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Editorial

It is becoming increasingly obvious that not only are many people deficient in vitamin A (see February issue of IHN), but it may well be that even more lack vitamin D. Researchers at the University of Toronto recently discovered that 62% of an average group of healthy Canadians was deficient in vitamin D. They point out that the current Recommended Dietary Allowance (RDA) of 400 IU/day is totally inadequate for the maintenance of good health and recommend 4000 IU/day (100 micrograms/day) as a safe and desirable intake.

*They emphasize that supplements should contain vitamin D3 (cholecalciferol) and not vitamin D2 (ergocalciferol), which is toxic in large amounts. Ironically, vitamin D2, the synthetic vitamin D, is the version most often used in food fortification and some supplements in North America. **READ THE LABELS!** However, during the spring and summer months unprotected sun exposure in early morning or late afternoon is by far the best way of getting your vitamin D.*

Also in this issue we report that the herb agnus castus is very effective in reducing PMS symptoms, that a green tea extract is highly effective in protecting against sunburn and perhaps skin cancer, and that cayenne pepper (capsaicin) is an excellent remedy for itchy skin. Nevertheless, we need to always bear in mind that herbs potent enough to heal may also be potent enough to harm if used improperly. Swiss doctors report of a man damaging his liver by overdosing on kava and the US Food and Drug Administration cautions epileptics against using ginkgo biloba.

Enjoy our April issue and please tell your friends about our newsletter. They will thank you for it!

*Yours in health,
Hans Larsen*

April Highlights

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LETTERS TO THE EDITOR

I have been searching for information on prostate cancer and exercise. Do you have any relevant information?

AH, UK

Editor: *Please go to our homepage (www.yourhealthbase.com) and click on the box marked "prostate cancer prevention". You will find, among other valuable information, an abstract of a 1996 study done at Harvard that concludes that men with a high degree of cardiorespiratory fitness are 4 times less likely to develop prostate cancer than are less fit men.*

I noticed with great interest your reference to a connection between atrial fibrillation and amalgam dental fillings. Many dentists are using titanium implants. Do you consider these safe?

LL, USA

Editor: *I have not come across any reports to the effect that titanium implants are unsafe. There have been reports of people losing them because they failed to become attached to the bone. There is a trend though to use alloys of titanium (with cobalt or silver) because they are easier to fabricate. I have not seen any safety data on these newer alloys. The reason why mercury amalgams are such a problem is because mercury is a liquid at room temperature and evaporates from the amalgam fillings over time.*

My mother suffers from extreme weakness due to herpes viral encephalitis. Doctors have not come up with anything to help. Do you have any information on this that could help us?

KC, USA

Editor: *Enhancement of the immune system is key in fighting herpes infections. Vitamin C,*

bioflavonoids, and zinc are very important. Good results have been obtained by supplementing with the amino acid lysine (1 gram 3 times a day) while at the same time keeping the intake of arginine low. Arginine is found in chocolate, peanuts, seeds and almond and other nuts. Please check with your doctor before supplementing with lysine.

My wife has severe difficulties in walking because of pain in the legs when she walks more than 100 meters. I wonder if there are any supplements she could take that might help?

RB, France

Editor: *It sounds like your wife has intermittent claudication, i.e. atherosclerosis of the leg arteries. The best natural treatment for this condition is oral propionyl-L-carnitine (50 mg/day). Ginkgo biloba (120-160 mg of extract per day) may also be helpful, but clinical results are not conclusive. B vitamins, especially niacin and folic acid are very important, as are vitamins C and E. Hypoglycemia can also play a role in intermittent claudication. Avoidance of sugar and white flour products and frequent snacks can deal with this condition.*

ABSTRACTS

Macular degeneration linked to fat intake

BOSTON, MASSACHUSETTS. Age-related macular degeneration (AMD) is a leading cause of blindness for which treatment options are limited. Note: The macula is responsible for detailed, fine central vision and is located at the center of the retina. Researchers at the Harvard Medical School have just released a major study that points to a close association between the development of AMD and the consumption of certain fats. The study involved 42,743 female nurses enrolled in 1984 and 29,746 male health professionals enrolled in 1986. The nurses completed 130-item food frequency questionnaires in 1984, 1986 and 1990 and the men completed them in 1986 and 1990.

By 1996 a total of 567 study participants (351 women and 216 men) had developed AMD with visual loss of 20/30 or worse. The researchers

found that women with a high fat intake (fifth quintile) had a 63 per cent greater risk of AMD than women with a low intake (first quintile). For men, the increased risk was 36 per cent. The major contributors to the increased risk were high intake of linolenic acid and *trans*-fatty acids. In contrast, a high intake of docosahexaenoic acid (DHA), a main component of fish oils, was found to lower the risk of AMD by about 30 per cent. More than one serving per week of beef, pork or lamb as a main dish was associated with a 35 per cent increased risk of AMD when compared to an intake of less than three servings per month. Fish, especially canned tuna, was found to have a protective effect, with the participants who ate fish more than four times per week having a 35 per cent lower risk of AMD than people eating fish three times per month or less.

