Aspirin

Wonder Drug or *Wondering* About the Drug

By Narendra Singh, MD

Aspirin is one of the oldest drugs in medicine and originates from the willow tree. Reengineered by Bayer pharmaceuticals in 1897 it has been used for many purposes. Aspirin has important anti-inflammatory properties and is used in many arthritic conditions. It also works as a pain reliever and is used for the treatment of headaches and other discomforts. Aspirin's greatest use, however,has been as a blood thinner for cardiac patients.

Recently, concerns have been raised as to whether the regular use of aspirin has any preventive value. Previous studies had suggested that it could reduce your risk of a heart attack or stroke and therefore millions of Americans have been routinely taking a baby aspirin daily.

This year a number of large clinical trials have forced us to revisit whether or not aspirin is of value. The first trial, ARRIVE. looked at individuals who had risk factors such as hypertension, high cholesterol, smoking, or a family history of heart disease but no personal history of heart disease Low dose aspirin showed very little clinical benefit in terms of reducing cardiovascular events and no benefit in terms of reducing cancer events. It was associated with a two-fold increase in gastrointestinal bleeding.

The second study, ASCEND, specifically focused on diabetic patients who did not have coronary artery disease; the study showed that while aspirin had some mild benefit in terms of reducing cardiac events, this was offset by the amount of bleeding.

The ASPREE study looked at healthy elderly individuals who did not have dementia or coronary artery disease; the results showed no benefit to the use of aspirin and in fact a trend towards increased harm. Based on these trials, the use of aspirin for **primary** prevention should not be routinely recommended.

However, before throwing away the aspirin bottle it is important to understand that in **secondary** prevention, aspirin is very useful. Anybody who has had a heart attack or stroke or has peripheral vascular disease benefits greatly from the use of aspirin either alone or in combination with a second blood thinner. In the past, the most common combination was to use aspirin in conjunction with a second antiplatelet agent such as clopidogrel (Plavix), prasugrel (Effient) or ticagrelor (Brilinta). If you have a stent, this is still the favored combination for the first year.

A recent study, COMPASS, showed that in patients with a history of coronary artery disease or peripheral vascular disease the use of aspirin in combination with low dose rivaroxaban (Xarelto) was markedly better than aspirin alone. For the first time, a combination of blood thinners has been able to show a survival benefit. In addition to reducing heart attacks, strokes, and lower limb amputations, this combination also reduces the chances of dying by 22% in less than 2 years. Combination therapy, however, does increase the risk of bleeding and therefore these medications should only be taken upon the advice of your physician.

While aspirin may have lost some of its luster, it is still a remarkable compound and, if used appropriately, can be an important component of improving your heart health. As with any health-related decision, it is important that you consult with your physician prior to starting any regimen. ■

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Structural Heart Disease: *Sparing the Scalpel*

By Narendra Singh, MD

For the world of cardiology, September 16, 1977 is historic. Dr. Andreas Gruentzig performed the first human balloon angioplasty in Zurich, Switzerland. In 1980, Dr. Gruentzig was recruited to Emory University and trained a generation of cardiologists from around the world known as "interventionalists". Sadly, in October of 1985, Dr Gruentzig and his wife died in a plane he was piloting when it crashed in Monroe County. His pioneering legacy, however, is phenomenal. Millions of patients around the world have had successful balloon and stenting procedures, saving them the need for open heart bypass surgery. With the addition of lasers, rotobladers, atherectomy tools as well as great advancements in catheter delivery systems and drug therapy, there are very few blockages that require a cardiovascular surgeon to get involved in. Patients who have left main disease or are diabetic with multiple blockages still do better with surgery. It is important to understand that neither surgery or PCI (percutaneous coronary intervention) are a cure. One uses grafts to go around tight blockages while the other pushes the plaque to the side. Only a combination of diet, exercise and evidence-based medications will actually reverse the disease process.

In the past, individuals born with a hole in the heart required open heart surgery to close the gap. Today, a clam shell-like device (Amplatzer) can be delivered through catheters in the groin and close the hole without the need to cut open the chest.

The mitral valve can get damaged overtime. For mitral valves that become tight a balloon procedure can open up the valve (valvuloplasty). If the mitral valve starts to leak (backflow into the upper chamber), we can deliver a clip (MITRA clip) that tightens up the valve and reduces the amount of leakage. Other crimping devices are also being tested to simplify this procedure.

One of the most serious cardiac conditions is called aortic stenosis. This is calcification or scarring of the aortic valve that connects the main pumping chamber of the heart to the ascending aorta. It often occurs in elderly patients who are frail and normally could not undergo a full operation. It has been in many ways a death sentence.

Today, a procedure called TAVI (transcatheter aortic valve implantation), can deliver a new tissue valve through the groin. Patients can sometimes even return home the next day! The procedure does require a detailed assessment by the "heart team" (that includes surgeons, interventionalists and noninvasive cardiologists). The whole heart is first imaged with a catheter, CT scan and 3D echocardiograms. The patient is assessed for fraility, social support, general health and psychological testing. Valve technology is steadily improving and now even youger patients are being considered for this procedure. We are fortunate in Atlanta to have multiple high volume centers capable of doing TAVI.

Currently, leaky aortic valves and bicuspid aortic valves still require surgery, but we hope this may change in the future. Many congenital heart diseases in children are now being treated by non-surgical means. Devices such as lung sensors for heart failure patients and leadless pacemakers can now be delivered through a catheter in the groin or arm.

Cardiovascular medicine is a rapidly evolving field and we are grateful for the next generation of pioneering physicians like Dr. Gruentzig who will keep us ever further from needing the scalpel to repair our hearts. ■

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Weight Loss Strategies: *Diets, Drugs or Doctors*

By Narendra Singh, MD

Without a doubt the most common question I get asked is how best to lose weight. If there was a simple answer I would not be writing this article!

Recently, TIME magazine writer Amanda MacMillan offered eight strategies that work best for weight loss. I have covered many of these topics in other articles but here is a quick summary;

1. **Eat a big breakfast.** Data suggests a big breakfast reduces plaque buildup in arteries and reduces the release of hormones that make you want to eat more later in the day.
2. **Drink at least one less soda per week.** Sugary beverages increase waist size which in turn causes diabetes and heart disease.
3. **Eat a Mediterranean-style diet.** This means more fruits, vegetables, nuts, whole grain, olive oil, and lean sources of animal protein. Avoid processed foods and drink alcohol in moderation like a glass of wine with dinner. This diet is rich in phytochemicals that have anti-oxidant and anti-inflammatory properties. As a result you have less heart and stroke disease, less diabetes, cancer and kidney disease.
4. **Exercise to keep the weight off.** Food choices and portions cause weight loss but exercise helps keep it off by burning excess calories. 150 minutes of moderate or 75 minutes of vigorous exercise a week is considered a minimum.
5. **Get a good night's sleep.** Sleep has many benefits but increasing sleep time and the quality of sleep actually helps lose weight by reducing subsequent sugar intake and improving food choices.
6. **Eat more slowly.** Chewing food longer allows the body to release stomach hormones that give you a feeling of fullness and satiety. Eating beyond fullness leads to excess calories and weight gain.
7. **Dump fake sugar.** Artificial sweetners actually increase weight gain. The mechanisms are not clear but these agents can interfere with sugar metabolism. In addition, they create a taste for and craving for real sugar resulting in carbohydrate binge eating.
8. **Don't worry about workout weight gain.** Good workouts often shift weight so muscle mass and water weight goes up while fat weight goes down. Waist circumference may be a better measure than the weight scale.

