

THE AFIB REPORT
Your Premier Information Resource for Lone Atrial Fibrillation
Publisher: Hans R. Larsen MSc ChE

VIRTUAL LAF CONFERENCE

Proceedings of 10th Session
July 28 – August 31, 2003

SUBJECT: LAF & Red Wine

Sometime around the middle of June I posted a message from an afibber who had markedly reduced his afib frequency by consuming a glass of California burgundy before, with or after his 3 main meals of the day. This announcement was met with considerable scepticism. Any form of alcohol is a potent trigger for at least a third of all afibbers and I have personally had a couple of episodes initiated by alcohol. Nevertheless, in the name of science and to further the progress of my LAF research I went and purchased a bottle of Carlo Rossi's California red.

It was with some trepidation that I began sipping my half glass with dinner the next evening. Lo and behold, not only did it not precipitate an episode, but also my heart actually felt steadier! I have since repeated the experiment many times with the same results. What a treat to enjoy a glass of red wine with dinner again!! However, I am not quite ready yet to have it with breakfast and lunch as well.

Therefore, as the next topic for the Conference Room I suggest that we all combine our considerable brain power to research red wine and its components as a possible remedy for LAF.

Red wine, of course, has a number of remarkable properties:

- it helps prevent heart attacks and stroke;
- it acts as a digestive aid and has antibacterial activity against e-coli;
- it helps prevent atherosclerosis, heart disease, and macular degeneration;
- it inhibits oxidation of LDL cholesterol and increases HDL cholesterol level by up to 26%;

and probably a whole lot of other benefits.

It is fairly clear that it is not the alcohol, but rather the polyphenol content of red wine that is responsible for its benefits. Polyphenols are exceptionally strong antioxidants. One component, resveratrol, has an antioxidant capacity 20 to 50 times greater than that of vitamins C and E and is now touted as a powerful cancer-preventing agent. Resveratrol also inhibits platelet inhibition and interferes with the release of inflammatory compounds. Red wine extract as such is also a potent initiator of NO (nitric oxide) production in endothelial tissue.

Afibbers have been found to have low levels of NO in their blood both during rest and exercise[1,2]. It has also been observed that NO levels are particularly low in the left atrium and left atrial appendage and some researchers believe that this could translate into a greater risk for stroke as NO has strong antithrombotic properties[3,4]. Red wine polyphenols have been found to increase NO production from endothelial cells[5] and nitroglycerin, a potent NO donor has been found effective in terminating afib episodes if injected directly into the

heart wall[6]. Could NO thus not only help protect against stroke, but also help terminate episodes quicker?

As if this is not enough, there is also a connection between NO, glutamine, glutamate, and ammonia toxicity.

So the questions are: Is NO a good guy or a bad guy when it comes to a fib? If NO is beneficial to a fibber is red wine, red wine extract or resveratrol on its own likely to be of benefit as a supplement for a fibber?

Hans

References

- [1] Takahashi, N, et al. Impaired exercise-induced vasodilatation in chronic atrial fibrillation – role of endothelium-derived nitric oxide. *Circulation Journal*, Vol, 66, June 2002, pp. 583-88
- [2] Minamino, T, et al. Plasma levels of nitrite/nitrate and platelet cGMP levels are decreased in patients with atrial fibrillation. *Arteriosclerosis, Thrombosis, and Vascular Biology*, Vol. 17, 1997, pp. 3191-95 (<http://atvb.ahajournals.org/cgi/content/full/17/11/3191>)
- [3] Cai, H, et al. Downregulation of endocardial nitric oxide synthase expression and nitric oxide production in atrial fibrillation. *Circulation*, Vol. 106, November 26, 2002, pp. 2854-58
- [4] Rubart, M and Zipes, DP. NO hope for patients with atrial fibrillation. *Circulation*, Vol. 106, November 26, 2002, pp. 2764-66
- [5] Leikert, JF, et al. Red wine polyphenols enhance endothelial nitric oxide synthase expression and subsequent nitric oxide release from endothelial cells. *Circulation*, Vol. 106, September 24, 2002, pp. 1614-17
- [6] Kumar, K, et al. Potent antifibrillatory effects of intrapericardial nitroglycerin in the ischemic porcine heart. *Journal of the American College of Cardiology*, Vol. 41, May 21, 2003, pp. 1831-37

Hans

Is the connection between NO, and ammonia and glutamate toxicity caused by low levels of NO. I suspect it is.