The researchers conclude that a high intake of linolenic acid may increase the risk of AMD. They caution though that their finding contradicts other studies that have shown that linolenic acid is protective against coronary heart disease.

Cho, Eunyoung, et al. Prospective study of dietary fat and the risk of age-related macular degeneration. American Journal of Clinical Nutrition, Vol. 73, February 2001, pp. 209-18

Is there a link between hepatitis and rheumatoid arthritis?

BUDAPEST, HUNGARY. Hungarian medical researchers have raised the intriguing possibility that there may be a link between the hepatitis B virus and rheumatoid arthritis. They cite as evidence the following:

- At least 20 patients have developed rheumatoid arthritis after being vaccinated with a recombinant hepatitis B surface vaccine (rHBsAg).
- The prevalence of markers for hepatitis B infection was found to be 20 times greater in rheumatoid arthritis patients than in a comparable healthy Danish population.
- In Hungary 5 per cent of a group of rheumatoid arthritis patients was found to have HBV markers as compared to 0.6 per cent in the general population.

- Polyarthrititis (a precursor to rheumatoid arthritis) is a well-established side effect of an acute hepatitis B infection.

The researchers believe that rheumatoid arthritis, in many cases, may be caused by a hepatitis B infection and therefore may be treatable with antiviral therapy. However, they do not discount the possibility that it may be the other way around, i.e. that rheumatoid arthritis patients are more susceptible to hepatitis B infections and may be more at risk due to their greater exposure to injections, blood sampling, etc.

Csepregi, Antal, et al. Rheumatoid arthritis and hepatitis B virus: evaluating the pathogenic link. Journal of Rheumatology, Vol. 28, March 2001, pp. 474-77 [49 references]

Aspirin versus warfarin

BRISTOL, UNITED KINGDOM. The past ten years have seen an intensive turf war between proponents of warfarin therapy (anticoagulation) and aspirin therapy (antiplatelet treatment) in the prevention of stroke in patients with non-rheumatic atrial fibrillation. The push for widespread use of warfarin (Coumadin) came after a trial that found a 68 per cent lower incidence of ischemic stroke in a group of atrial fibrillation patients who were receiving warfarin as compared to a group receiving a placebo. To put things in perspective though, the 68 per cent improvement was relative not absolute. So basically, while there were four strokes (per 100-patient years) in the placebo group there was 1.5 in the warfarin group. The incidence of major bleeding events in the warfarin group was substantially higher.

Medical researchers at the University of Bristol now report that warfarin therapy has very little, if any, advantage over the daily aspirin ritual in the

prevention of stroke in patients with non-rheumatic atrial fibrillation. The researchers carefully evaluated the results of five trials comparing aspirin and warfarin. They conclude that patients with non-rheumatic atrial fibrillation may not derive any greater protection against stroke and cardiovascular death with long-term anticoagulation than with aspirin therapy. They also point out that major bleeding events were 45 per cent more common in patients who received warfarin. Their final conclusion was "Given the uncertainty over the greater efficacy of anticoagulation, its undoubted hazards, and considerations of cost effectiveness we would strongly favour antiplatelet drugs (aspirin) in preference to long term anticoagulation (warfarin)".

Taylor, F.C., et al. Systematic review of long term anticoagulation or antiplatelet treatment in patients with non-rheumatic atrial fibrillation. British Medical Journal, Vol. 322, February 10, 2001, pp. 321-26

Herbal therapy for premenstrual syndrome

HUTTENBERG, GERMANY. Premenstrual syndrome (PMS) is characterized by irritability, aggression, tension, anxiety, and depression and may also involve fluid retention, breast tenderness, headaches, weight gain and a bloated feeling. PMS affects pre-menopausal women and usually lasts from one week before to a few days after the start of menstruation.

German researchers now report that a dry extract of agnus castus fruit (*Vitex agnus castus* L) also known as chaste berry is highly effective in reducing PMS symptoms. Their randomized, double-blind, placebo-controlled clinical trial involved 170 women (mean age of 36 years) who were assigned to receive one tablet daily of agnus castus extract or a matched placebo for three full menstrual cycles. They were asked to assess the extent of their symptoms for the previous three

cycles at baseline and after three cycles of supplementation.

The results were very convincing – 52 per cent of the women in the agnus castus group felt that they had improved more than 50 per cent as compared to only 24 per cent in the placebo group. The reductions in irritability, anger, mood changes, headaches, and breast fullness were particularly impressive. The self-assessment scores were corroborated through evaluation by the participating physicians. The researchers conclude that agnus castus is well tolerated and effective for the treatment of PMS.

Schellenberg, R., et al. Treatment for the premenstrual syndrome with agnus castus fruit extract: prospective, randomised, placebo controlled study. British Medical Journal, Vol. 322, January 20, 2001, pp. 134-37

Fish oils and the immune system

OXFORD, UNITED KINGDOM. Animal studies have shown that an increase in fat intake can decrease the number of natural killer (NK) cells found in the blood and spleen. NK cells are an integral part of the natural immune response to virus infections and certain types of cancer. Researchers at Oxford University now report that fish oil significantly decreases NK cell activity in healthy human subjects.

