%, 34%, and 24% respectively.

Following the ablation procedure (average duration of 3 hours) study participants were randomly assigned to receive either placebo or 0.5 mg twice daily of colchicine. No antiarrhythmics were allowed during the 3-month trial period. As expected, the levels of CRP and IL-6 were elevated on the day following the procedure in both groups.

However, whilst levels in the placebo group remained high at day four, they had dropped by 35% and 19% respectively in the colchicine group. During the 3-month follow-up arrhythmia recurred in 27 (33.5%) of 80 patients in the placebo group compared with only 13 (16%) of 81 patients in the colchicine group – a risk reduction of 68%.

Seven (8.6%) of the colchicine group reported diarrhea versus only 1.3% in the placebo group. No serious adverse events were reported. High CRP and IL-6 levels were strongly associated with increased recurrence risk. The researchers conclude that colchicine is an effective and safe treatment for prevention of early arrhythmia recurrence following pulmonary vein isolation, in the absence of antiarrhythmic drug treatment.

*Deftereos, S, et al. Colchicine for prevention of early atrial fibrillation recurrence after pulmonary vein isolation. Journal of the American College of Cardiology, Vol. 60, No. 18, October 30, 2012, pp. 1790-96*

**Editor's comment:** The association between post-ablation inflammation and an increased risk of early AF recurrence is well known. Our post-ablation care protocol at [www.afibbers.org/resources/postablationcare.pdf](http://www.afibbers.org/resources/postablationcare.pdf) cautions against vigorous physical activity in the early recovery period and suggests the use of natural anti-inflammatories such as curcumin, *Zyflamend*, fish oil, beta-sitosterol and *Boswellia*.

## Contact force measurement in catheter ablation

LINZ, AUSTRIA. Radiofrequency-powered catheter ablation with the intent of curing atrial fibrillation (AF) involves the creation of lesions on the inside of heart tissue, primarily as rings encircling the areas where the pulmonary veins enter the left atrium (pulmonary vein isolation). In order to ensure a lasting cure, it is essential that lesions are created in the right locations, that there are no gaps in the lesion rings, and that transmural is achieved – that is, that the depth of the lesions is as close to the outer wall of the pericardium as possible without penetrating it (cardiac tamponade). Thus, a successful ablation requires great tactile skill, an innate feel for just how much power to apply to any particular point and, of course, the support of sophisticated imaging equipment. It is clear that the force (contact force) with which the catheter is pressed against a particular area of heart tissue is

of crucial importance in determining the ultimate lesion quality.

Biosense Webster recently released a new variation of its 3.5-mm, 8-hole, open-irrigated tip ablation catheter (*Thermocool SmartTouch*) which measures the force exerted by the catheter when pressed against the heart wall. A group of Austrian cardiologists/electrophysiologists now reports the results of the first clinical evaluation of the new catheter.

Fifty patients with paroxysmal AF were assigned to receive a circumferential pulmonary vein isolation procedure using either a standard 3.5 mm irrigated catheter (*Thermocool*) or the new force-sensing catheter (*Thermocool SmartTouch*). The average age of the patients was 59 years, 56% were male, 44% had hypertension, but none were reported as

having cardiovascular disease. The average left atrial diameter was 38 mm. The ablation procedure was carried out using anatomically-guided mapping with the *Carto3* system, which has a built-in feature showing catheter position and contact force on a continuous basis.

The total average procedure time for the conventional catheter group was 185 minutes as compared to 154 minutes for the contact force catheter group – a saving of 31 minutes. Similarly, the ablation time (minutes of actual radiofrequency application) was reduced by 11 minutes from 50 to 39 minutes. Total energy delivered during the procedure was reduced from 71,000 watt-seconds to 59,000 watt-seconds. Acute pulmonary vein connections following “first pass” ablation declined from 36% in the conventional catheter group to 12% in the contact force group. Complications were rare with one atrioventricular fistula, one pseudoaneurysm, and minimal pericardial effusion documented in the conventional catheter group, and one atrioventricular fistula and one case of pericardial tamponade documented in the contact force catheter group.

The Austrian researchers conclude that the use of contact force sensing technology is able to significantly reduce ablation and overall procedure time in pulmonary vein isolation procedures. However, they caution that the use of the new technology may actually increase perforation rate. Thus, whilst “40 g of force applied to a rigid thick tissue may be perfectly safe, the same force applied to thin pliable tissues will result in pouching and further tissue thinning which, coupled with radiofrequency application, may result in perforation”.