Low fat and low carb diets are equally healthy but low carb diets tend to produce better weight loss. When diet and exercise fail, there are drugs that can help reduce weight. Avoid weight loss supplements that often have stimulants that can cause heart rate and blood pressure to go up. Avoid diuretics and thyroid pills unless you need them for other reasons. Orlistat (Alli and Xenical) is an over-the-counter weight loss aid that prevents absorption of food but often has unpleasant gastrointestinal side effects.

There are three FDA approved prescription oral drugs. Lorcaserin (Belviq) works on serotonin brain receptors and creates a feeling of fullness. The combination of Phenteramine and topiramate (Qsymia) or the naltrexone and buproprion (Contrave) work to control hunger and increase satiety. All three agents appear to level off after an average of 15-20 lb weight loss. The last approved agent in a daily injection is liraglutide (Saxenda), which is also used in lower doses for diabetes management and has favorable effects on the heart.

Finally, if all else fails and your BMI (body mass index) is in the morbid obese (>40) category, then a visit to a specialized doctor known as a bariatric surgeon is recommended. They can perform various operations such as a lap band procedure, gastric sleeve procedure or a full gastric bypass surgery. These procedures cause the greatest weight loss and, in well-motivated patients, can reduce diabetes, lower blood pressure, lower bad cholesterol and actually improve survival.

So what are you *weighting* for? Lets shed those pounds! ■

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HEARTS UNDER **PRESSURE:**
REDEFINING HYPERTENSION

By Narendra Singh, MD

On November 12th, 2017, thirty two million more Americans, by definition, became hypertensive. Our national medical societies, on a mandate from the NHLBI (National Heart Lung and Blood Institute), redefined hypertension. A **normal** blood pressure is now a systolic (top number) BP < 120 mm Hg and a diastolic (bottom number) of less than 80 mmHg. **Elevated blood pressure** is now a systolic BP between 120-129 mm Hg or a diastolic BP between 80-89 mmHg. **Stage 1 hypertension** is now a systolic BP (Blood Pressure) between 130-139 mm Hg or a diastolic BP between 90-99 mmHg. **Stage 2 hypertension** is a systolic BP greater than 140 mm Hg or a diastolic BP greater than 100 mmHg.

Taking an accurate BP reading is very important. Make sure your doctor's office uses calibrated equipment. Proper cuff size is important. Home blood pressure readings are recommended to confirm the diagnosis—as long as the equipment quality is accurate. Masked hypertension and white coat hypertension should be ruled out. There are a number of secondary causes of hypertension that include excess alcohol, sleep apnea, kidney disease and endocrine hormone disorders. Your health care professional will do blood, urine and imaging tests to identify how much damage has occurred from high blood pressure.

Hypertension is known as the silent killer. It is the leading risk factor for heart and stroke disease worldwide. It can also damage the kidney, eyes, and limbs. In most cases, the goal of treatment is to get the BP < 130/80 mmHg. The first steps with hypertension management are lifestyle changes. Every 2 pounds of weight loss on average will reduce your blood pressure by 1 mmHg. The DASH diet (rich in fruits, vegetables, whole grains and low fat) can drop by 11 mmHg. Reducing sodium intake to < 1500 mg/day will drop BP 6 mmHg while increasing potassium intake to > 3500 mg/day will drop BP 5 mmHg. Reducing stress with deep breathing exercises, yoga and meditation will also help.

No one likes to be on medications but the good news is that these drugs work and are inexpensive. All the lifesaving BP meds are now generic and therefore affordable by all. The decision to treat hypertension with drugs will depend on your BP reading, the extent of damage already and your 10-yr. estimated cardiovascular risk. First line therapy is usually with a thiazide diuretic (e.g. HCTZ), calcium channel blocker (eg. Nifedipine, amlodipine, diltiazem), ACE inhibitor (eg. lisinopril, ramipril) or an ARB (eg. losartan, valsartan). Other BP lowering drugs that can be used in special circumstances include beta blockers (e.g. heart disease), aldosterone (eg. heart failure), alpha agonists (e.g. Prostate enlargement) and vasodilators (e.g. hypertensive crisis).

A staggering 46% of Americans are now defined as hypertensive … so you are not alone! Controlling this risk factor has the potential to dramatically improve the health of this nation.

Let's not falter under pressure! ■

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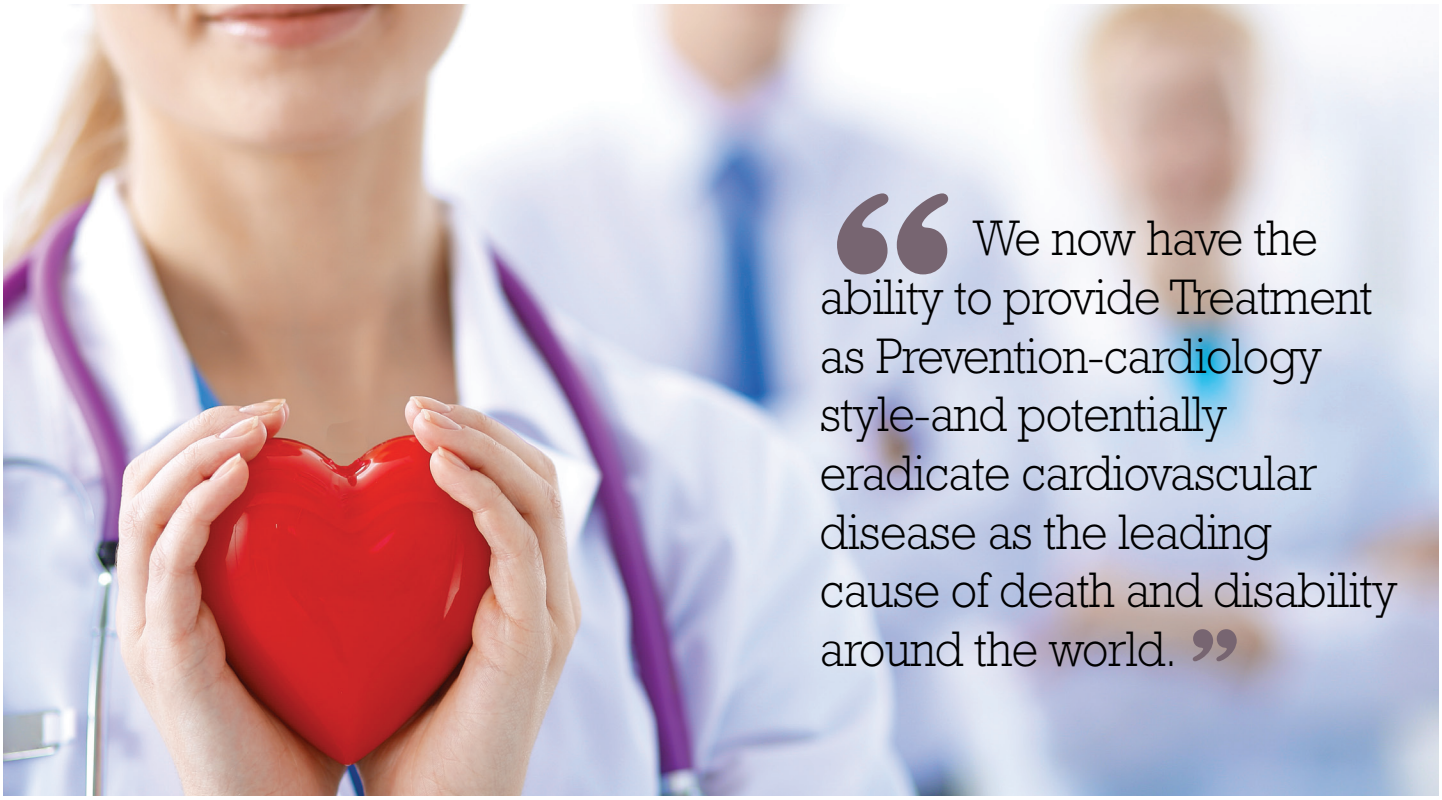

TREATMENT AS PREVENTION: CAN A POLYPILL WORK FOR THE HEART?