Their clinical trial involved 48 men and women aged 55 to 75 years. The participants were randomized to receive one of six supplements for 12 weeks. The supplements were all provided in the form of capsules, three of which were to be taken with each meal. The nine capsules (daily intake) contained either a total of 2 g alpha-linolenic acid, 770 mg gamma-linolenic acid (from evening primrose oil), 680 mg arachidonic acid, 720 mg docosahexaenoic acid (DHA), 720 mg eicosapentaenoic acid (EPA)+ 280 mg DHA (fish oil) or a placebo (an 80:20 mix of palm and sunflower oils). All the participants had blood samples taken four weeks before start of supplementation, immediately before start of supplementation, and then every four weeks during the trial as well as after a four-week

washout period. The researchers found no changes in killer cell activity except in the group taking fish oil. Here they observed an average decline of 20 per cent after 8 weeks and 48 per cent after 12 weeks. The decline was completely reversed after the washout period. The fact that no decline was observed with pure DHA strongly suggests that EPA was responsible. The researchers conclude that an excessive EPA intake could have adverse effects for people at risk of viral infections and some cancers.

Editor's Note: The British researchers' speculation about fish oils perhaps affecting the effectiveness of NK cells in killing cancer cells is at odds with the results of many other studies. There are at least a dozen studies that show a clear protective effect of fish or fish oil against breast, colon, and prostate cancer. NOTE: This study was partly funded by Unilever.

Thies, Frank, et al. Dietary supplementation with eicosapentaenoic acid, but not with other long-chain n-3 or n-6 polyunsaturated fatty acids, decreases natural killer cell activity in healthy subjects aged >55 years. American Journal of Clinical Nutrition, Vol. 73, March 2001, pp. 539-48 [54 references]

Fibromyalgia and the autonomic nervous system

BEER SHEVA, ISRAEL. Researchers at the Ben-Gurion University have discovered that fibromyalgia is intimately connected with a dysfunction of the autonomic nervous system. Their clinical study involved 19 men (aged 33 to 60 years) with fibromyalgia and 19 age-matched controls. The researchers obtained high-resolution electrocardiograms in supine and standing postures and measured heart rate and heart rate variability. The fibromyalgia patients had significantly higher heart rates than the controls both while lying down and standing and their heart rate variability (a measure of autonomic balance) was consistently lower than that of the controls. The researchers also noted a diminished or absent response by the sympathetic (adrenergic) nervous system when the fibromyalgia patients moved from the supine to a standing position. They speculate that the

over-activity of the autonomic system at rest could be related to the typical fibromyalgia symptoms of fatigue, sleep disturbances, tingling sensations ("pins and needles") and irritable bowel syndrome. They also noted that the fibromyalgia patients tended to be significantly more depressed and anxious than the controls. The researchers point out that an autonomic system dysfunction has also been implicated in panic disorder, anxiety, depression and posttraumatic stress disorder. They also note that women with fibromyalgia have an even more severe autonomic dysfunction - excessive adrenergic (sympathetic) and inadequate vagal (parasympathetic) response – than do men.

Cohen, Hagit, et al. Abnormal sympathovagal balance in men with fibromyalgia. Journal of Rheumatology, Vol. 28, March 2001, pp. 581-89 [60 references]

Support for an increased vitamin D intake

TORONTO, CANADA. The current RDA (Recommended Dietary Allowance) for vitamin D is 400 IU/day (10 micrograms/day). Researchers at the University of Toronto now provide convincing evidence that this RDA is far too low. They point out that a blood serum level of less than 40-50 nmol/L of 25(OH)D (the active metabolite of vitamin D) indicates deficiency and that a level of 75 to 100 nmol/L is required for optimum health.

The researchers carried out a clinical experiment involving 61 healthy men and women. The participants were assigned to receive either 1000 IU (25 micrograms) or 4000 IU (100 micrograms) of vitamin D-3 for a three-month period starting between January and February. At baseline (before supplementation) 62 per cent of these presumably healthy Canadians were found to be vitamin D deficient [25(OH)D concentration below 40 nmol/L] and 16 per cent were severely so [25(OH)D below 25 nmol/L].

The supplementation increased the average 25(OH)D level to 69 nmol/L in the 25 micrograms/day group and to 96 nmol/L in the

100 micrograms/day group. The 25-microgram dosage was sufficient to increase the 25(OH)D level to the desirable 75 nmol/L or higher in 35 per cent of the subjects. The 100-microgram dosage achieved this aim in 88 per cent of the subjects. There were no significant increases in serum calcium level and no adverse effects. The researchers conclude that 100 micrograms/day (4000 IU/day) of vitamin D-3 is a safe and desirable intake. They very specifically caution that their findings regarding vitamin D-3 (cholecalciferol) cannot be applied to the synthetic version of vitamin D-2 (ergocalciferol), the form most often used in North America. Vitamin D-2 is far more toxic than vitamin D-3 and produces unique metabolites not generated by vitamin D-3. The researchers are very "down" on vitamin D-2 and say, "It is an anachronism to regard vitamin D-2 as a vitamin."

