THE AFIB REPORT

Your Premier Information Resource for Lone Atrial Fibrillation!

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In this issue we feature the story of another "happy ending" radiofrequency ablation. Most, if not all, of our ablation reports have been written by afibbers whose ablation has ultimately been successful. Unfortunately, this does not reflect the "real world" outside Bordeaux and the Cleveland Clinic. Here success rates are generally still dismally low. Electrophysiologists at Copenhagen's University Hospital report a single procedure success rate (no afib, no medications) of 16% increasing to 45% after repeat procedures (74% repeat rate). EPs at Johns Hopkins report a single PVI success rate of 28% rising to 41% after repeat procedures (32% repeat rate). Both studies also conclude that the success rate for paroxysmal afibbers is substantially higher than that for persistent and permanent afibbers.

In contrast, a 2004 study of the long-term success rates at the Cleveland Clinic in Ohio found that 87% of paroxysmal, 78% of persistent, and 83% of permanent afibbers were in normal sinus rhythm one year after their procedure (12% repeat rate). Thus, it would appear that the conclusion of my 2005 ablation survey is still valid – "RF ablation for atrial fibrillation is still an emerging technology and a half decent chance of success can only be expected in top-rated institutions. To go anywhere else, at this point in time, is likely to lead to disappointment."

Also in this issue University of Michigan researchers confirm that the stroke risk associated with a PVI is low and warfarin therapy can safely be discontinued post-ablation for most afibbers. Vitamin C helps prevent kidney damage associated with the use of contrast agents (x-ray dyes) during ablation, and new evidence points to a connection between afib and the renin-angiotensin system.

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

Post-ablation stroke risk

ANN ARBOR, MICHIGAN. Electrophysiologists at the University of Michigan report the results of a large study aimed at determining the incidence of thromboembolic events (ischemic stroke or transient ischemic attack – TIA) after radiofrequency ablation of atrial fibrillation. The study involved 755 afibbers (490 with paroxysmal and 265 with permanent afib) with an average age of 55 years (17-79 years). About 23% of the patients were women and 56% had one or more risk factors for stroke (congestive heart failure, hypertension, diabetes, age over 65 years, or a history of TIA or stroke). The patients underwent circumferential pulmonary vein ablation (Pappone method) using an 8-mm tip catheter. The procedure was repeated in 174 patients (23% repeat rate) and at the end of 12 months post-ablation, 77% of patients with paroxysmal afib and 66% of permanent afibbers were in normal sinus rhythm without the use of antiarrhythmics. The success rate after two years decreased to 73% and 62% respectively.

The patients were all treated with warfarin for at least 3 months prior to the procedure. Warfarin therapy was resumed immediately after the procedure and continued for at least 3 months, after which patients who were taken off were asked to take 81-325 mg/day of aspirin indefinitely. A thromboembolic event (TE) occurred in 7 patients (0.9%) within two weeks of the procedure and two TEs occurred 6-10 months after the procedure. The majority (78%) of the TE victims had one or more risk factors for stroke prior to ablation. The 0.2% incidence of late TEs is equivalent to the incidence expected among age-matched, otherwise healthy individuals without atrial fibrillation.

Among patients whose ablation was successful, warfarin therapy was discontinued for 79% of patients with no stroke risk factors and for 68% of those with one or more risk factors. None of these patients experienced a TE during 17-23 months of follow-up. The researchers conclude that the risk of a TE after radiofrequency ablation is 1.1% with most events occurring within the first two weeks following the procedure. They also express the opinion that discontinuation of warfarin therapy after a successful ablation is safe in patients with no risk factors and in most patients with risk factors. The data obtained during the study was insufficient to conclude whether patients older than 65 years of age or with a history of prior stroke could also safely discontinue anticoagulation after 3 months.

Oral, H, et al. Risk of thromboembolic events after percutaneous left atrial radiofrequency ablation of atrial fibrillation. **Circulation,** *Vol. 114, August 22, 2006, pp. 759-65*

Editor's comment: The clear conclusion of this study is that a successful ablation reduces the risk of stroke to that of the general population. It is of some concern though that 4% of the patients who had been afib-free one year after the procedure no longer were so two years later. This indicates the need for periodic check-ups to ensure that afib has not returned – perhaps in an asymptomatic form.

Comparison of Haissaguerre and Pappone methods

COPENHAGEN, DENMARK. The two main radiofrequency ablation procedures used today are the segmental pulmonary vein isolation procedure developed by Prof. Haissaguerre in Bordeaux and the circumferential anatomical pulmonary vein isolation procedure developed by Dr. Pappone in Milan. The pulmonary vein antrum isolation procedure was developed by Dr. Natale in Cleveland and is essentially a variant of the Haissaguerre procedure.