I have not had a drink for about 3 years now. On Thursday evening I went to a 101st birthday party (yes 101) - I could not eat or drink anything apart from water and it was a sit down affair (luckily it was informal with about 70 others there so I did not feel out of place). But the smell of the drink really made me want to partake, but I stuck to my water!!.

As you know glutamate toxicity is my main worry.

I have a bottle of Bordeaux Claret in the kitchen (given as a thank you). Tonight we are having a treat for tea. We are having a grass fed roast of sirloin. I am so tempted to crack open the bottle. But know from past experience that red wine gave me bad headaches - perhaps and hopefully to do with high glutamate already, as the tyramine connection did not play out with other high tyramine foods.

Is there a big difference between Burgundy and Claret? Would the Claret be higher in polyphenols. I know that Claret was the staple drink in Scotland due to the Auld Alliance and has been attributed to the general health of Scots in days gone by (along with herrings etc).

I feel an experiment coming on.

Fran

Fran,

I am afraid I know very little about wines. I do know that claret is from the Bordeaux region and that Burgundy and Bordeaux wines are from different regions. According to some fairly recent research red wine made from Cabernet-Sauvignon grapes has the highest content of beneficial polyphenols.

I wish you well Fran if you decide to experiment, but I don't know that I would if I were in your position. I did not have much to lose with episodes every week or so, but you do!

Anyway, best of luck,
Hans

Hans,

Today, I happened to be looking for info. on fibromyalgia in one of my books, and came upon fibroblasts. I found that they were large cells found often in newly formed tissue or tissue in the process of being repaired. Phenylalanine is metabolized primarily in the liver by Phe. hydroxylase, which is an enzyme that is present in large quantities in the liver and in fibroblasts. Normal metabolism of Phe. requires biopterin, iron, copper, niacin, pyridoxine, and C. Even though it stated that biopterin was a form of folic acid, I wanted to know more, so started searching further and came upon an excellent research site about tetrahydrobiopterin (BH4). I can't begin to recite everything I read, but there were many explanations of the different enzymatic processes that are affected by BH4, especially in regards to the aromatic aminos and their pathways.

This is part of an excerpt from one of the pdf. files:

Background. An oral glucose challenge causes transient impairment of endothelial function, probably because of increased oxidative stress. During oxidative stress endothelial nitric oxide synthase (eNOS) becomes uncoupled due to decreased bioavailability of tetrahydrobiopterin (BH4), an essential cofactor of eNOS. Therefore we examined whether an acute supplement of BH4 could restore endothelial dysfunction induced by an oral glucose challenge.

BH4 can improve endothelial functions in disease states characterized by oxidative stress.

A glucose challenge causing an increase in plasma glucose similar to that seen in a typical meal, causes an apparent deficiency of BH4, and that 25 minutes of administering BH4, prevents the endothelial dysfunction seen up to 2 hrs. after glucose ingestion. BH4 does not improve functions in healthy subjects.

www.bh4.org

Click on Literature, then scroll down to the 2003 research, keep scrolling down and click on Ihleman, N. Tetrahydrobiopterin restores endothelial dysfunction by oral glucose.....

I would also highly recommend reading the research at the beginning of the list of research: Disorders of tetrahydrobiopterin and related biogenic amines. This is 52 pgs. long, but I found pgs. 30 & 37 of particular interest in regards to deficiencies of dopamine hydroxylase, but it was all interesting, even though I did do some skimming. I would think that we could get a molecular test to indicate whether we had a particular enzymatic deficiency, as they are being done to determine this in children with inherited deficiencies.

On pg. 37, it states that 250-500mg. of dihydroxyphenylserine ameliorated or totally prevented orthostatic hypotension.

Fran, Pg. 8 of 52, bottom right, states there are other BH4 deficiencies not related to hyperphenylalaninemia, such as vitiligo. Also, another research link on the page of all the lists, stated "BH4 improves endothelial dependent vasodilation in chronic smokers: evidence for a dysfunction of nitric oxide synthase. The page no longer existed for further details, however.

I found the glucose info. of interest to me personally, because last week I ate bean dip with cheese and sour cream and chips, for the first time, and even though I was on flec., I woke up out of rhythm for the first time in over 2 mths. I upped my flec. dose and went back in NSR the next day. I won't do that again. I wonder if supplementing BH4 would help any of us. I'll ask Dr. Gersten if he knows about it. Do you have any thoughts, Hans or Fran, or anyone else?????