*Martinek, M, et al. Clinical impact of an open-irrigated radiofrequency catheter with direct force measurement on atrial fibrillation ablation. PACE, Vol. 35, November 2012, pp. 1312-18*

**Editor’s comment:** The use of a contact force-sensing catheter would, at first glance, seem to be a substantial improvement. However, it may be of value primarily for relatively inexperienced operators who have not developed the superior tactile skills characterizing the “top-gun” electrophysiologists performing ablations.

## AF statistics from the real world

GENOA, ITALY. Atrial fibrillation (AF) is now considered epidemic and is one of the most important healthcare issues and a considerable contributor to overall healthcare expenditures. It is estimated that the worldwide prevalence of AF is about 1%, but only relatively sparse data is available as to how the condition is actually treated and how effective treatment is in the real world. A just-released study from the Italian College of General Practitioners and the Italian Association of Hospital Cardiologists aims to provide data in regard to the prevalence and treatment of AF in Italy.

In Italy every resident is registered with a general practitioner (GP) who cares for their patients and keeps track of their clinical history. Most GPs in Italy use standardized software to record patient data and thus extensive, directly comparable patient records are available for medical research. The present study involved 233 GPs and their 295,906 patients aged 15 years and older, of whom 6,036 (2%) had been diagnosed with AF during the previous 5 years. The GPs completed electronic questionnaires to provide detailed demographic and

clinical characteristics of their AF patients and to detail their treatment protocols.

Amongst the 6036 patients with AF, 20.2% had the paroxysmal variety, 24.3% had persistent AF, and 55.5% were in permanent AF. The prevalence of AF was 0.16% in patients between the ages of 16 and 50 years, 9% in those aged 76 to 85 years, and 10.7% amongst those older than 85 years. AF was symptomatic despite therapy in 74.6% of patients and was associated with heart disease in 75%. Only 73 (1.2%) of AF patients were classified as having “lone” AF, oddly enough defined as AF without accompanying heart disease, hypertension, heart failure, chronic obstructive pulmonary disease, diabetes, renal failure, dementia, cerebrovascular disease, obesity, smoking, alcohol abuse, hyperthyroidism, and hypothyroidism – a select group indeed!

After extrapolating the data obtained in the study to the entire Italian population of the same age and gender, the prevalence of AF in Italy was determined to be 1.85%, which is substantially higher than previous estimates for the USA (California) of 0.9%, for China at 0.61%, and for

Scotland at 0.94%. However, the Italian estimate is in line with prevalence in Iceland reported to be 1.9% in 2008.

Drug treatment protocols were fairly evenly split between rhythm control (44%) and rate control (55%). Beta-blockers and digoxin were the most commonly used rate control drugs, whilst amiodarone was the most commonly used rhythm control drug, followed by flecainide and propafenone. Catheter ablation was performed in only 174 patients (2.9%), mostly in cases of persistent AF. The GPs considered the procedure to be effective in only about 50% of cases – a much lower success rate than reported by centers actually performing ablation procedures. A total of 166

patients had a pacemaker installed with an unknown number undergoing AV node ablation as well. About 28% of patients on rhythm control drugs were also taking an oral anticoagulant (warfarin), whilst 60% of patients on rate control were doing so.

*Zoni-Berisso, M, et al. Frequency, patient characteristics, treatment strategies, and resource usage of atrial fibrillation (from the Italian Survey of Atrial Fibrillation Management [ISAF] Study). American Journal of Cardiology, December 27, 2012 [Epub ahead of print]*

**Editor's comment:** This study confirms that the prevalence of AF may be far higher than estimated in previous studies and that current treatment modalities are ineffective in about 75% of patients.

## “Real-world” bleeding risk with warfarin

TORONTO, CANADA. Although the bleeding risk involved in warfarin therapy has been evaluated in numerous clinical trials, there is very little data on the actual incidence of hemorrhage amongst patients not participating in clinical trials. It is conceivable that there could be a significant difference between clinical trial incidence and the incidence found in the real world, since time spent in the usually recommended INR range of 2.0 to 3.0 is often as low as 50% in community surveys, but much higher in closely controlled clinical trials.