Vieth, Reinhold, et al. Efficacy and safety of vitamin D intake exceeding the lowest observed adverse effect level. American Journal of Clinical Nutrition, Vol. 73, February 2001, pp. 288-94 [47 references]

Obesity rampant among British children

LIVERPOOL, UNITED KINGDOM. A team of researchers from the University of Liverpool

reports that the number of overweight children (3 to 4 years old) has increased by 60 per cent

during the period 1989 to 1998. During the same 10-year period the number of obese children increased by 70 per cent. The study involved a total of 36,000 infants and 29,000 children. Health authority visitors checked the weight, height and body mass index of the infants between the ages of 28 and 90 days and of children between the ages of 3 and 4 years. Measurements were made in 1989 and again in 1998. During the 10-year period the proportion of overweight children grew from 14.7 per cent to 23.6 per cent and the proportion of obese children from 5.4 per cent to 9.2 per cent. The increase was entirely attributable to weight gain; there was no significant change in average height. Infants showed a small, but statistically significant, increase in weight over the 10-year period.

Dr. William H. Dietz, a director at the Centers for Disease Control and Prevention in Atlanta (USA) comments on this disturbing trend. He points out that overweight children are at increased risk for

obesity, heart disease, and diabetes later in life and that 30 per cent of all new cases of type 2 diabetes, which was previously rare in children and adolescents, are now found in this age group. Dr. Dietz feels that the increased consumption of fast foods, pre-prepared meals, and soft drinks combined with a decrease in physical activity is to blame for the "obesity epidemic". He also makes this interesting observation, "In early childhood, the more parents encourage children to eat certain foods the less likely they are to do so. Thus, foods that have been forbidden may be over-consumed when children finally have access to them."

*Bundred, Peter, et al. Prevalence of overweight and obese children between 1989 and 1998: population based series of cross section studies. **British Medical Journal**, Vol. 322, February 10, 2001, pp. 326-28*

*Dietz, William H. The obesity epidemic in young children. **British Medical Journal**, Vol. 322, February 10, 2001, pp. 313-14 (editorial)*

Green tea extract protects against sunburn

CLEVELAND, OHIO. Animal experiments have shown that extracts from green tea are highly effective in protecting against the damaging effects of ultraviolet light. Researchers at the Case Western Reserve University now report that topically applied green tea extracts also are remarkably effective in protecting humans. Six volunteers were exposed to simulated solar radiation or pure UVA radiation 30 minutes after having had a solution of green tea extract applied to a 5 cm by 5 cm area on the back. The radiation duration was twice that previously established as being required to cause significant redness of the skin. The extent of redness (sunburn, erythema) was measured on protected and unprotected skin 24, 48 and 72 hours after the solar radiation exposure. Excellent protection was observed with a 2.5 per cent solution of extract (in alcohol and water) and complete protection against sunburn was evident with a 10 per cent solution. The number of sunburn cells created by the irradiation was reduced by 66 per cent in the extract-protected skin areas and DNA

damage (a precursor to skin cancer) was cut in half.

Immune system function is known to be negatively affected by exposure to sunlight. It is believed that this, at least in part, is due to the destruction of Langerhans cells in the skin. Green tea extracts were also found to be quite effective in preventing this effect. Solar radiation destroyed 85 per cent of pre-radiation cells in unprotected skin, but only 36 per cent in skin protected with green tea extract. It was also found to protect against damaging UVA radiation. The researchers point out that the extract acts in a manner quite different from that of sunscreens. They conclude that green tea extracts may prove to be a valuable new alternative for protection from UV radiation. NOTE: This study was partially funded by Estee Lauder, a cosmetic manufacturer.

*Elmets, Craig A., et al. Cutaneous photoprotection from ultraviolet injury by green tea polyphenols. **Journal of the American Academy of Dermatology**, Vol. 44, March 2001, pp. 425-32 [40 references]*

New treatment for irritable bowel syndrome

LOS ANGELES, CALIFORNIA. Irritable bowel syndrome (IBS) is the most common diagnosis in gastroenterology with a prevalence rate in the

general population of about 30 per cent. The symptoms of this disorder include bloating, abdominal pain, and diarrhea. Researchers at

the Cedars-Sinai Medical Center recently tested their hypothesis that IBS may be related to small intestinal bacterial overgrowth (SIBO). They tested 202 IBS patients for SIBO using the lactulose hydrogen breath test and found that 157 (78 per cent) of them indeed had an overgrowth. The 157 patients were given a 10-day course of antibiotics (neomycin, ciprofloxacin, flagyl or doxycycline) after which a random sample of 47 patients was recalled for testing. Twenty-five of these patients had achieved complete eradication of their SIBO and reported significant reductions

in their symptoms. Almost half of the 25 patients were deemed to be completely free of IBS. No difference was noted in the group where SIBO eradication had been unsuccessful. The researchers conclude that eradication of small intestinal bacterial overgrowth will eliminate IBS in 48 per cent of patients.