I hope you keep this topic opened for a while, as I'm finding it hard to study in the summer with kids out of school and constant company. It has been rather quiet on the BB front.

Thank you,

Richard

Richard

Thanks for the link. I got into this one. I will read and get back to you. It sounds very promising..

Hans

I didn't crack open the bottle so nothing to report on experiment. But the beef was lovely on its own with homemade horseradish sauce.

Fran

Hans wrote:

"It is fairly clear that it is not the alcohol, but rather the polyphenol content of red wine that is responsible for its benefits."

I've got my devil's advocate hat on again :)

Hans, a fairly simple experiment for you to do next time is measure you heart rate before, during and after a meal (both with and without red wine).

I'm having a guess that your heart rate after the meal with red wine will be higher than after a meal without it.

I'm also guessing that alcohol reduces the amount of after dinner vagal stimulation which causes people so much trouble.

--

James D

Is the California Red a "Burgundy" wine? Didn't see that label as such. Saw a Vin Rose and Burgundy. Want to make sure I get the right one.

Thanks,

Kent S

James,

Good point! However, in my particular case, I have the adrenergic type, any form of alcohol, except this particular red wine (although I have not tried a whole lot of other makes) will send me into afib promptly. So I deduced that it was something else than the alcohol that was beneficial - or perhaps the alcohol in the wine serves to get the polyphenols quickly into the bloodstream accounting for the almost immediate effect. One possibility would be that the resveratrol causes a release of NO which then helps to calm the heart - pure speculation, but what the heck!

Hans

Kent,

The "officially approved" red wine is Carlo Rossi's California Burgundy if you are in the US and Carlo Rossi California Red Wine if in Canada. I am sure others will work, particularly a Cabernet Sauvignon type, but all "the research" on this subject (done by Dave M and myself) has been done with the Carlo Rossi.

Hans

Hans, I have just returned from a very relaxing vacation (fishing and camping) with my family, in northern Alberta and am ready to report for duty in the research of red wine consumption. I'm not sure that I would be a good test subject though as I experience afib episodes every two days or so lasting anywhere from one to three days. I have yet to determine what, if any triggers I may have. Due to the frequency of afib episodes it's very hard to establish a correlation between cause and effect. I once stated that everything could be a trigger and nothing was a trigger. Afib just happened when my HR slowed down.

Having said all that, I do have the required elements for the research, namely a wine cellar with about 15 cases of wine, mostly red, all home-made.

I suppose the key thing to figure out first is whether the positive effects of red wine consumption that you have noticed are attributable to Carlo Rossi wines only, or does any red wine do the trick. Is Carlo Rossi wine different in some way than other commercial wines. Perhaps (as has been noted on the board) less sulphites in the wine is the key. If that is the case than perhaps homemade wine would be a better choice than commercial wines. I have been told that commercial wine makers add more sulphites in the vinting process than a home winemaker would.

It's been about a year since I was diagnosed with AF and since that time I have quit drinking wine and beer for the most part (the odd glass here or there). I am looking forward to successful experimentation, in moderation of course.

Cheers from the happy :) winemaker

Adrian v49 semi paleo

I just opened my bottle and I am having a glass right now. My question is is there a standard glass? are we going with 4-6-8 oz glasses or doesnt it matter? Also I noticed the presence of sulfites in this wine. Does anyone know of a red wine substitute that doesnt contain preservatives? I must admit that I am not a drinker of any kind so if they are in all wines please pardon my ignorance :->

Kevin

Kevin,

I take a 4 oz glass or less myself.

Hans

Hans - Coming in late to this discussion and I must say I'm delighted for you and the results. I'd love to have the nerve to try red wine.

Just for the record, my very first afib event was triggered by a locally made and excellent cabernet. When I eventually saw a cardiologist, we discussed the first event and the trigger and he said emphatically, that it was most likely the sulfites. Of course, it could have been that I had three very large glasses... an unusual thing for me, but it just seemed right at the time.

I've decided that I'll have a bottle ready and if I go into afib again, I'll experiment. It won't be the same, but perhaps I'll learn something to contribute.

I think it's wonderful that we have so many ready, willing and able members "armed" for test participation. We have some very dedicated members here. Good show.

On a serious note, though, would there be a reference with brands and types of wines to show the sulfite content... that might be helpful in evaluating the results of the experiments.

Good luck to everyone. I am anxious to learn the results.

