

WINTER 2014/2015 NEWSLETTER

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Benefits of Exercise on Blood Pressure and Prevention of Atrial Fibrillation



Junxiu Liu, MD, of the University of South Carolina published an article in the September 15, 2014 edition of the *Journal of the American College of Cardiology* showing that exercise and improving fitness levels prevented an age related expected rise in patient systolic blood pressure. His study followed 14,000 men for 35 years. Sedentary men started to see their systolic blood pressure rise at about age 46. Men who were fit delayed this rise in blood pressure until they were 54 years of age. The effect on the diastolic blood pressure was even more pronounced when looking at fitness levels. Men with low fitness ratings elevated their diastolic blood pressure to above 80 by age 42. Those men with a high fitness level did not see the rise in diastolic BP until they were beyond age 90. His research suggests that “highly fit men are likely to reach abnormal BP readings a decade later or more than sedentary men”.

In an unrelated study published in the same issue, researchers in Texas found that regular aerobic exercise prevented the heart’s left ventricle or main pumping chamber from developing stiffness. The stiffness of the ventricle contributes to many common cardiovascular conditions affecting older patients. They found that low levels of casual lifelong exercise, such as four sessions of 30 minutes per week throughout adulthood, was sufficient to keep the ventricle from stiffening.

Marco Perez, MD, of Stanford University looked at exercise levels in women and the development of the heart arrhythmia atrial fibrillation. He found that sedentary women were much more likely to develop this pathologic arrhythmia than women who exercised regularly. Obesity and being overweight is a risk factor that increases your chances of atrial fibrillation. Regular exercise by obese women reduced this risk by about 9%.

The message is very clear. Being active improves your blood pressure control and reduces your risk of developing many cardiovascular related problems. My advice is find some activity you enjoy doing and make sure you try it several times per week to gain the natural benefits the exercise provides.

Lipids, Statins, Disease and Cancer



We have been educated about the relationship of elevated cholesterol and LDL subtype and its association with premature coronary artery disease, strokes and widespread atherosclerosis. Millions of well-meaning individuals are attentive to their diets to control their cholesterol and take medications, known as statins, to reduce their total cholesterol and LDL cholesterol.

While we think about lowering our cholesterol to prevent heart attacks and strokes, along comes a study by George Thanassoulis, MD, of McGill University Health Center and Research Institute in Montreal published in the online version of the *Journal of the American Medical Association* which implicates high LDL cholesterol and the development of the clinically significant valvular heart disease, aortic stenosis. The study was presented at the Canadian Cardiovascular Congress in Vancouver and used data from studies that evaluated almost 35,000 patients. The summary was presented in the University of Pennsylvania Medical School's online review journal known as *Medpage* in their Oct. 27, 2014 issue. "Low-density lipoprotein cholesterol is an important risk factor for aortic valve disease," they concluded. Unfortunately once you have the aortic valve disease, lowering your cholesterol cannot reverse the process.

In the online version of the journal *Clinical Endocrinology*, a researcher in Taiwan noted that the regular usage of statins to control cholesterol increased the risk of thyroid cancer in women but not men. Over the last few years there have been many theoretical articles discussing the possibility that statins can reduce the risk of cancer specifically colorectal cancer, breast and prostate cancer. This is the first study that notes a relationship between statins and an increased risk of a cancer.

Shiu-Dong Chung, MD of Far Eastern Memorial Hospital in New Taipei City and associates looked at 500 patients, age 40 years and older, treated in the Taiwan National Health Insurance Program who had been diagnosed with a cancer of the thyroid gland between 2008 and 2011 and comparing them with 2,500 control patients. The patients average age was 56 and more than two thirds were women. The study revealed a statistically significant increased risk of thyroid cancer in regular users of statins in women but not in men. They believe hormonal differences are involved in the process.

The study clearly alerts us to pay closer attention to the thyroid in women requiring statin use to lower cholesterol for cardiovascular and cerebrovascular disease. It does not conclude that women shouldn't take statins. Instead, a heightened sense of awareness and closer examinations are appropriate.

New Diabetes Drugs Lower Blood Sugar, Reduce Body Weight & Lower Blood Pressure



When having discussions with my patients about lifestyle improvement including regular exercise, eating a healthy well prepared and balanced diet, and losing weight we joke about developing the Super Pill. Taken at bedtime it would make sure that while asleep you rested well, got your heart rate up to your age appropriate target heart rate for 20 minutes, made you emotionally feel like you had just had a loving intimate sexual encounter with your

partner after polishing off the alcoholic beverage and meal of your heart's desire. This would all come with no excess calories, no risk of catching a sexually transmitted disease and no cardiovascular risk factors. The year 2014 didn't see the development of this fictional pill but did see the release of a class of diabetes drugs that lower blood sugar, promote weight loss and lower blood pressure at the same time. These drugs are known as SGLT2 inhibitors short for 'sodium glucose co-transporter 2 inhibitors. In January, the FDA approved "Farxiga", or dapagliflozin, and later approved "Jardiance", or empagliflozin.