Pimentel, Mark, et al. Eradication of small intestinal bacterial overgrowth reduces symptoms of irritable bowel syndrome. American Journal of Gastroenterology, Vol. 95, December 2000, pp. 3503-06

Crohn's disease patients need folic acid

TEL-HASHOMER, ISRAEL. People with inflammatory bowel disease (Crohn's disease and ulcerative colitis) tend to be at greater risk for thromboembolic events (blood clots) such as stroke and peripheral venous thrombosis. Researchers at the Chaim Sheba Medical Center believe they may have found the reason for this. They studied 105 men and women with active Crohn's disease and compared their blood levels of homocysteine (a known risk factor for blood clots), folic acid and vitamin B12 to the levels found in 105 healthy controls. They found that homocysteine levels were significantly higher in patients with mild to moderately active Crohn's

disease and that folic acid and vitamin B12 levels were significantly lower. The average level of folic acid was 5.9 pg/mL (normal range is 5 to 17 pg/mL). The researchers point out that it is well established that increased folate levels correspond to lower homocysteine levels. They conclude that patients with Crohn's disease may benefit from supplementing with folic acid.

Chowers, Yehuda, et al. Increased levels of homocysteine in patients with Crohn's disease are related to folate levels. American Journal of Gastroenterology, Vol. 95, December 2000, pp. 3498-3502

Chronic itchy skin disease yields to hot pepper

MUENSTER, GERMANY. Prurigo nodularis is a disease characterized by chronic itchy skin. It is very difficult to treat and most current treatment methods have serious side effects. Medical researchers at the University of Muenster now report excellent results using topical applications of capsaicin-based ointments. Capsaicin is an extract of cayenne pepper. The clinical trial involved 9 men and 24 women (aged between 23 and 85 years) who had suffered from severe prurigo nodularis for anywhere from 4 weeks to 42 years.

The patients applied an ointment containing between 0.05 and 0.1 per cent capsaicin four to six times daily for anywhere from 2 weeks to 10 months. All were followed up for an additional six months. All the patients obtained complete relief

from itching within 12 days and 25 out of the 33 did so within 6 days. Once the itching and scratching were removed the skin started healing. Discontinuation of the capsaicin treatment brought renewed itching in some of the patients. This, according to the researchers, is to be expected until the underlying cause of the pruritus (iron deficiency, liver or thyroid dysfunction, gallbladder problems, diabetes, kidney disorders or cancer) is resolved. The researchers conclude that topical treatment of prurigo nodularis with capsaicin is effective and safe and results in termination of itching and clearing of skin lesions.

Stander, Sonja, et al. Treatment of prurigo nodularis with topical capsaicin. Journal of the American Academy of Dermatology, Vol. 44, March 2001, pp. 471-78 [44 references]

NEWSBRIEFS

Brainwork requires a good breakfast. The brain uses at least 20 per cent of the body's energy supply – almost exclusively in the form of glucose. Several studies have found that people with higher blood levels of glucose perform better at brainwork (cognitive tasks) than do people with lower levels. There is increasing evidence that eating breakfast is associated with better memory and better mood later in the morning – particularly if the breakfast contains complex carbohydrates. A mid-morning snack can also be helpful. So if you need to accomplish an important task in the morning remember to have a good breakfast!
Nutrition Reviews, January 2001, pp. S20-S21

Cold feet facilitate urination. A group of American doctors practicing in a clinic noticed that some patients had problems providing a urine sample. They found that if the patients placed the soles of their feet on something cold (such as a cold bathroom floor) they were able to initiate a urinary stream. The doctors note that the bladder and kidney meridians both pass through the undersurface (balls) of the feet and ascribe the phenomenon to activation of these meridians by the cold. They also report that some acupuncturists use stimulation of points on top of the head to induce an opposite effect, that is, treatment of incontinence.
Western Journal of Medicine, February 2001, p. 98

Kava should be treated with care. Medical doctors at the Geneva University Hospital report the case of a 50-year-old man who developed jaundice and liver damage after taking excessive amounts of kava (*Piper methysticum*) for a two-month period. He had taken 3 to 4 capsules of

Kava extracts daily (providing 210-280 mg lactones) – the maximum recommended dosage is 3 capsules a day. He took no pharmaceutical drugs and did not consume alcohol. The doctors point out that heavy consumption of kava has been linked to increased concentrations of gamma-glutamyltransferase, a potential liver toxin.

British Medical Journal, January 20, 2001, p. 139

Ginkgo biloba associated with seizures. The US Food and Drug Administration has released details of seven cases of seizures associated with the intake of ginkgo biloba products. Preparations containing ginkgo seeds have previously been associated with seizures, but this is the first report of seizures possibly associated with ginkgo extracts. The report does point out though that the ginkgo products involved in the cases could have been contaminated with ginkgo seeds. Until this point is settled it would seem prudent for epileptics to avoid ginkgo products.
Annals of Internal Medicine, February 20, 2001, p. 344

Legal marijuana in Canada. Prairie Plants Systems Inc. of Saskatoon has received a contract from Health Canada to grow one ton of medical grade marijuana. The marijuana will be rolled into more than one million cigarettes for use in research into the drug's risks and benefits. The pot-growing operation will take place 360 meters underground in an unused mine with only one entrance. The underground greenhouse, which is computer-controlled, has proven to accelerate plant growth.
Canadian Medical Association Journal, February 20, 2001, p. 535

THE AFIB REPORT

We have completed phases I and II of the LAF survey. Phase I involved getting the replies back on the questionnaire. We have now received 50 completed questionnaires – thanks for your effort!