A group of Canadian researchers sponsored by the Ontario Drug Policy Research Network now reports the results of a study aimed at determining the actual incidence of hemorrhage in a population of 125,195 atrial fibrillation (AF) patients who were prescribed warfarin during the period April 1, 1997 to March 31, 2008. The average age of the study participants (evenly split between men and women) was 77 years with 57.5% being 76 years or older. The majority had one or more comorbid conditions such as hypertension (75%), congestive heart failure (35%), and diabetes (24%), which would increase their risk of ischemic stroke. Only 7% had a CHADS<sub>2</sub> score of 0 and 69% had a score of 2 or higher. Patients were followed until one of the following events occurred:

- Visit to hospital for hemorrhage
- End of warfarin therapy
- Death
- Five years of follow-up
- End of study period (March 31, 2010)

If a patient had multiple hospital admissions during warfarin therapy, only the first admission was counted. The overall incidence of hemorrhage requiring a visit to an emergency department, or an admission to hospital was 3.8% over a 5-year follow-up period. The rate was significantly higher amongst patients aged 76 years or older (4.6%) than amongst those younger (2.9%). The rate of hemorrhage was particularly high (11.8%) during the first 30 days of warfarin administration.

The most common specified bleeding types were lower gastrointestinal at 36.5%, upper gastrointestinal at 26.1%, and intracranial (hemorrhagic stroke) at 5.1%. Eighteen percent of patients admitted to hospital with warfarin-related bleeding died in hospital or within 7 days of discharge. Mortality was particularly high (42%) amongst patients admitted for intracranial bleeding.

The researchers conclude that warfarin-related hospital admissions of AF patients is substantially higher than that reported in clinical trials designed to evaluate the safety and efficacy of warfarin therapy.

*Gomes, T, et al. Rates of hemorrhage during warfarin therapy for atrial fibrillation. Canadian Medical Association Journal, November 26, 2012 [Epub ahead of print]*

**Editor's comment:** It seems to me that this study is somewhat misleading in that patients were no longer follow-up once they had experienced a first bleeding event after having started on warfarin therapy. If all warfarin-related hemorrhages had been recorded, I would be very surprised if the

annual incidence of bleeding would not have overshadowed any protective effect against

ischemic stroke, except in cases where the patient had already suffered a previous stroke.

## Nonfluoroscopic catheter ablation

CHICAGO, ILLINOIS. Ablations aimed at curing cardiac arrhythmias are traditionally performed using fluoroscopy to guide catheter placement. This exposes the patient, physician and staff to a not insignificant amount of radiation, especially if the procedure is of long duration, or the patient is obese. In addition to repeated radiation exposure, electrophysiologists doing numerous procedures are also prone to develop spinal complaints from wearing the heavy lead apron necessary to provide radiation protection. Robotic systems have been developed to allow the EP to perform ablation from a remote location and thus avoid radiation exposure; however, the problem of exposure remains in the case of the patient and support staff.

A group of researchers from the Illinois Masonic Medical Center now suggests that catheter ablations for cardiac arrhythmias can safely and effectively be performed without the use of fluoroscopy, i.e. with no radiation exposure at all. Their study involved a group of 60 consecutive patients referred for ablation of various cardiac arrhythmias. Twenty-two (37%) had atrial fibrillation, 10 (17%) atrial flutter, 9 (15% atrial tachycardia, 16 (27% atrioventricular tachycardia, and 3 (5%) had ventricular tachycardia. All patients underwent catheter ablation by the same experienced operator using intracardiac electrograms (IE), an electroanatomic mapping system (*EnSite NavX*), and intracardiac echocardiography (ICE). Conscious sedation was used in all procedures except in the case of atrial fibrillation (AF) where general anesthesia was employed. Transesophageal echocardiography (TEE) was performed on all AF patients, except in

those presenting with sinus rhythm and a CHADS<sub>2</sub> score of 0 or 1.

Atrial fibrillation patients underwent a pulmonary vein isolation procedure with additional lesions as required to achieve an acute success rate of 100% (all patients were in normal sinus rhythm at completion of procedure). The total average procedure time was 5 hours. The procedural outcome for the 60 patients who had been ablated without fluoroscopy was compared to that of 60 matched patients who had previously been ablated with the aid of fluoroscopy, combined with electroanatomic mapping and ICE guidance (in some cases). In both patient groups acute success was 100% for AF and procedure time was not significantly different at about 5 hours. Average fluoroscopy time in the fluoroscopy group was 33 minutes.

The researchers conclude that catheter ablations for a variety of cardiac arrhythmias can be safely and effectively achieved without the aid of fluoroscopy.

*Razminia, M, et al. Nonfluoroscopic catheter ablation of cardiac arrhythmias in adults. Journal of Cardiovascular Electrophysiology, Vol. 23, October 2012, pp. 1078-86*

**Editor's comments:** Although long-term success rates are not available for the patients participating in the study, the acute results certainly look promising. It is to be hoped that the nonfluoroscopy approach will be thoroughly evaluated in major ablation centers.