The Haissaguerre and Natale methods use electrophysiological mapping (Lasso catheter) to determine the location of the pulmonary veins, while the Pappone method uses anatomical mapping (CARTO). The Haissaguerre/Natale methods are generally considered more technically challenging since they involve electrical isolation of each of the four pulmonary veins in close proximity to their junction with the left atrium. The Pappone method, on the other hand, requires only the "burning" of two large circles in the atrium – one encircling the left pulmonary veins and one encircling the right veins.

Researchers at the Copenhagen University Hospital now report on their comparison of the Haissaguerre and Pappone methods. The study involved 100 consecutive patients (51 paroxysmal, 49 persistent) who underwent RF ablation during the period November 2002 to November 2004. All procedures were performed by the same operator who had performed more than 200 afib ablations at the beginning of the study.

The success rate of the procedures (3 months post-ablation ignoring episodes during first 30 days) was 16% (22% for Pappone method and 11% for Haissaguerre method) without antiarrhythmics, with the remaining 84% experiencing symptomatic afib or left atrial tachycardia during the three months following the procedure. Seventy-four patients (74%) had a second ablation with success rates of 44% and 28% respectively for the Pappone and Haissaguerre methods. After 12 months the percentage of ablatees being free of symptomatic afib (without the use of antiarrhythmics) was 57% for the Pappone method and 31% for the Haissaguerre method. The success rate among persistent afibbers was significantly poorer than among paroxysmal ones (52% for Pappone method and 15% for Haissaguerre method). Four patients (4%) experienced a systemic embolic event during the 173 procedures, all occurring within 2 days post-ablation. Although 5 patients experienced breathing difficulties after the procedure, no systemic evaluation for PV stenosis was performed.

The authors of the study conclude that the circumferential anatomical pulmonary vein isolation procedure (Pappone) is superior to the segmental approach (Haissaguerre), especially for persistent AF.

Nilsson, B, et al. Recurrence of pulmonary vein conduction and atrial fibrillation after pulmonary vein isolation for atrial fibrillation: A randomized trial of the ostial versus the extraostial ablation strategy. **American Heart Journal**, *Vol. 152, No. 3, September 2006, pp. 537-44*

Editor's comment: The overall success rate (no antiarrhythmics) after a 74% repeat ablation rate was only 45% clearly indicating the inexperience of the EP performing the procedures. For example, the right inferior vein was only completely isolated in 24% of patients undergoing the Haissaguerre procedure. The conclusion that the Pappone method is superior to the Haissaguerre method is not surprising since the Pappone method requires considerably less skill and experience than does the Haissaguerre method and therefore would be expected to produce better results in inexperienced hands. In comparison, the success rates obtained in Bordeaux and Cleveland now exceed 90% for paroxysmal and 85% for persistent and permanent afib. Of course, the lead EPs at both institutions have, by now, performed well over 3,000 procedures each. Experience and innate skill make all the difference!

Vitamin C helps prevent kidney damage

ATHENS, GREECE. Contrast agents (x-ray dyes) are widely used in CT scanning and procedures involving heart catheterization (angiography, angioplasty, and ablations for AF). Contrast agents contain large amounts of iodine and can be very hard on the kidneys. The incidence of contrast agent-induced nephropathy (abnormal kidney function) varies from 2-14% in the general population of patients to 20-80% in patients with pre-existing nephropathy. It is generally believed that contrast agents do their damage by increasing the production of free radicals in the kidneys.

Several clinical trials have found the antioxidant N-acetylcysteine useful in preventing contrast agent mediated nephropathy (CAMN), but other studies have failed to confirm any benefits. However, a recent meta-analysis of 7 randomized, placebo-controlled studies showed that, compared with hydration alone, N-acetylcysteine significantly reduced the risk of CAMN in patients with impaired renal function.

Now a team of British, Canadian and Greek researchers reports that vitamin C (ascorbic acid) is also effective in preventing CAMN. Their randomized, double-blind, placebo-controlled trial involved 231 patients scheduled to undergo coronary angiography or heart catheterization. All patients had a baseline serum creatinine concentration of at least 1.2 mg/dL (106 micromol/L) and the average for the group was 1.4 mg/dL (125 micromol/L) indicating slight to moderate kidney impairment (normal range is 0.8-1.36 mg/dL or 70-120 micromol/L).