Phase II dealt with the rather substantial task of inputting all the collected information into our computer so that we could analyze it.

Phase III, which we begin today, is aimed at reviewing and analyzing the results and getting them back to you.

Phase IV, by far the most complex one, involves analyzing the data using a sophisticated neural network program that will enable us to pick up correlations. For example, do afibbers who take antiarrhythmics have

fewer or shorter episodes than afibbers who do not take anything? Do episodes get more frequent with age or the number of years you have had LAF, etc.

So here are the first results of the survey. Stay tuned for more!

Survey Results – Part I

A total of 50 afibbers completed the survey. Of these 40 were men over the age of 30 years, 3 were men younger than 30 years, and 7 were women. The average age of the whole group was 54 years (range 18-82 years). The average age of the older men was 54 years with 83% of this group being between the ages of 45 and 65 years. The average age of the younger men was 25 years, and the average age of the women was 64 years. Overall 62% of all respondents were between the ages of 45 and 65 years.

The members of our afib group tended to be tall with an average height of 6 feet (183 cm) for the older men, 6 ft. 2 in. (187 cm) for the younger men, and 5 ft. 6 in. (168 cm) for the women. Weight tended to be within normal ranges with an average weight among men of 185 lbs (84 kg) and among women of 150 lbs (69 kg). The average weight for women decreased to 138 lbs (63 kg) when one overweight woman was excluded.

Body mass index (BMI) averaged out at 25 (25 for older men and 24 for both women and younger men). However, there were still a significant number of overweight men in the over 40-age group. Fifty per cent had a body mass index over 25 and 3 or 7.5% had a BMI over 30 thus being classified as obese. In comparison, a recent survey of over 17,000 US army personnel concluded that 54% of these young (75% under the age of 35) supposedly fit people were overweight and 6.2% were obese(1).

The questionnaire respondents are a highly educated group and include 3 MDs, 3 PhDs, 12 people with master's degrees, 13 with bachelor's degrees and 13 with a college degree or at least some college education. In other words, 88% has at least a college education.

The largest percentage (28%) of respondents is retired. This group is closely followed by engineers/scientists at 24%, people involved in business at 22%, lawyers at 8% and MDs at 4%. Perhaps the most interesting conclusion is that 98% of all respondents are, or before retirement were, involved in brainwork.

Interesting observations, but not really conclusive. These demographic data may characterize a group prone to afib, but then again, they may also characterize a group with ready access to the Internet who is motivated to find a solution to their health problems.

Question 9 (dominant personality) is an interesting one. It is obvious that a fair amount of soul-searching took place before answering this one – and even so, the spouse's opinion often carried the day! About 74% of all respondents described themselves as aggressive (tense, up-tight) or ambitious (competitive, tenacious). About 28% (33% among the men over 40) described themselves as being easily upset (sensitive) and 32% as being laid-back (easy-going, calm). Another 14% saw themselves as workaholics (driven, hard working) and 12% were energetic (enthusiastic, restless). Twelve per cent felt one of their main characteristics was that they were friendly, caring, people persons.

So it is certainly not obvious that afibbers are characterized by one particular personality trait. While 74% say they are aggressive or ambitious, 60% are laid-back and easily upset. Please note that many respondents listed more than one trait so the percentages do not add up to 100. Assigning respondents to personality types indicate that 41% are type A (aggressive, ambitious), 22% are type B (calm, laid-back) with the remaining 37% being a mixture of the two types.

Question 10 concerned smoking. Over 50% (54%) of all respondents had never smoked; 34% were former smokers and 12% were occasional smokers at this time. So LAF cannot be blamed on the weed!

Most respondents, 74% to be exact, had received a diagnosis of paroxysmal (intermittent) lone atrial fibrillation. Ten per cent had chronic LAF and the remaining 16% had been diagnosed with LAF, but had some additional risk factors, most commonly high blood pressure.

The average number of years that respondents had suffered from LAF was 8. However, the range was wide. Among older men the range was 1 to 40 years, among younger men 1 to 14 years, and among women 2 to 64 years. Leaving out one woman who had had LAF from childhood (64 years) the range for women changes to 2 to 13 years and the average to 5 years. I guess this data shows that one can live a long time with LAF and, unless we come up with a viable solution, we just may have to!

In the next report we will continue with question 14 – “What triggered the first episode?”

Pharmacological Treatment of LAF

The treatment of atrial fibrillation has two goals – the prevention and the termination of episodes. As pointed out previously (The Afib Report – March 2001) there are no drugs specifically developed for the prevention of LAF. All antiarrhythmic drugs available today were developed for the treatment of arrhythmias arising from cardiovascular disease, heart episodes, and heart surgery. The second fact to remember is that ALL arrhythmias connected with heart disease are adrenergic in nature. As a consequence, there is very little research on the use of antiarrhythmics in the management of vagally mediated LAF.