Jackie

It seems I don't really have the same enthusiasm that I once had for drinking wine. It's been 4 days and I've only managed to drink 1 bottle. tsk tsk. As to reporting any beneficial effects, I've recently had a run of 5 days of NSR which for me is good. On day 3 I had 2 glasses of Pinot Noir, no AF. On day 5 I had a glass of Barolo laid down on the couch to read a novel after supper, and immediately went into Afib. My conclusions, (other than don't lay down on the sofa after a large meal) are inconclusive and more study is required.

Cheers

Adrian v49

Many questions; no answers!

Newman

I drink 2 or 3 large glasses of wine each day. If I exceed this amount it can but not necessarily will throw me into AF usually about 3 am. If I drink no wine I still get AF. The same is true of Chilli sauce. I find life without wine and Chilli sauce very bleak. So I try to take only moderate amounts of each. I think with red wine the taste improves with the price and that it is best to drink the best one can afford. Lynch Bages is awfully good but I personally can't afford it. I am not so sure about chilli sauce but I can afford most brands. So I had another AFIB. Its like a very bad hangover and you feel stupid but life goes on. It is hard to believe moderate wine drinking has much effect on AFIB for most of us since so many non-drinkers get it anyway.

Maybe a glass a day is good for the soul and for good conversation and that helps reduce AFIB

Alistair

If it's the polyphenols - resveratrol - then the same effect might be obtained from grape juice. Since alcohol makes me feel terrible (always has - even before afib) I am going to try organic Concord grape juice with meals. I hope this topic will go on for a few more days, so I can report back. I understand that resveratrol helps the grape plant fight off fungal and bacterial infections, and that levels vary greatly depending on the time of harvest and presence or absence of such pathogens.

Sadja

Here's the newsletter from Dr. Sears on polyphenols.

by Dr. Barry Sears

We often hear of the health benefits of extra virgin olive oil, but why? It is true that olive oil is rich in

monounsaturated fats, but so is lard. So something else may be the secret of olive oil's remarkable benefits. Unlike vegetable oils that are derived from seeds, olive oil is derived from a fruit. This means that there are unique anti-oxidants not found in vegetable oils, known as polyphenols. Polyphenols are a diverse group of more than 5,000 compounds that are found in fruits (like olives) and vegetables. They act as shuttle systems to move free radicals from lipid membranes to water-soluble anti-oxidants (such as Vitamin C) so that they can be ultimately removed from the body. But like a relay race, if one of the runners is missing, the race will not be won no matter how strong the other runners might be. This is role of polyphenols: They act as the intermediate relay runner to take free radicals from lipid-soluble anti-oxidants (such as Vitamin E) and pass them off to water-soluble antioxidants (such as Vitamin C). The unique aspect of the polyphenols in olive oil is that they are lipid-soluble (that's why they are found in oil), so they act as superb shuttle vehicles to make this free radical transfer process from membrane to water work at the highest possible efficiency. This is the real health benefit of olive oil. That's why olive oil is so effective in preventing the oxidation of LDL particles (a primary cause of heart disease development) and in providing protection of long-chain omega-3 fatty acids from oxidation in biological membranes.

It took more than 5,000 years to understand the mysteries of olive oil, but now the consumer can make choices based not only on taste, but also on the levels of these polyphenols in the olive oil. How can you tell? If the olive oil has a smooth, butter-like taste followed by a peppery taste in the back of the mouth, then you know it contains polyphenols. If you don't notice any peppery taste, then it doesn't contain any polyphenols, which means it has many of the health benefits of lard.

Richard

For those interested, here's some general info on sulphites in wine:

<http://www.allergyclinic.co.nz/guides/54.html>

Sulphites (E220 - E227) - Wine and beers cannot be made without the natural formation of sulphites. Further sulphites are also deliberately added to inhibit the growth of undesirable yeast species and to prevent secondary fermentation.

Sulphites are found naturally in grapes, as nature's way of preventing microbial growth. Wine makers have been adding sulphites to wine since the days of the ancient Greeks and Romans. They allow the wine to last longer and let it age and develop the complex flavours. Usually a no-sulphite-added wine could only last 18 months. Therefore might be suitable for sauvignon blanc and some chardonnays.

How free is sulphite-free? The ATF, the governing body for wineries, allows wineries to call a wine sulfite-free when the levels of sulfite are under 10 parts per million (ppm).

Do white or red wine have more sulphites? Red wines have less sulphite. Higher levels of sulphur dioxide are allowed in dry white wine and sweet white wines to prevent further fermentation of the higher levels of residual sugar.