The study participants were assigned to receive a placebo or 3 grams of ascorbic acid at least 2 hours prior to the procedure followed by 2 grams in the night and morning after the procedure. All patients also received adequate hydration during the procedure (50-125 mL/h of normal isotonic saline solution infused intravenously). Placebo and ascorbic acid were administered in the form of chewable tablets. Creatinine concentration was measured before the procedure and 2-5 days after. CAMN was defined as an absolute increase in serum creatinine level of 0.5 mg/dL (44 micromol/L) or more, or a relative increase of 25% or more. The incidence of CAMN, according to this definition, was 9% in the ascorbic acid group and 20% in the placebo group.

The researchers conclude that, "ascorbic acid, a safe, well-tolerated, inexpensive, and readily available oral antioxidant, appears to prevent the complication of CAMN after invasive coronary imaging procedures in patients with preexisting renal dysfunction."

Spargias, K, et al. Ascorbic acid prevents contrast-mediated nephropathy in patients with renal dysfunction undergoing coronary angiography or intervention. **Circulation**, *Vol. 110, November 2, 2004, pp. 2837-42*

Editor's comment: Supplementing with vitamin C before and after an ablation (PVI) would seem to be a good preventive measure even for afibbers with no known kidney impairment.

AF and the renin-angiotensin system

BOSTON, MASSACHUSETTS. Evidence is mounting to the effect that the renin-angiotensin system (RAS) also known as the renin-angiotensin-aldosterone system (RAAS) is involved in the initiation and recurrence of afib, at least in afibbers with hypertension or congestive heart failure (CHF). The RAS is the body's main system for dealing with a decrease in blood pressure that is too great to be dealt with by the automatic nervous system alone. It works as follows:

The low blood pressure is first sensed by the kidneys which proceed to secrete a small peptide called renin. Renin is transported to the liver where it helps to produce angiotensin I from a large protein called angiotensinogen. Angiotensin I, in turn, is carried by the blood to the lungs where it is converted into angiotensin II. Angiotensin II (inhibited by ACE inhibitors) is the most potent vasoconstrictor in the body. It causes the blood vessels to constrict and potentiates the sympathetic nervous system resulting in an increase in blood pressure.

Recent research has shown that structural and electrophysiologic changes in atrial tissue result in an arrhythmogenic substrate susceptible to induction and maintenance of afib. The electrophysiologic changes relate mainly to a shortening of the atrial effective refractory period (AERP) – the rest period following a contraction of heart muscle; the cell does not respond to stimulation during this period. The structural changes involve fibrosis (the formation of scar-like [fibrous] tissue) which, in turn, is associated with excessive collagen production. Animal and human experiments have shown that angiotensin-converting enzyme and angiotensin II may be involved in fibrosis and that the RAS is also involved in the shortening of AERP.

Researchers at the University of Massachusetts Medical School have just published a review of the current knowledge of the effect of the RAS on afib and the possible role of angiotensin-converting enzyme inhibitors (ACE inhibitors) and angiotensin receptor blockers (ARBs) in the prevention of AF. They conclude that ACE inhibitors such as trandolapril (Mavik) and enalapril (Vasotec) help to prevent the development of afib in patients with CHF and left ventricular dysfunction. Similar observations have been made in studies involving the ARBs valsartan (Diovan) and candesartan (Atacand). There is also evidence that ACE inhibitors can help prevent the development and recurrence of afib in patients with hypertension.

Finally, there is some evidence that inhibition of the RAS (with ACE inhibitors or ARBs) can help in maintaining sinus rhythm after cardioversion. It is not yet known whether RAS inhibition may be useful in lone atrial fibrillation, but the Massachusetts researchers tend to believe that the major effect will be found among patients with left ventricular hypertrophy, left ventricular dysfunction, heart failure, or hypertension.
Patlolla, V, et al. The renin-angiotensin system: A therapeutic target in atrial fibrillation. **PACE**, *Vol. 29, September 2006, pp. 1006-12*

Editor's comment: The possible role of the RAS in afib was discussed extensively in Session 2 of our Virtual Conference Room Proceedings (January 15 – 31, 2003)
http://www.afibbers.org/conference/session2.pdf
Although a few afibbers have found an ACE inhibitor beneficial, there is certainly no evidence that it will help the majority of lone afibbers. It is likely, however, that reversing structural remodelling (fibrosis) with proteolytic enzymes may be beneficial. This possibility was discussed in detail in Session 24 (February 9 – 20, 2004) of the Conference Room Proceedings
http://www.afibbers.org/conference/session24.pdf