By Narendra Singh, MD

I recently had the pleasure to listen to Dr. J. Montaner, a pioneer in HIV/AIDS Research who has helped his home province of British Columbia dramatically reduce HIV transmission rates so low that the HIV hospital wards in Vancouver have been closed down.

In conjunction with the World Health Organization, Dr. Montaner hopes to do the same worldwide. This remarkable feat was achieved not with a wonder drug or a super vaccine. Instead, they combined a number of drugs (anti-retroviral therapy) and offered it inexpensively to HIV infected individuals. By doing so they brought virus levels low enough to prevent transmission. This in turn reduced the number of individuals, including newborns who were newly infected with HIV. Thus, the term TasP-***Treatment as Prevention***. So how does this relate to the heart?

In cardiology, we now have the ability to identify early heart disease (plaque buildup) with a simple CT scan called the coronary calcium score. If your score is zero you essentially have no heart blockages. A score of one to 10 represents minimal disease, 11-100 mild disease, 101-400 moderate disease and 401+ is considered severe disease. It is a relatively inexpensive test with low radiation exposure that I would recommend for anyone with risk factors or a family history of coronary artery disease.

We also have four classes of drugs proven to reduce the risk of a heart attack and stroke. The first is a blood thinner; most commonly this is aspirin but clopidogrel can also be used. Second is a beta-blocker such as atenolol, metoprolol, or carvedilol. These drugs work by lowering blood pressure, slowing the heart rate, and reducing arrhythmias. Third are blood pressure lowering meds called ACE inhibitors or ARB's. Common examples include lisinopril, ramipril, losartan and valsartan. Finally, the fourth and most important are statins, which lower bad cholesterol and actually shrink the plaques. Common examples include simvastatin, pravastatin, atorvastatin, and rosuvastatin. While not many folks, if any, like to be on meds, all the drugs mentioned here are now generic and in many cases cost just pennies a day.

Therapeutic lifestyle changes (TLC) such as weight loss, dietary modification, smoking cessation, exercise and meditation are the first steps to preventing coronary heart disease. The addition of these four classes of medications can reduce heart disease risk by another 75%. Taking four pills is not easy and so a single combo pill called a “polypill” is being tested around the world.

It's not hard to envision that if individuals who had an abnormal coronary calcium score were offered inexpensively (or even freely) the opportunity to take the polypill daily, we could dramatically reduce the occurrence of heart attacks, stroke and sudden death. In other words, we now have the ability to provide Treatment as Prevention-cardiology style-and potentially eradicate cardiovascular disease as the leading cause of death and disability around the world. ■

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DIABETES, DRUGS AND DECISIONS

By Narendra Singh, MD

As a kid growing up in Canada, we were all taught about the discovery of insulin by Banting and Best. Insulin has changed the lives of diabetics but it is not a cure. In fact, although insulin stabilizes blood sugars, it also causes weight gain and does not reduce heart attacks or improve survival in Type 2 diabetics. Type 1 diabetes is usually identified in childhood and felt to be an autoimmune condition that damages the pancreas where insulin is produced. Type 2 diabetes usually occurs in adulthood, often associated with obesity, and results from decreased insulin production and increased insulin resistance.

Diabetes increases the risk of heart attacks, strokes, renal failure, retinal damage, neuropathy limb amputations and premature death. The goal should always be to prevent diabetes with a combination of diet and exercise. During your annual physical the A1c should be measured. Normal A1c is less than 5.7%. Diabetes begins with an A1c greater than 6.5%. In between, is considered prediabetes. Many drugs have been developed for the treatment of Type 2 diabetes. They all lower A1c but work in different ways. Deciding which ones to use is somewhat challenging.

In general, our first line therapy is metformin. This drug lowers sugars, causes weight loss and improves survival. It should be used with some caution when the kidneys are impaired. Metformin is also inexpensive. Another inexpensive class of medications are the sulfonylureas (glyburide, glipizide, glimepiride). Although these drugs also improve sugars, they can be harmful to the heart and should only be considered if other agents are not affordable.

Glitazones have had a mixed history. The first one was taken off the market for liver toxicity, then rosiglitazone (Avandia) was shown to increase heart attacks and heart failure. Pioglitazone (Actos) however is safe for the heart but does cause fluid retention and may increase bladder cancer.

Next came the DPP4 inhibitors. In general, this class of medications is very well-tolerated and safe for the heart but two – saxaglipin and alogliptin can cause fluid retention. Sitagliptin (Januvia) and linagliptin (Trajenta) don't have this concern. While A1c is improved with DPP4's, survival is not.

GLP1 agonists are another class of medications that lower sugar and cause weight loss. They are administered as an injection – twice daily-exenatide (Byetta), daily-liraglutide (Victoza), or weekly extended release exenatide (Bydureon). Liralutide has been shown to also reduce cardiovascular events such as heart attacks and strokes. In its high dose formulation, it has been approved as a weight loss drug (Saxenda). Side-effects include nausea, diarrhea and gastric fullness.

The most exciting new class of drugs for diabetics are the SGLT2 inhibitors (gliflozins). Currently, there are three on the market—empagliflozin (Jardiance) canagliflozin (Invokana) and dapagliflozin (Farxiga). Sorry, I did not create these names! These drugs work by causing excess sugar to be excreted through the urine. In doing so, sugar levels, blood pressure and weight all come down. With empagliflozin these beneficial features result in a 38% reduction in cardiovascular deaths over three years. It is the first diabetes drug to be approved by the FDA to reduce mortality. Canaglifozin also has the same benefits on the heart but unfortunately increase limb amputations two-fold and therefore must be used with caution. Other side effects to watch for are bladder and yeast infections.

So, while diabetes prevention is the key, it's nice to know that many options beyond insulin now exist. ■

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HEARTS ON FIRE

TAMING INFLAMMATION INJURY

By Narendra Singh, MD

Inflammation in the body is generally detrimental but only recently has its role in heart disease become more apparent. Infections such as scarlet fever and step throat are known to damage heart valves and cause rheumatic heart disease. Bacteria in the blood stream often from poor dental care can infect the valves and cause endocarditis. Other infections such as syphilis damage the aorta. Connective tissue disorders such as lupus and scleroderma also affect the valves while Lyme disease impacts the electrical pathways of the heart. Antibiotics and early detection are needed to treat these conditions.

Heart attacks however, occur when a plaque in the coronary arteries burst and clot forms on the ruptured surface to occlude the entire vessel. Think of a plaque as a soft pimple ready to burst. Two factors contribute to plaque rupture. The first is sudden surges in blood pressure (mental stress, over exertion, medication noncompliance, physical stress). The second is any ongoing inflammation (chronic illness, arthritis, diabetes, periodontitis and unhealthy oxidizing foods)

Detecting inflammation in the body can be done in many ways. Many blood tests are markers of inflammation but the best studied of these is high sensitivity Creactive protein (hsCRP). Individuals with elevated hsCRP are at higher risk for a future heart attack. Medications such as aspirin and statins lower hsCRP and have been shown to reduce heart attacks, stroke and death.