Adrian v49

Here's another site for those trying to avoid sulphites

<http://www.rivendellwine.com/article07.html>

Finally, please note that wines labelled "Organic" may contain added sulfites. The only guarantee is to find a label that actually says the wine has "no added sulfites". Even then, you should check that the wine doesn't carry the warning label (which would at least mean that the level was <10ppm), or check a fact sheet for the wine to find the actual level. Most producers of "no added sulfites" wines are happy to provide this type of information.

Adrian v49

They will be in virtually all wines except Organic wines which are hard to find and are terrible if you do. I have heard that the lighter reds i.e. Italian Chiantis have less sulphites, but I am not sure of this.

Kerry

Hans,

The focus on this particular type of wine is misguided. The Carlo Rossi California burgundy is a generic table wine that is made from a variety of grapes. I am guessing that the type of grape varies greatly, as opposed to better California varietals which must by law, maintain consistency in grape content.

There is absolutely no correlation between California generic burgundy and the wines from the Burgundy region of France. Wines from this premier region are made principally from the Pinot Noir grape. Now if it turns out that Carlo Rossi uses the PN grape in its burgundy mix then there may be something to look into. Otherwise, it will be difficult to draw any conclusions.

My guess, for those who might want to see if they can tolerate alcohol, is that the lighter red wines i.e. French Burgundies, Italian Chianti's, perhaps Merlot are probably less problematic than the more powerful Cabernet Sauvignon, Italian Brunellos, Australian Shiraz and others.

As an aside, and I realize that this strays slightly from the topic, I picked up on a note in your book about the ability of the drug Ativan to reduce vagal tone. I have found that after exercising, alcohol can (by no means always) trigger AF. I have discovered that a very low dose of Ativan taken about an hour before dinner, completely prevents the onset of Afib due to digestion and / or alcohol. Obviously this is not something to do on a daily basis, but my doctor said that a small dose once or twice a week is O.K. Thanks for the tip.

Kerry

Kerry,

I agree with you that the Carlo Rossi wine is probably not the optimum. Actually, medical research concerning the benefits of polyphenol extracts from red wine has pretty well standardized on the use of Cabernet Sauvignon from Southern France. This apparently has the highest and most reproducible content of beneficial polyphenols.

Hans

It's interesting, though, as I have heard that red wine (as opposed to other alcoholic beverages) seems to be the more potent trigger for AF.

Kerry

I have read that European standards for wine additives are much higher than ours in the US, and that European wines, especially French wines, are much less likely to include sulfites.

Also, according to the Ontario wineries I visited, by law their wines cannot contain sulfites

VPS

My experience has been similar. I normally drink 4 to 8 ounces of red wine with my evening meal with no apparent AF consequences, but if I drink twice as much (binge drinking?) spread into the evening in a party situation, I will almost always begin an AF episode during the night and sometimes during the next day. Also, if I drink wine without food, either before dinner on an empty stomach, or a while after dinner, I will usually begin an AF episode during the night or sooner.

Over the past 3 years I have several times very reluctantly given up wine for a month or two to see if that would have a positive affect on the rather high frequency and duration of my AF episodes (14/mo and 20 hrs average over the past 2 years). The results were mixed. Once I went a week or so without an episode, the other times there wasn't a significant difference; and I've gone a week without an episode while I was still imbibing. So there didn't seem to be a correlation.

VPS

According to

<http://www.freywine.com/freywine/no-sulfites-added.html>

Under the new USDA National Organic Program, Organic wines must be made from organic grapes, and contain no additives, such as sulfites or tartaric acid.

VPS

Adrian and Hans,

Re: A-Fib following red wine

I have noticed that if I haven't had wine for some time (several weeks) I can have a small glass and escape A-Fib. If I have a small glass the second day, I may also escape A-Fib or I may not. If I have a small glass the third day I will have A-Fib either immediately or perhaps 12 - 24 hours later. For me it seems that it is the repeated consumption that leads to A-Fib. I have also noticed that the first mouthful has some effect on my heart whether I go into A-Fib or not. Seconds after swallowing I can feel a burning sensation in the area of the heart.

John S.

That's interesting John, Do you feel that the burning sensation is a warning of any sort or do you just drink high test wines :). Are you Vagal or Adrenergic? I have difficulty staying in NSR for two days so I'm not sure that I'm a good candidate for evaluating Red wine testing. Did I say sixteen cases of wine in my cellar? More like twenty and I plan to drink them all eventually. Maybe I'll start making the stuff again.

Don't worry be happy!

Adrian v49