Long-term success of RF ablation

BALTIMORE, MARYLAND. The outcome of a radio frequency (RF) pulmonary vein isolation (PVI) procedure for atrial fibrillation depends primarily on operator skill and experience, type of afib (paroxysmal, persistent, permanent), and the ablation protocol used (Haissaguerre, Natale or Pappone). A team of electrophysiologists at the Johns Hopkins Hospital now reports their experience with a group of 200 consecutive patients (67% male) who underwent either a segmental PVI (Haissaguerre method) or a circumferential, anatomically-guided PVI (Pappone method). The

average age of the patients at time of ablation was 56 years (range of 45-67 years), 46% had paroxysmal afib, while 36% had persistent, and 18% had the permanent variety. Twenty-two percent had hypertension and 29% had structural heart disease, so a sizeable proportion were lone afibbers.

Eighty-seven (44%) of the study participants underwent a segmental PVI, while the remaining 113 underwent the circumferential procedure. All patients were followed for a minimum of 12 months (range of 15-37 months) with telephone interviews and, if indicated, ECGs every 3 months. Long-term success was defined as freedom from afib without the use of antiarrhythmics in the 6 months prior to evaluation. During the first 3 months after the procedure, 64% of all ablatees experienced one or more symptomatic afib episodes lasting longer than 10 minutes (early recurrence). Most (58%) experienced their episode(s) in the first month following the ablation, while the remaining 6% experienced it/them in the second or third month after the procedure.

Only 15% of patients with early recurrence went on to achieve long-term success (36% counting those who had repeat ablations). In contrast, 50% of those afibbers who remained afib-free for the first 3 months went on to achieve long-term success with an additional 9% demonstrating improvement (more than 90% reduction in symptomatic episodes with or without the use of antiarrhythmics).

The overall long-term success rate after a single PVI was 28% with an additional 7% demonstrating improvement. Thirty-two percent of the study population of 200 patients underwent one or more repeat ablations bringing the total long-term success rate to 41% with an additional 11% showing improvement. The two major variables affecting outcome were the type of afib and the procedure used. Paroxysmal afibbers experienced the best results with an overall success rate of 50% including repeat ablations. Persistent and permanent afibbers were grouped together and their combined ultimate long-term success rate was 34%. Afibbers who had been treated with the segmental approach had a 22% single procedure success rate (34% for paroxysmal and 5% for persistent/permanent) with 10% demonstrating improvement. Those who had undergone the circumferential PVI had a 32% single procedure success rate (40% for paroxysmal and 28% for non-paroxysmal) with 4% showing improvement. A first afib recurrence after one year was relatively rare at 4%. Major complications occurred during 21 procedures (7.9%) with 6 patients (2%) experiencing tamponade (piercing of the heart wall), 3 experiencing pulmonary vein stenosis, and another 3 experiencing a stroke. All complications occurred during or within 30 days of the procedure.

Cheema, A, et al. Long-term single procedure efficacy of catheter ablation of atrial fibrillation. **J Interv Card Electrophysiol,** *Vol. 15, August 2006, pp. 145-55*

Editor's comment: The Johns Hopkins study found that 36% of afibbers who had an afib episode during the 3 months following their procedure went on to achieve long-term success. This correlates well with the 37% observed in my 2005 ablation survey. The 28% first procedure success rate at Johns Hopkins is also very similar to the average 31% rate (2004-2005 ablations) found in my survey. The success rates at top-rated institutions like Bordeaux, Cleveland Clinic, and Marin County Hospital (Dr. Natale) are, of course, much better than those reported by the Johns Hopkins team. According to a study reported in 2004 the long-term success rate at the Cleveland Clinic in Ohio for paroxysmal afibbers was 87%, while that for permanent (including persistent) afibbers was 78% for an overall success rate (after one year) of 83%. This included the 12% of patients who required a repeat ablation.[1] It is worth noting that the procedure used in Cleveland is a segmental procedure which the John Hopkins study found inferior to the circumferential procedure. This, once again, confirms my personal conviction that best results are obtained with the combination of a highly skilled operator using the segmental procedure. Less skilled operators, on the other hand, are likely to get better, but still inferior, results with the circumferential protocol.