Not all non-inflammatory drugs protect the heart. In fact many do the opposite. Chronic use of steroids increases heart attacks by accelerating plaque growth. Common over the counter drugs such as ibruprofen and naproxen also increase the risk for heart attacks, heart failure and hypertension. While COX-2 inhibitors like celecoxib (Celebrex) are safer they do not protect the heart. Acetominophen (Tylenol) is safe for the heart but unlike aspirin it provides no benefit. Large scale studies are underway at centers like ours, to look at other agents such as methotrexate (a drug normally used in the treatment of rheumatoid arthritis) to see if they can protect the heart by reducing overall inflammation in the body.

There are many non-pharmacological ways to reduce inflammation in the body. Daily moderate levels of exercise reduces hsCRP. Weight loss, especially if it reduces abdominal girth will decrease inflammation in part by reducing joint stress and the development of diabetes.

Many foods contribute to inflammation by increasing oxidative stress. These tend to be diets rich in red meat and saturated fats. While consuming antioxidant supplements have shown little value, eating foods rich in antioxidants are consistently beneficial. Incorporate all types of berries, grapes, citrus fruits, kale, spinach, broccoli, pecans,other nuts, green tea, various herbs and spices into your diet. Not only will you be healing your heart but also reducing your risk for arthritis, dementia, and cancer. ■

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HOW LOW CAN YOU GO?

LDL (BAD) CHOLESTEROL LIMBO

By Narendra Singh, MD

> "A new class of drugs called PCSK9 inhibitors have recently come to market. These are monoclonal antibodies that improve the liver's ability to get rid of excess cholesterol by increasing LDL receptors."

By now we all recognize that there are two forms of cholesterol- HDL (good) and LDL (bad). Raising good cholesterol has been a challenge. Multiple drugs such as niacin, fibrates, hormone therapy and CETP inhibitors have all failed. Exercise and alcohol (in moderation) remain the best ways to raise your good cholesterol.

Lowering bad cholesterol however is a different story. Dietary cholesterol represents only 25% of the cholesterol in your body. The remainder is produced by the liver. Statins are medications that turn off the production of cholesterol by the liver. Almost every clinical trial done with a statin has shown a consistent reduction in LDL. This has translated to a reduction in heart attacks, strokes and death. All of the statins have now gone generic and therefore are relatively inexpensive. The most commonly used are lovastatin (Mevacor) pravastatin (Pravachol) simvastatin (Zocor) atorvastatin (Lipitor) and rosuvastatin (Crestor). These medications can lower your cholesterol by 25- 60%.

Studies have shown that lowering your LDL to < 100 mg/dl prevents the buildup of plaque, while lowering it to 70 mg/dl causes the plaque to regress (shrink and stabilize).

Drugs that lower LDL cholesterol by preventing the absorption of dietary cholesterol have had only modest success. Powdered substances such as cholestyramine and cholesevelam are difficult to take and have limited benefit. Ezetimibe (Zetia) is a tablet and easier to administer. Taken on its own, it lowers LDL cholesterol only 15-20% and has no clinical benefit. However, in a large study called IMPROVE-IT the combination of ezetimibe and simvastatin reduced heart attacks and strokes by 10% over 7 years. The combination lowered LDL cholesterol to 53 mg/dl.

A new class of drugs called PCSK9 inhibitors have recently come to market. These are monoclonal antibodies that improve the liver's ability to get rid of excess cholesterol by increasing LDL receptors. There are two on the market evolocumab (Repatha) and alirocumab (Praluent). They lower LDL cholesterol an additional 50-60% on top of statins. They achieve this without the muscle aches and liver test abnormalities sometimes seen with statins. In March 2017, in the FOURIER study, evolocumab was able to reduce heart attacks and strokes by 20% over 2 years. It did this by lowering LDL cholesterol to 30 mg/dl. In 2018, alirocumab is expected to release similar findings. Use of these antibodies given as a twice monthly injection is expensive and currently restricted to high risk patients.

LDL cholesterol less than 30mg/dl were previously unheard of; that is lower than the LDL cholesterol we are born with! At least in the short term these low numbers have not shown any adverse effects specifically regarding memory deficits and motor function. Not everyone needs a LDL cholesterol this low. How low one should go depends on a number of findings including your family history, previous heart attack or strokes, other cardiac risk factors and medication tolerability and long term compliance. Also, getting a coronary calcium score can identify if you already have early plaque buildup in your heart and determine if you even need meds.

Remember the LDL rule—lower is better for longer. It's also important to know that while effectively lowering your LDL cholesterol is lifesaving, other risk factors should not be ignored. Stopping smoking, lowering blood pressure, avoiding diabetes, reducing psychosocial stressors, exercising regularly and increasing fresh fruit and vegetable consumption all contribute to your heart health! ■

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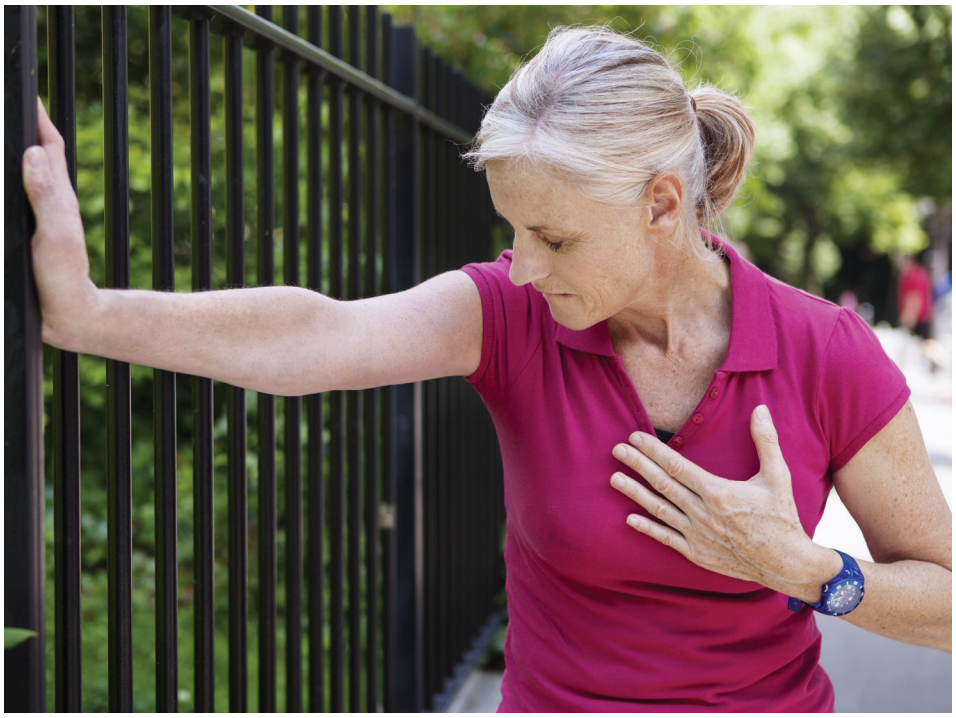

SHOULD I ABLATE OR WAIT?
AGGRAVATING ARRHYTHMIAS

One of the most disturbing sensations is when your heart is racing without warning. It can result in sensations of numbness, tingling, chest pressure, headaches, lightheadedness and at its extreme dizziness to the point of fainting. Many arrhythmias result from an obvious trigger that when eliminated prevents a recurrence. In other cases, using simple medications like beta blockers or calcium channel blockers may suppress the arrhythmia. However, in some situations the arrhythmias are related to structural abnormalities of the heart's electrical system. In such situations, an ablation procedure might be worthwhile.