Prevention of Vagal LAF

The fact that most antiarrhythmics are specifically designed to deal with an excessive adrenergic reaction makes their use somewhat problematical in the prevention of vagally mediated LAF. For example, beta-blockers (atenolol, propranolol, metoprolol), which work directly to dampen adrenergic response, are definitely contraindicated for vagal origin LAF(2,3,4). The same goes for digoxin (Lanoxin, digitalis), which actually enhances vagal tone(5). Numerous medical experts have warned against the use of digoxin for vagal LAF and indeed more recently against the use of digoxin for any kind of LAF(2-8). Digoxin tends to increase the number of episodes and causes the condition to become chronic.

Some antiarrhythmics also have beta-blocking properties. Among them, propafenone (Rythmol), amiodarone (Cordarone) and sotalol (Sotacor). So where does this leave us? The optimum would clearly be to use a drug that reduced vagal activity and did not increase adrenergic activity. Among such drugs are quinidine (BiQuin), disopyramide (Rythmodan), procainamide, and flecainide (Tambocor). Quinidine, disopyramide and procainamide all have quite serious side effects and do not seem to be used much for LAF. This leaves flecainide. Is flecainide a good choice for preventing LAF of vagal origin?

Flecainide is highly effective in terminating a LAF episode (of any origin), but this does not mean that it also is effective in preventing episodes. It and many other antiarrhythmics are most effective when the heart is beating fast, that is, when the ion channels in the heart muscle cells are opening and closing rapidly. So it stands to reason that these drugs may not be that effective until the heart actually is beating faster, i.e. is in fibrillation.

Some very preliminary observations from the LAF survey bear this out. I compared a group of vagal afibbers with no other health problems who were not taking antiarrhythmics with a similar group who took flecainide. The groups were small (7 and 6 respondents respectively) and I have not yet corrected for confounding variables. Nevertheless, there was a clear indication that afibbers who do not take preventive drugs have fewer, but significantly longer episodes than do afibbers taking flecainide. In other words, it seems that flecainide may not prevent the initiation of an episode, but does indeed significantly shorten it.

So, if no flecainide means fewer episodes and taking flecainide means shorter episodes, the optimum approach may well be to just take the flecainide when you have an episode. This approach would eliminate the long-term side effects of taking the drug continuously and appears to be safe provided you have no underlying heart problems.

Conversion of Vagal LAF

Once a fibrillation episode has taken hold it ceases to be an autonomic nervous system problem and becomes a heart problem. More specifically, it becomes a problem of an excessive influx of sodium ions and, to a lesser extent, calcium ions into individual heart muscle cells. This, coupled with the suppression of a compensating backflow of potassium and magnesium, is what sets up the rapid, erratic heartbeat unrelieved by periods of rest. The nervous system is essentially shut out of the loop at this stage and maneuvers and drugs or other potions that may help to prevent or abort a LAF episode are now of little use.

Conversion to sinus rhythm can be accomplished in two ways – through a shock or through the action of specific drugs. In a clinical setting the shock is delivered through an electrical current applied to the chest area (cardioversion). Cardioversion is useful in some types of arrhythmia, but LAF unfortunately is not one of them. While it may work in some cases its effect in the case of LAF seems to be relatively short-lived. Static electricity shocks, driving into a pothole or sneezing violently have also been known to stop episodes.

The most effective drugs for conversion to normal sinus rhythm are dofetilide and flecainide. Dofetilide (Tikosyn) is still relatively new and should only be applied in a hospital setting due to the need for very precise dosing and monitoring for potential side effects. Flecainide can certainly also have serious side effects, but considerably more experience in its use is available. Clinical trials have shown that flecainide (2 mg/kg body weight) converts 70-80% of all atrial fibrillation episodes within 8 hours(9,10).

A recent clinical trial found that intravenous flecainide acted quicker than oral flecainide, but at 2 hours and 8 hours after treatment there was no difference in the percentage of patients converted by the two approaches(10). There is some evidence that it may be important to take converting drugs as quickly as possible after an episode has started. One recent trial of propafenone found that application 24 hours after an episode had started had no beneficial effect at all(11).

A team of German and Italian researchers found that oral doses of approximately 200 mg (3 mg/kg) of flecainide can be safely and effectively used at home to stop episodes of paroxysmal supraventricular tachycardia (a condition somewhat similar to LAF). They observed an 80% success rate within 2 hours, but emphasize that the flecainide tablet should be taken in crushed form within 5 minutes of the start of the episode(12).

So the bottom line is, if you have vagally mediated LAF and are now taking flecainide on a continuous basis, ask your doctor if you could try taking it just when you have an episode. And don't forget to let us all know how it goes!

Of course, if you are not taking any drugs, but are getting to the point where you feel you need something, the best thing to try may be flecainide when you have an episode. Again, be warned though, flecainide is a dangerous drug and is specifically contraindicated for chronic LAF. The first time you try it should be in the hospital, emergency clinic or in your cardiologist's office.

Stay tuned! In our next report we will discuss alternative treatments for vagally mediated LAF.

The Glucose Connection

In an earlier LAF survey report we reported that not one of the 45 respondents who had returned their questionnaire has diabetes (high blood sugar). Now with 50 responses in hand we can state that this is still the case. On the other hand, 22% of all respondents have hypoglycemia (low blood sugar) and an additional 24% report definite symptoms of hypoglycemia. Is this unusual and is it perhaps a clue? Maybe!