[1] Bhargava, M, et al. Impact of age on the outcome of pulmonary vein isolation for atrial fibrillation using circular mapping technique and cooled-tip ablation catheter: A retrospective analysis. Journal of Cardiovascular Electrophysiology, Vol. 15, January 2004, pp. 8-13

Improved circumferential ablation technique

BALTIMORE, MARYLAND. The circumferential anatomical pulmonary vein isolation procedure (Pappone method) is based on the use of anatomical mapping (CARTO) to establish the exact location of the pulmonary veins. Two rings are then created in the left atrium – one completely encircling the left pulmonary veins and another completely encircling the right pulmonary veins; the two rings are usually joined by a linear lesion. The Pappone method differs from the Haissaguerre and Natale methods in that it does not use electrophysiological measurements (with a Lasso catheter) to guide the ablation and confirm complete isolation of the veins.

Now researchers at Johns Hopkins University School of Medicine report that they have developed and tested a new ablation protocol, which combines circumferential anatomical PVI with electrophysiological measurement to ensure complete isolation. The study involved 64 consecutive afib patients aged between 49 and 69 years. Seventy-three percent were male and the majority (45%) had paroxysmal afib with the remaining having either persistent (29%) or permanent (25%) afib. The patients underwent the standard Pappone procedure after which the Lasso catheter was used to determine if complete isolation had been achieved; if not, further circumferential lesions were made in order to achieve isolation. After the initial circumferential lesions, isolation was observed in 12 – 29% of all veins. This increased to 84 – 90% after continued ablation. The most common reason for the inability to achieve complete isolation was fear of burning through to the esophagus.

After a follow-up of 12 to 14 months 45% of ablatees were free of symptomatic afib with no antiarrhythmic drugs, while another 5% reported marked improvement. Seventeen (26%) of the 64 patients underwent one or more repeat ablations bringing the overall success rate (without antiarrhythmics) to 62% with another 9% demonstrating significant improvement. Forty (62%) of the 64 patients had recurrence of afib within the first 3 months following the ablation (92% during the first month). None of the patients experienced a first recurrence more than 12 months post-ablation. Overall, 72% of patients not experiencing an afib episode during the first 3 months went on to achieve complete long-term success as compared to only 27% achieving long-term success in the group having episodes during the first 3 months post-ablation.

The complication rate was 6% with the most serious one being tamponade (piercing of the heart wall). Total average procedure time was 216 minutes and fluoroscopy time was 72 minutes. The Johns Hopkins researchers conclude that the use of the Lasso catheter to ensure complete pulmonary vein isolation improves the outcome of circumferential anatomical PVI.

Cheema, A, et al. Long-term safety and efficacy of circumferential ablation with pulmonary vein isolation. **Journal of Cardiovascular Electrophysiology**, *Vol. 17, October 2006, pp. 1080-85*

Editor's comment: The success rates achieved with this new, "improved" approach is clearly not impressive with overall success rates (after repeat ablations) of 65% for paroxysmal, 52% for persistent, and 68% for permanent. The average procedure and fluoroscopy times were also quite long compared to the average times reported from Bordeaux and Cleveland. Finally, the complication rate of 6% is excessive.

My Success Story

by Charles

I am a 78 year old, former (I hope), permanent a-fibber. I am on no medications and have been in sinus rhythm since an ablation procedure performed at Marin General Hospital by Dr. Natale on January 24, 2006.

Around three years ago, in a routine physical examination, in preparation for a stress test, it was discovered that my heart was at 150 beats per minute. Follow-up showed that I was hyperthyroid. I was not aware of the arrhythmia, but I had some symptoms of being hyperthyroid (shaky hands, weight loss). [I have reason to believe that, with or without the thyroid problem, my heart had been beating irregularly for some time before the mentioned physical examination, without my knowing it. One time when I gave blood, the operator suggested to me that I might be having some heart rhythm problems and should see a doctor.]

Endocrinologists prescribed antithyroid medicine which slows or stops conversion of T-4 to T-3. I eventually became euthyroid but continued to have intermittent, asymptomatic atrial fibrillation.

I did keep a calendar of when I came in and out of fibrillation, but for present purposes I would say that I went from being in fibrillation about a fourth of the time into being in fib all of the time. The main way I knew I was going into fibrillation was when the natriuretic hormone came into play. I would urinate profusely and then go into fibrillation. I cannot say whether I was vagal or adrenergic, but I suspect I was vagal. My cardiologist never mentioned this aspect of my problem.

As I said, I my fibrillation was asymptomatic (no "palpitations" or other unpleasantness related to the fibrillation). The only symptom that I can think of is a low energy level. I suppose, because of diminished systemic circulation, that my chronic low energy level was mainly the product of my arrhythmia.