An ablation is an invasive procedure that is performed by specialized cardiologists known as electrophysiologists. It involves putting catheters and electrodes up into the heart through the neck or groin. The electrical pathways of the heart are then mapped out and sometimes the heart is stimulated to try to provoke the arrhythmia. Once it is identified where the arrhythmia is originating from, energy is delivered to burn that part of the electrical pathway. The energy is usually radiofrequency but can also be cryotherapy. In either case, it destroys the electrical fiber, which will prevent the arrhythmia from occurring again. In some cases this delivers a cure. However, in other cases, new pathways take over and a new arrhythmia returns.

Therefore, the question becomes when is it worthwhile to consider an ablation. Some of the key factors to consider is how distressing is the arrhythmia, what is the success rate, what is the experience of the electrophysiologists performing the procedure, and what are the short and long term complications.

There are arrhythmias related to a short PR interval on an EKG. The most common is called WPW-Wolff-Parkinson-White syndrome. The success rate for ablation of this arrhythmia is very high and should be considered in any one who ends up with a racing heart. It usually provides a cure with rare recurrence and often leaves the individual not needing any medications. It should not be done in individuals who have an abnormal EKG but have never had a racing heart.

The most common type of racing heart is a SVT-supraventricular tachycardia. The success rate for this ablation is also very high but there is a chance of recurrence from other pathways. It sometimes may require ongoing low doses of medications and has a very small risk of requiring a pacemaker. Experience of the electrophysiologist is important.

Atrial flutter is another common arrhythmia that has a very good success rate with ablation. In such patients, getting rid of atrial flutter may also eliminate the need for long-term anticoagulation with strong blood thinners.

"Therefore, the question becomes when is it worthwhile to consider an ablation. Some of the key factors to consider is how distressing is the arrhythmia, what is the success rate, what is the experience of the electrophysiologists performing the procedure, and what are the short and long term complications."

Atrial fibrillation is a condition that is most commonly considered for ablation. Unfortunately, also this condition has the highest risk and the least success. Patients often require at least two ablation procedures and with that, there is only a 70-75% success rate in preventing recurrence. In most cases, the frequency of atrial fibrillation and the duration will be diminished. Since the ablation occurs on the left side of the heart, there is a risk for damaging the pulmonary veins and the esophagus. The procedure should only be performed in centers that are well experienced and have on-site cardiac surgery backup. It is also important to understand that ablation for atrial fibrillation will not eliminate the need for staying on blood thinners. That would require a second procedure using a specialized plug called the WATCHMAN device. Ablations for atrial fibrillation also do not prolong survival and only alleviate symptoms and therefore should not be considered if you have atrial fibrillation that is being well tolerated on medications.

Of course, the best guide to determine the need for ablation is to have a good discussion with your primary cardiologist and have an initial consultation with an electrophysiologist! ■

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SUPPLEMENTING YOUR HEART

OVER THE COUNTER...OR OVER THE TOP!

By Narendra Singh MD

Heart supplements are a multibillion dollar industry. It always surprises me that getting patients to take prescribed medications is a challenge and yet many individuals freely ingest a multitude of supplements and over the counter medications. While most are not harmful…the benefits are sometimes limited. Here is a look at some of the most widely used agents.

FIBER

Found naturally in fruits, grains, vegetables and legumes or as a supplement such as psyllium, methylcellulose, wheat dextrin. Fiber rich foods have a low glycemic index so keep sugars down and lower bad (LDL) cholesterol while raising the good (HDL).

STEROLS and STANOLS

Also found in nuts and grains or taken as supplements they reduce cholesterol absorption and thus lower LDL.

GARLIC

Slightly lowers blood pressure, reduces plaque buildup and keeps the blood thin.

OMEGA 3 FISH OIL

There are 2 types; DHA and EPA. this has the strongest data and the American Heart Association recommends at least 1gm daily either through oily fish consumption or as a supplement. They help lower triglycerides however for individual with really high numbers (>500) a prescription product is recommended. Omega 3's have been shown to improve survival however if you are on a statin then there is no additional cardiovascular benefit.

GREEN TEA

Offered as an extract or as a drink it can lower LDL and raise HDL cholesterol.

CoEnzyme Q10

Also called ubiquinol they can help lower blood pressure, improve energy in heart failure patients and relieve some of the statin side effects of muscle pain and weakness. Unfortunately most of the supplement never gets absorbed.

VITAMIN D

Many studies are underway to evaluate its benefit but for anyone who is deficient up to 2000 IU can be considered.

RESVERATROL

This is the polyphenol found in red grape skin and red wine. The studies have been disappointing and a glass of wine is a better option than the supplement.

TURMERIC

This curry spice has another polyphenol – curcumin which has antioxidant and anti inflammatory properties. Since plaque rupture is caused by inflammation it may reduce the chances of a heart attack.

ANTIOXIDANTS

These have been among the most disappointing. Vitamin E, Vitamin C, and Beta carotene were all evaluated in multiple large trials and failed to show any benefit. Anti oxidants from favorable fruits and vegetables is a much better choice eg berries, chocolate, spinach and kale.

MULTIVITAMINS

B6, B12 and folic acid, as well as multivitamins in general, have shown no cardiovascular benefit. Multivitamins are still recommended however since they have a small benefit in reducing cancer deaths

TESTOSTERONE

Unless you are deficient, these supplements increase your cardiovascular risk.

HORMONES

In high doses both estrogen and progesterone are linked with blood clots, strokes and increased cardiovascular events

NSAIDS (Non Steroidal Anti Inflammatory Drugs)

Ibuprophen and naproxen are commonly used for reducing imflammation but they can raise blood pressure, cause fluid retention and increase heart attacks. They should be used in the lowest dose possible. Acetaminophen or aspirin are preferred. Even a baby aspirin is no longer recommended unless you have evidence of plaque buildup in your arteries.

All supplements should be taken as complementary therapy to any prescriptions your doctor may have recommended. Always ask about drug interactions and use the least amount necessary. Supplementing your life with a balanced diet rich in fruits and vegetables, exercise, laughter and love will be your best formula for a healthy heart! ■