## ***Ginger May Be Beneficial for Vagal Afibbers***

**by GeorgeN**

A quick summary of my afib history. Afib started about 8 ½ years ago, at age 49, most likely brought on by chronic fitness. It was always initiated by a vagal trigger, mostly coming on in the early morning around 3AM. Initially I had episodes every 10-14 days for 6-9 hours. They were self-converting or converted with exercise. After 2 months, afib progressed to a persistent episode that lasted 2.5 months. This was converted with a loading dose (300 mg) of flecainide. I started a supplement program including potassium, magnesium and taurine – initially around 2 g/day of potassium, 800 mg/day of magnesium and 4 g/day taurine. This has varied over time, with magnesium generally increasing to as much as 3 g/day and currently around 1.7 g/day (always to bowel tolerance). Whenever this failed, I used 300 mg flecainide to convert, usually in an hour or less. Over 7 years, I used about 10 doses of flecainide. I consider the above supplements foundational for my afib remission program. I had a great increase in personal stress starting a year ago. This coincided with a great increase in afib frequency. This culminated a little over 2 months ago with nightly (mostly 3AM) episodes terminated with 300 mg flecainide. The conversion time increased from 1 to 4 hours.

Along with the increase in afib frequency, this last year saw relatively frequent excessive vagal responses to 1) cold food or drink, 2) laying down, and 3) the aftermath of sexual orgasm. These excessive vagal responses included a slow heart beat of around 40 BPM, sometimes accompanied with a significant number of ectopic beats and sometimes afib.

The nightly episodes were distressing and I thought I would soon be booking an ablation. I decided to try the vagolytic medicine propantheline bromide (PB). There are several papers by James Reiffel MD that refer to this approach. I reasoned if I could stop the excessive vagal responses, I could preempt my afib. I convinced my cardiologist to support this effort; however, as PB is little used it would take some days to fill the prescription. While waiting for the prescription to be filled, I decided to use flecainide before bed to see if I could preempt the afib. Flecainide also has vagolytic properties. I successfully started with 300 mg and after one night dropped this to 200. I began slowly and successfully titrating downward. Periodically I would still notice abnormal vagal responses. I would treat these with more flecainide.

After reading Hans' recent posting on ginger, I started taking a tablespoon of organic powdered ginger 2x/day, which I later reduced to 1/2 teaspoon ginger in the morning and 1 tsp in the evening. The abnormal vagal responses with their ectopic beats ceased immediately.

This gave me the confidence to titrate the flecainide downward much more quickly. Ultimately, I stopped it altogether. I quit taking the flecainide altogether about 6 weeks ago. With the exception of one afib episode the early morning after I pigged out on carbs at a Christmas meal, I have been afib free since starting the prophylactic flecainide and this has continued on the ginger. In my analysis the vagolytic quality of the flecainide was at least partially responsible for my success using it prophylactically. This has been perhaps replaced with the sympathetic stimulating quality of the ginger - a much better answer, in my book! I should note that I have the propantheline bromide, but have not taken any yet since having been successful with the ginger.

My biggest challenge to this routine is the aftermath of orgasm, in the morning 10-12 hours after taking the ginger. This can lead to a slow heart rate and ectopics, but has yet to lead to afib, on the ginger. Orgasm a few hours after taking the ginger does not lead to ectopics. I can feel a very stable steady heart beat. The obvious answer is ginger on the nightstand. I have successfully tried ginger early in the morning, pre-sex. My heart is extremely stable after sex now.

I also sample my radial pulse after getting into bed. The other evening, one out of every 30 beats was premature or a "skipped" beat. I got up and took 1/2 tsp of ginger. I sampled my heart rate for 120 beats with no premature beats. Early in my afib career, the one out of thirty ectopic frequencies would presage afib during sleep.

I think ginger certainly has potential for vagal afibbers. I am unaware of any negative side effects, in my case, or in the literature. One note of caution, I understand that ginger has blood thinning properties, so those on blood thinners should investigate this further before using ginger.

As far as time to action goes, my sense is that the effects come on quickly – in a matter of minutes after ingesting the ginger. As I have mentioned, the effects seem to last 10-12 hours or more.

I've continued with my supplement program throughout.

As an aside, powder can look like liquid on the airport scanners (this includes the ginger). To avoid a bag search, I take the powder out and put it in a bin where they can easily see what it is.

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