One evening I "keeled over" at dinner. I was taken to the hospital for heart attack; but even though troponins were slightly elevated my unprofessional guess is that I suffered from vaso-vagal syncope. It probably sounds strange for me say that I doubt whether I had a real heart attack, but I do. I do want to mention that I went into fib in the hospital; and, without telling me, they put me on an anti-arrhythmic drug. After I got out of the hospital, I never came out of fibrillation. Whether there was any causal relationship between my becoming a permanent a-fibber and taking this drug, I am not prepared to say.

After I got out of the hospital, I started looking into the ablation procedure. Through reading the www.afibbers.org website I learned about the relation of success and no complications to the experience and expertise of the operator. Naturally I learned about Dr. Natale. When I found out that Dr. Natale came to Marin County Hospital, near where I live, I started trying to make arrangements to have an ablation done by Dr. Natale.

My local cardiologist recommended that I not have the procedure. A local electrocardiologist gave me the same advice. Local doctors sent me to experts at Stanford, who also advised that at my age, 77 at the time, it was not a good idea to have a catheter ablation. It was said to me that at my age fibrillation was not all that bad and that many people live to a ripe old age with this problem. This advice (correctly, I think) did not satisfy me; so I went ahead with plans to have the ablation done.

I note before going on that I was a football player and on the track team in high school and college and that I maintained an active exercise program all of my life, even though I was reluctant to engage in any serious exercise while I was in fibrillation. This, apparently, fits a common pattern.

When offered antiarrhythmic medications, I declined. And, other than the involuntary medication mentioned above, I have never taken such stuff. I discovered that it is normal protocol for all ablation patients to take these drugs before and after the procedure. I advised Dr. Natale's staff that I did not want to be one of these patients. (I probably would have consented if taking the drug had been presented as a condition of my having Dr. Natale do the procedure.)

I arranged an appointment with Dr. Natale during one of his trips to Marin from the Cleveland Clinic. My wife and I liked Dr. Natale immediately and after seeing him got on his schedule to have the procedure done approximately seven or eight months after I saw him.

With great good fortune, someone cancelled out of an appointment in January. When I was called and asked if I could go to the Marin catheter lab in less than a week, I enthusiastically agreed. I think that it was this rather impromptu appointment that permitted me to avoid having to take the drugs either before or after the procedure.

With respect to the procedure, I cannot be too complimentary of Dr. Natale and the entire staff at Marin. Everyone was not only highly professionally competent, but every person with whom I came in contact with was exceedingly courteous, understanding and helpful.

I had been in permanent atrial fibrillation for over two years at the time the procedure was performed – a problematic situation, as I understood it. I was quite aware of the possible complications and of the relatively

unpromising cure rate of permanent a-fibbers of my age (a few weeks from being 78) at the time of the procedure; although I realize that the odds are much better than the norm with Dr. Natale. Everyone that I came in contact with at Marin acted in the confident assumption that everything was going to turn out OK – and that was the way it turned out, so far.

The ablation took something over five hours. Although I could feel a burning feeling when they turned on the power, it certainly was not a painful, much less an excruciating, experience. Much of the procedure is done in a kind of twilight stage of consciousness; however, on one occasion I went to sleep and moved a bit, causing some commotion on the part of the operators. I was not allowed to go to sleep again. Prospective ablation patients should not be greatly concerned about having to endure any considerable degree of discomfort.

When I awoke in recovery, my heart was beating in regular rhythm, but rather slowly because of the medication. I was released late morning after the late afternoon procedure of the day before. I felt quite good under the circumstances. Antiarrhythmics were not mentioned. (I hope I am not "spilling the beans") Dr. Natale prescribed some statin drug for anti-inflammatory purposes. I did not take these but opted to take some herbal substitutes. This might have been a mistake because about a month after the procedure I had an arrhythmic episode, probably due to, I am told, by inflammation caused by the burning during the ablation process. I am not sure, but I think that I went into some kind of atrial flutter that was picked up by my own stethoscope and by the heart monitor that I was using after the procedure. (Because I was asymptomatic, I kept a regular check on my heart beat with a stethoscope, to see how I was doing.)

Fortunately, after some 8-10 hours of arrhythmia, I cardioverted on my own. I experienced one other similar episode about a week or ten days after the first one, but this too subsided and I went back into sinus rhythm on my own.

This is the end of my tale. After the two mentioned arrhythmic episodes, my heart is beating regularly. I can swim without stopping for 45 minutes, and my energy level is much, much better than it was during the time I was suffering from atrial fibrillation.

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