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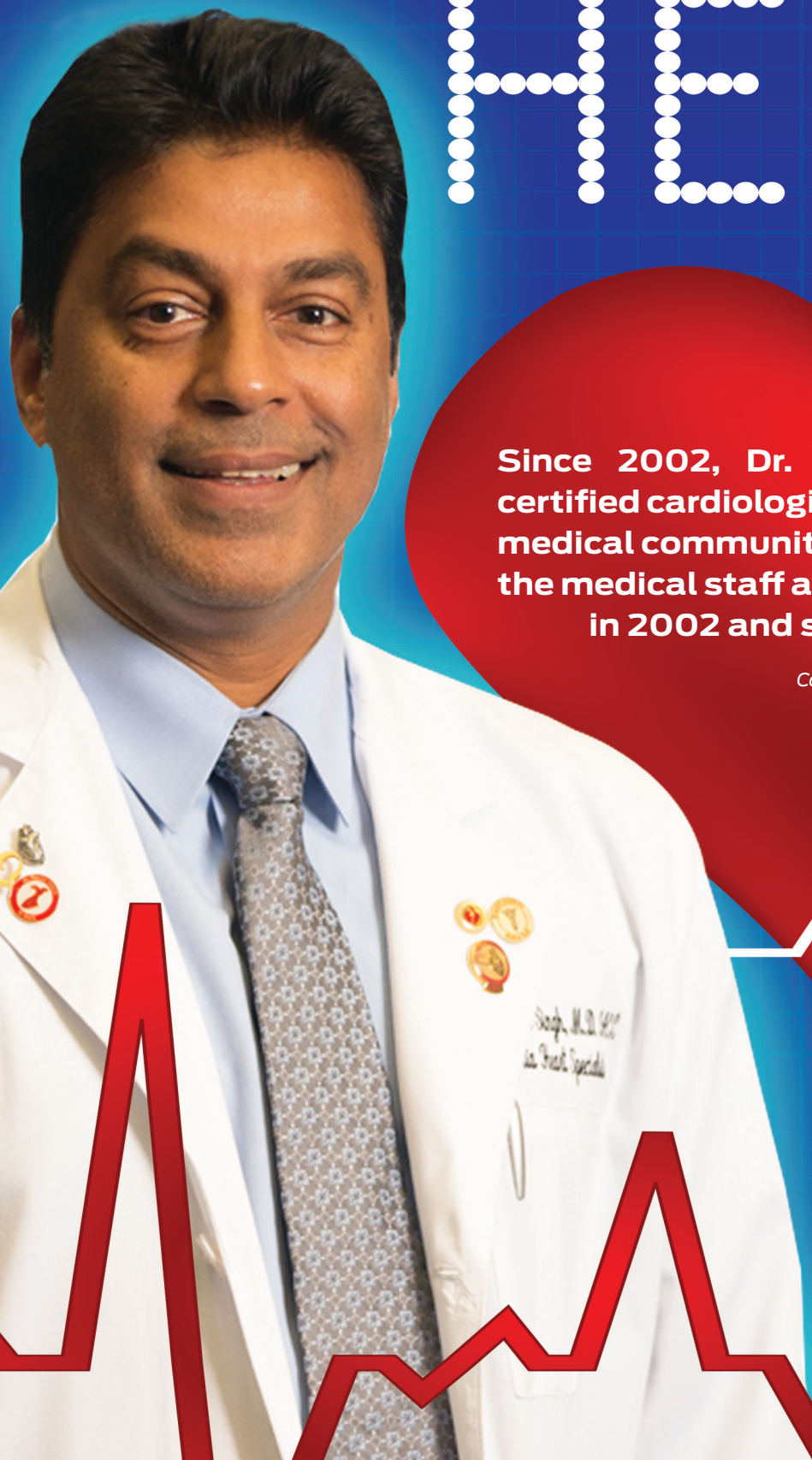
MATTERS OF THE HEART



Since 2002, Dr. Narendra Singh, a board-certified cardiologist, has been a member of the medical community of Atlanta. Dr. Singh joined the medical staff at Northside Hospital-Forsyth in 2002 and served as Section Chief.

Continued on next page ▸▸▸

> “Being part of this growing community has been most rewarding,’’ Dr. Singh reflected. ‘‘I’ve seen our communities grow and the healthcare services available to them grow as well.”

Dr. Singh is a member of Atlanta Heart Specialists (AHS), an independent cardiology practice.

“We are not owned by any hospital or university entity. Accordingly, when there is a service we do not provide in our office, I can offer my patients the best referrals regardless of which hospital system that involves,” Dr. Singh explained.

Dr. Singh’s delivery of care is best described as patient-centered care.

“We are partners in the decision-making process. While I have the clinical expertise, it is the patient who will undergo the treatment and therefore they should always have the final say on what is right for them,” stated Dr. Singh. “I am a strong believer in evidence-based medicine. Any medications or treatment advice I offer has a high-quality clinical trial behind it to support its use. There is no point in taking a pill without a good reason to justify its use. Information empowers patients to take control of their health; I want to be their change agent.”

Dr. Singh is aware that patients may complain that their time with their doctor is too short.

“I recognize that office visits are often too short; I place a lot of emphasis on educational materials that are available on my personal website www.heartdrsingh.com. They reinforce information I provided in the office. I send regular newsletters to patients; these are also available on our website,” explained Dr. Singh. All patients receive a discharge summary upon completion of their office visit.

The AHS Team

“Care in our office is a team approach. I offer an orientation brochure to all new patients (available also on our website) so they know what to expect and the various roles our team members play,” Dr. Singh added.

The staff is also very involved in the patient’s visits and follow-up care, Dr. Singh emphasized.

“I was born in India, grew up and trained in Canada and continue to practice in both Canada and the US. That gives me broad exposure to various health care systems and treatment approaches. I want to ensure that I offer my patients the highest quality of care possible,” asserted Dr. Singh.

Concern for the raising costs of healthcare is something Dr. Singh and his staff hear often.

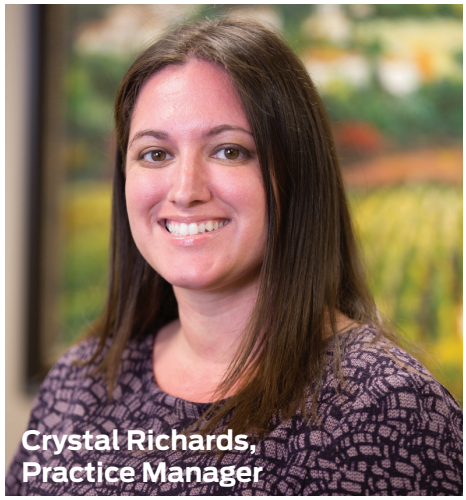
“We work with our patients to deliver care that is within their budget. We have some of the lowest self –pay rates for uninsured patients and are routinely cheaper than hospital-owned practices,” Dr. Singh explained. “I offer all my patients the best options first; I will also work with them on alternatives when the best may not be feasible.”

The value of education and research are also of utmost importance to Dr. Singh.

“I want my patients to work with me on the best care for their condition,” Dr. Singh added.

As part of his commitment to his patients, Dr. Singh has added one more key person to his staff.

Mrs. Richards is available to all of Dr. Singh’s patients.



Crystal Richards, Practice Manager

“I can handle any concerns that were not addressed during a patient’s visit, get feedback on the overall patient care experience, and overall follow-up. I also meet with primary care physicians to ensure that our consultation notes and test results get to them in a timely manner,” Richards explained.

“Patients have mentioned that this extra level of communication provides them with a seamless concierge-style experience… without the concierge level price,” added Richards.

The Value of Research

“I run a large clinical research unit that is recognized nationally and internationally for excellence. At Atlanta Heart Specialists, we can provide our patients early access to promising new therapies in a safe and caring environment. It is also important to know that you can participate in our research trials and still see your own established cardiologist,” Dr. Singh explained.

“I am also involved in various clinical trials, which provides clinicians with life-saving information, drugs, treatment plans and a wide range of helpful techniques to treat our cardiology patients.”

Dr. Singh has participated in clinical trials for over 15 years.

“The diligent efforts of our highly talented team of certified clinical research coordinators, ensure those patients who choose to participate in clinical trials do so in an enjoyable, safe, caring and comforting environment,” Dr. Singh added.

More than any specialty in medicine, cardiology owes its success to an impressive array of clinical trials that have brought us wonder drugs such as beta blockers, statins, ACE inhibitors, and wonder devices such as stents, pacemakers and ICD’s.

"They serve to further determine how tomorrow's treatment strategies will be employed," added Dr. Singh.