It is certainly well established that hypoglycemia can cause palpitations and LAF. I have a hunch, and that's all it is at this time, that many afibbers (LAF in particular) may have either hypoglycemia or a blunted glucose response, i.e. their blood glucose levels are generally low and do not rise very much after eating.

Clinical trials carried out at the University of Illinois during the late 40s and early 50s established the existence of the so-called "flat" glucose tolerance curve in patients suffering from fatigue. These patients had slightly lower than normal fasting glucose levels, but the key difference was that their blood glucose level rose by an average of only 28% one-half hour after ingesting sugar. In contrast, the glucose level of the controls rose by about 73%. Also, after one hour the glucose levels of the controls were still 32% higher than fasting levels while the fatigue patients' levels were only 4% higher. The researchers concluded that flat curves are associated with excessive vagal (parasympathetic) stimulation(13). A more recent study carried out at the University of Montreal showed that a majority (83%) of patients with suspected postprandial hypoglycemia had average glucose levels of 4.3 mmol/liter (76 mg/dL) at the time of their symptoms(14).

So what does this mean? It means that a flat glucose curve is associated with an overactive vagal system and that symptoms of postprandial hypoglycemia can appear at much higher glucose levels than previously thought – and furthermore, that the level at which symptoms occur is highly individual.

Assuming then, as the survey shows, that most afibbers use their brain a lot coupled with the fact that the brain requires at least 20% of the body's energy supply (in the form of glucose), it is conceivable that afibbers could have a problem with low glucose levels or a flat glucose response curve. If the brain runs short of glucose it causes the release of epinephrine and norepinephrine in order to send a message to the liver to release more glucose. If these norepinephrine releases become more frequent than normal (because of generally low blood glucose levels and the constant need to keep the brain supplied with glucose) then it is perhaps possible that an autonomic system dysfunction could develop over the long run involving both the adrenergic and vagal branches. Could this eventually lead to LAF? Maybe!

So far, I have received just 2 sets of glucose levels from afibbers. Fasting glucose levels of 4.5 mmol/L (80 mg/dL) and 4.8 mmol/L (86 mg/dL) respectively, a 71% and 33% increase half an hour after breakfast and a remaining 62% and 27% increase after one hour respectively. So one result is fairly normal, the other indicates a flat curve.

We obviously need more results to check out the glucose angle so if you have your fasting glucose level and a level half an hour and an hour after breakfast please let me know.

This whole idea is clearly just a hypothesis, but if there is something to it would mean that we could perhaps move LAF, at least partially, out of the realm of heart problems and into endocrine or neurological disorders. The solutions might then be a lot simpler and safer!

AFIB News

The heart remembers. Dr. Michael Rosen, MD of Columbia University is convinced that the heart has a memory. He has studied ECGs (electrocardiograms) of both normal beating hearts and hearts in arrhythmia. He observed that the "T" wave on the ECGs is changed markedly in arrhythmia and that the change is evident as much as 28 days after converting to normal sinus rhythm. T waves are a measure of the balance between inward and outward ion currents in ventricular heart cells. Dr. Rosen's findings could explain why many afibbers have great difficulty in reaching the magic number of 30 days free of fibrillation and also why it seems easier to stay in sinus rhythm once one has been episode-free for a month or more.
The Lancet, February 10, 2001, pp. 468-71

Vitamin C affects the heart directly. Researchers at the Boston University Medical Center have found that infusion of vitamin C increases the action of dobutamide (a drug used to increase the heart rate in congestive heart failure patients). This could mean that antioxidants such as vitamin C directly affect the activity of the adrenergic (sympathetic) nervous system – probably increasing adrenergic activity. Other research (animal) has shown that the antioxidant n-acetylcysteine (NAC) definitely increases sympathetic activity.
Circulation, Vol. 103, February 13, 2001, pp. 782-83, 826-30

Amiodarone should be taken with meals. Amiodarone (Cordarone) is a class III antiarrhythmic drug used in the treatment of ventricular tachycardia and fibrillation. Due to its serious side effects it is not generally recommended for LAF patients. Researchers at the Philadelphia School of Pharmacy now report that amiodarone is much better absorbed if taken with meals. Their clinical trial involving 30 healthy male subjects found that it was absorbed 40% quicker when taken with a meal (maximum concentration reached in 4.5 hours versus 7.1 hours when taken without food). They also observed that the total absorption after ingestion of a 600 mg dose was 2.4 times higher when taken with a meal. The researchers recommend that amiodarone be taken consistently with meals.

American Journal of Cardiology, Vol. 87, February 15, 2001, pp. 432-35

Tarantulas to the rescue. Researchers at Georgetown University have isolated a polypeptide GsMtx-4 from tarantula venom. Experiments have shown that GsMtx-4 completely eliminates fibrillation in rabbit hearts. Says the researchers, "We believe that GsMtx-4 could be the first of a new class of antiarrhythmic agents to be directed against the causes rather than the symptoms of fibrillation."

Nature, January 4, 2001, p. 35

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