These drugs work using the knowledge that each day the kidney filters up to 180 grams of glucose from the blood stream which is then almost entirely reabsorbed back into the blood stream and put back into the general blood

circulation. There is a transporter protein called SGLT2 that carries the glucose during this process. The new drugs inhibit this transport protein. The new medications are derived from natural substances found in the bark of certain fruit trees. They are successful in blocking 30 - 50 % of the filtered glucose load or about 50 - 80 grams of the 180 grams of glucose filtered per day. They are unable to block a larger proportion of the filtered glucose because there is another transport protein named SGLT1 which then begins to work overtime and prevents a larger inhibition of glucose reabsorption. Experimental work is now ongoing to develop SGLT1 blockers to increase the positive effect. When compared to the gold standard diabetic drug metformin, these new agents offered a greater reduction in HgbA1C and greater weight loss (about 3lbs) and drop in blood pressure than metformin. The drugs are not being used alone as single therapy (monotherapy) or in combination with other diabetic medications to help patients achieve their glucose control goals.

Side effects have been minimal including the potential for hypoglycemia (low blood sugar), urinary frequency and urinary and genital infections. It is unclear as of yet whether the reductions in blood pressure, body weight and blood sugar will result in less risk of developing cardiovascular diseases. These are new medicines being released on the American market primarily by endocrinologists. Like all new products, we will be limiting our prescribing of these drugs until there is a longer proven track record of effectiveness and safety here in the United States market. The development and release of these products is clearly a positive step in the treatment of Type II Diabetes Mellitus.

Cystisine, A New Product in the Fight to Quit Smoking



Cigarette smoking is still one of the leading causes of heart, lung and vascular disease and reduction in productive and healthy life spans. We have a limited number of treatment options for those motivated to try to stop. Most of these options are extremely expensive and may be beyond the means of lower income individuals to try. Nicotine patches are helpful but cost up to \$700 for an 8-10 week course of treatment. The antidepressant varenicline (Chantix) works but a 12-week supply can cost in excess of \$500. Researchers are always looking for a less expensive but effective method of smoking cessation.

Natalie Walker, PhD, of the University of Auckland, New Zealand and associates tried to use a drug called cystisine for 25 days to assist in smoking cessation. They compared their results to those of 8 weeks of nicotine replacement therapy and found it to be highly effective with a one month abstinence rate of 40% compared with 31% among the nicotine patch users who also had access to a phone support line. The difference is that cystisine sells for under \$30 for a 25 day course.

Cystisine is a partial blocker that binds to the nicotinic acetylcholine receptor sites much like Chantix does. Despite the low cost the side effects were no worse than with Chantix and included none of the psychiatric risks inherent with Chantix use. The drug is not currently available in the US market but is used extensively overseas. Its attractiveness is not necessarily because it is more effective than any other existing treatment but the fact that it is more affordable is very important. A drug like cystisine added to the use of e-cigarettes could be a less expensive but equally effective form of therapy for smoking cessation than currently available.

Irritable Bowel Syndrome Responds To Rifaximin



In a study presented at the annual meeting of The American College of Gastroenterology, Anthony Lembo, MD, of the Harvard Medical School and Beth Israel Deaconess Medical Center, presented data that showed that the non-absorbable antibiotic Rifaximin helps control cramping and diarrhea related to Irritable Bowel Syndrome (IBS). Irritable bowel cripples individuals by causing abdominal cramping and multiple loose or watery stools per day. These patients have been screened by colonoscopy and imaging studies for more serious diseases such as Crohn's Disease and ulcerative

colitis with testing ruling these entities out. They are left with severe symptoms but no objective findings on available tests.

The study was comprised of 2,579 patients who received either Rifaximin or placebo three times per week. The decision to try an antibiotic was based on the theory that some IBS patients have excessive bacteria in the gut causing the problem. The treatment was successful in a significant number of participants compared to placebo based on a reduction of pain and frequency and number of stools. The patients were then observed for four weeks during which time some patients relapsed. If these patients were treated for another two weeks they showed significant improvement.

Irritable bowel incapacitates millions of individuals. While this data is extremely preliminary, it gives us hope of another treatment regimen, becoming available soon, that is effective and safe.

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