A clinical trial is a research study to answer specific questions about investigational treatments, or new ways of using known treatments. Clinical trials allow researchers to test to see if an investigational treatment is safe and effective.

"Doctors run the tests per strict rules set by the Food and Drug Administration (FDA), and all of our studies are approved and overseen by an Institutional Review Board (IRB)," Dr. Singh explained.

Being part of this growing community has been most rewarding," Dr. Singh reflected. "I've seen our communities grow and the healthcare services available to them grow as well."

Heart Care Beyond the Office

Dr. Singh remains active in the pursuit of knowledge and education regarding cardiology and best practices. He is a teacher at the Medical College of Georgia and travels often to lecture other physicians.

"Students keep me sharp by asking the most basic questions that help reinforce in me the core principles behind our care delivery," Dr. Singh remarked. Dr. Singh was a Clinical Assistant Professor at Emory prior to teaching at the medical college.

Dr. Singh welcomes constructive feedback. The practice utilizes services such as ZocDoc, Healthgrades and Vitals for patient reviews.

"We also use social media such as Facebook, Twitter and E-mail to further enhance communication," added Dr. Singh.

ABOUT HEART DISEASE

While AHS offers state of the art technology and care for all our patients who are hospitalized, Dr. Singh's focus is on prevention.

"Heart disease originates from nine modifiable risk factors. Our practice wants to ensure that our patients have the resources to optimize each one."

Modifiable risk factors are those caused by risk factors that can be controlled, treated or modified. These factors, protective and harmful, are:

PROTECTIVE FACTORS

- Daily fruit and vegetable consumption
- Moderate alcohol intake
- Moderate to strenuous exercise

HARMFUL FACTORS

- High bad cholesterol
- Current smoking
- Diabetes
- Hypertension
- Abdominal obesity
- Psychosocial stress

Non-modifiable risk factors, Dr. Singh explained, include age, gender, and family history. Individuals in these high-risk categories should receive regular check-ups.

ATLANTA HEART SPECIALISTS, LLC

Delivering State-of-the-Art, Compassionate Care

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DRUGS, DONUTS & DISCOUNTS

Lately, not a week goes by without hearing another story about the rising costs of prescription drugs. From the deplorable price gouging of companies like Mylan on life saving meds such as the EpiPen to the nearly unaffordable $100,000 Hepatitis C cure - Harvoni by Gilead, prescription drugs are becoming increasingly unaffordable for many Americans. Many factors contribute to these costs.

Pharmaceuticals have played a vital role in improving the health of patients worldwide (full disclosure – I work extensively with industry as a researcher, advisor and a speaker). In cardiology, we are blessed with many life saving compounds we can offer our patients. Without a doubt, the development of new drugs is an expensive endeavor and the majority of the research funding comes from industry and not the public sector. Companies then appropriately seek a return on their investment. What seems unfair is that the American public is made to pay for the worldwide profits these companies seek. The same drug in the US is often sold for half the price in Canada or a tenth of the cost in India! Medicare is the largest purchaser of drugs in the world yet unlike other countries our government does not negotiate price discounts. This needs to change.

To complicate matters Medicare prescription plans have a coverage gap often referred to as the "donut hole". In 2016 this starts after the first $3310 of drug cost. That coverage gap ends once your total drug costs reaches the $4850 out of pocket maximum. In between, you are responsible for 45% of brand name drug and 58% of generic drug costs. By 2020 those costs with be down to 25% for both brand name and generic drugs.

In the interim there are steps you can take to keep your drug costs down:

1. Review with your health provider what each drug you are taking does and ask if you still really need it or if an alternative drug is available.
2. Brand name drugs are often superior to generic drugs but ask what the difference is both in terms of cost and benefit and then decide if it is worth it for you.
3. Generic drugs also have their limitations (please see my previous article on generics). Pharmacies and physicians are often pressured to prescribe generics. Make sure you are aware of all the options before accepting a generic.
4. Shop around for drugs. Costs vary between pharmacies. Some drugs are even offered for free. Many apps and website help you identify lowest cost (GoodRx) but be careful of fraudulent international pharmacies.
5. For branded drugs ask for samples and discount cards. Many offer the first 30 days free so it allows you to assess tolerability before paying for the prescription. Samples however should not be used long term or through the coverage gap.
6. If you have a choice in your medical insurance plan review the drug coverage closely. Many have a high deductible on drugs that is separate from the health care deductible. Until that deductible is met you will be paying 100% of the drug costs.
7. Visit the drug company websites. Many offer discount coupons or other savings cards.
8. If you earn a low income, apply for patient assistance through the drug manufacturers and also through secondary insurance, Medicare and Medicaid plans.
9. Request 90 day supplies rather than 30 days to reduce dispensing fee costs.
10. Finally focus on a healthy lifestyle – your mood will improve, your immune system will strengthen, your sugar, cholesterol and blood pressure will come down...as will your pill count!

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EKG'S

UNLOCKING THE SECRETS OF YOUR HEART

By Narendra Singh, MD

It is the most recognized symbol in cardiology. Those repetitive squiggles on a monitor show all is well when beating regularly but as many Hollywood movies attest to, they signal death when when they become a flat line. The EKG (electrocardiogram) was discovered in 1902 and won Dr. Willem Einthoven the Nobel Prize in Medicine in 1924. It represents the birth of cardiology as a specialty. Today it is part of the annual physical exam and performed millions of times a day around the world. You can get one done using your smartphone or have a chip implanted under the skin that wirelessly transmits for years.

An EKG is a simple test that records the electrical activity of the heart. It is the electrical fibers that coordinate the contraction of the four heart chambers in proper sequence. Each heart beat causes an electrical impulse which can be labelled as the P-wave (atrial activity) QRS complex (ventricular contraction) and T-wave (ventricular relaxation). By looking at the electrical activity one can tell if someone is in regular rhythm or having an arrhythmia. Arrhythmias originating from the upper chamber of the heart include SVT — supraventricular tachycardia, or AF — atrial flutter or atrial fibrillation. Arrhythmias originating from the lower chamber of the heart include VT — ventricular tachycardia or VF — ventricular fibrillation which are often life threatening. The EKG can also pick up "skipped" beats such as PAC's — premature atrial contractions and PVC's — premature ventricular contractions. Normal heart rates are between 60-100 beats/min. A heart rate over 100 is considered a tachycardia while less than 60 is a bradycardia.

Normally, the electrical activity travels down nerve fibers of the heart in a consistent manner and speed. Sometimes these electrical fibers are damaged. This can result in a right or left bundle branch block (RBBB or LBBB). If both bundles become affected, then you have complete heart block and a pacemaker is required. Sometimes we are born with extra fast electrical fibers that show up as a short PR interval, the most common of which is known as WPW. These patients often need a burning procedure called an ablation to get rid of these fast fibers. Some congenital abnormalities of the heart's electrical system also show up on an EKG such as a long QT interval. Patients who have this often require a device known as a defibrillator. The QT interval is also what is affected by many drugs and even some supplements. Your doctor or pharmacist will warn you of this potential drug interaction and recommend an EKG to make sure everything is okay.

EKG's can also tell us if the heart is enlarged. This is often due to high blood pressure. It can tell us about a previous heart attack. It can even tell you if the chest pain you are having at the time of an EKG is due to a major heart attack called STEMI — ST elevation myocardial infarction.

What EKG's can't tell you is your risk for a future heart attack. For that you need to do a stress EKG during which you run on a treadmill while a continuous recording of your EKG is done to see if it changes with exertion. Like all technologies, EKG's have their limitations. They often report false heart attacks especially in women where the breasts get in the way of proper electrode placement. Electrical interference or too much movement can also make an EKG inaccurate.

While EKG's are a powerful tool for cardiologists, they represent only 10 seconds of your life. That's why longer duration recordings such as a 24-hour Holter monitor or a 30-day continuous loop recorder are sometimes used to capture arrhythmias that occur only intermittently. Many apps are now also available that can generate an EKG recording. While they are not always accurate for many individuals it is a useful tool to have when trying to determine the cause of "flutters" and "flops" in the chest! ■

LIGHTING UP:
MAYBE NOT SO BRIGHT!

It has been 50 years since the famous Surgeon General's report brought the hazards of smoking to the public attention. Since then we have made a lot of progress but there is more to do. There are over 7000 chemicals in cigarette smoke. As little as five cigarettes a day can result in cardiovascular disease. Second hand smoke increases stroke risk by 20-30%. One in every three cancer deaths is linked to smoking. On average smokers are sick more often, admitted to hospital more often, miss work more often and die 10 years before nonsmokers.

Smoking causes blood vessels to get inflamed and plaques to build up. This results in an increased risk for coronary artery disease, stroke, peripheral vascular disease and abdominal aortic aneurysms. Smoking causes cancer in various organs through the chemicals which damage the body's DNA and create mutated cells that become cancerous. Smoking weakens the immune system and increases the risk of infection, diabetes, gum disease, arthritis and macular degeneration of the eyes. Smoking in men increases erectile dysfunction and in women causes more ectopic pregnancies, congenital malformations and placental injury that puts mother and child at great risk.

The good news is that stopping smoking can bring benefits very quickly. Within one year the risk, of heart attacks decreases significantly; in five years the risk for stroke is about that of a person who has never smoked. In five years, cancer risk for the mouth, throat esophagus and bladder is cut in half and the same is true for lung cancer at 10 years. Smoke free policies have reduced heart attack rates in communities.

While smoking is decreasing in North America the rate for women smokers has not declined as much. Nicotine in tobacco raises blood pressure and heart rate. It is highly addictive, making attempts to stop smoking difficult and associated with withdrawl symptoms. Many approaches to smoking cessation are available. Nicotine replacement is one option. Available as a skin patch, chewing gum or as electronic cigarettes they are all useful options when used to wean the body's need for nicotine. While electronic cigarettes are clearly safer than cigarettes, long term use still poses health risks. Regular cigar smoking and chewing tobacco also pose cancer and heart disease risk.

Drug therapy have also been shown to be effective in reducing the craving for cigarettes.

"The good news is that stopping smoking can bring benefits very quickly. Within one year the risk, of heart attacks decreases significantly; in five years the risk for stroke is about that of a person who has never smoked."

Bupropion and varenicline are prescription medicines. They should be used only under the guidance of a physician in light of potential side effects.

Non-pharmacological approaches include hypnotherapy, acupuncture, and cognitive behaviour therapy consisting of various counselling sessions can all be useful. Support groups, peer pressure and hospitalization events increase the likelihood of smoking cessation. Relapses are common and expected. It should not prevent a smoker from trying again. Family and friends should not smoke around someone who is trying to quit. Weight gain often occurs with smoking cessation. Proactive measures such as chewing sugarless gum, exercise programs and dietary advice can reduce the risk.

Multiple resources exist to help you stop smoking. 1-800-QUIT-NOW. www.smokefree.gov, www.cdc.gov/tips and locally https://dph.georgia.gov/ready-quit. We encourage you to make the first attempt…it may not be your last …but its one step closer to a healthier you and a healthier America! ■

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ETHNICITY AND THE HEART

Ethnicity is a difficult concept because it is more than just race. It incorporates your ancestry, religion, nationality and geography. Beyond genetics, it looks at your attitude about health and illness, your lifestyle choices, your customs and culture. As travel around the world grows exponentially and inter-racial marriages become increasingly common, ethnicity is even harder to define. There is, however, still value in looking at ethnic origin and its impact on health.

Atlanta is home to many different ethnic groups. We have large European populations, African Americans, Hispanics, Chinese, Koreans, Russians, Ukrainians and South Asians. In each of these groups cardiovascular disease remains to #1 killer but the manifestations of the disease vary significantly. Risk factors for heart disease remain the same in all ethnic groups but the proportion and age of onset for any given risk factor differs tremendously.

In the Caucasian population smoking has always been a major risk factor. While smoking is on the decline we still have a long way to go. As Caucasians shifted their diet that was rich in cholesterol, we have seen an excess of carbohydrate intake leading to the development of obesity and subsequently diabetes. The need to reduce carbohydrates and increase exercise is the #1 priority in this population that suffers greatly from heart attacks and strokes.

Many of the South East Asian countries have diets that are rich in their use of sodium. As a result there is a higher chance of a Chinese or Korean patient to have a stroke related to high blood pressure rather than a heart attack. Similar findings are seen in African Americans who also have a higher incidence of hypertension and secondarily strokes.

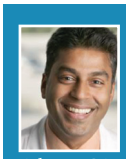
South Asians (individuals whose ancestry comes from countries like India, Pakistan, Sri Lanka, Bangladesh Nepal and Burma) have a fivefold greater chance of developing diabetes prematurely and as a result have the highest incidence of heart attacks in the world. In general South Asians also have smaller body size and therefore respond less well to mechanical intervention such as a stents or bypass surgery.

Hispanics also tend to develop obesity and diabetes earlier but do not have the same accelerated rate of heart attacks that South Asians or even Caucasians do. The level of inflammation within the body may be a contributing factor and there are tests that help in evaluating these levels.

> “As travel around the world grows exponentially and inter-racial marriages become increasingly common, ethnicity is even harder to define. There is, however, still value in looking at ethnic origin and its impact on healtth.”

Visible minorities also tend to differ in socioeconomic status and this can impact access to health care. They often have a more fatalistic approach to life and are more inclined to use alternative medicines that include both homeopathic and naturopathic remedies. Language barriers, lack of cultually specific lifestyle advice and a variable social support network can all impact the development of heart and stroke disease. Our risk stratification tools such as the Framingham Risk Score have also been developed mainly for Caucasians and may underestimate true risk in other ethnic groups.

One of the biggest challenges to treating visible minorities is that much of our clinical research has focused on the Caucasian population and therefore we are not certain about the efficacy and safety of current medications and treatments in this population. It is important that future studies be more inclusive of Americans from various ethnic backgrounds so that we can ensure optimal health for all! ■



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> "Alcohol is a part of our societal culture. Used wisely it can be both enjoyable and healthy but like most messages in life- moderation is the key."

WINE OR WHY NOT?

I repeatedly get asked if alcohol and especially red wine is good for the heart. As an avid scotch and wine drinker myself, the answer is obviously yes! Unfortunately, nothing is quite that simple. So let's review the data on alcohol.

Initial interest in the beneficial effects of wine came from what is called the "French Paradox". Although somewhat discredited now, the question of why the French, who consume high quantities of fat had lower incidence of heart disease, led to the theory that wine with a meal neutralized the ill effects of oxidant rich foods such as fats. Multiple higher quality studies have since shown alcohol to be a protective factor for the heart. The large INTERHEART study identified three protective risk factors for heart disease and they include—daily vegetable and fruit intake, regular exercise and moderate alcohol intake. By moderate we mean two (2) normal glasses of wine (5 ounces) or beer (12 ounces) or two (2) shots (1.5 ounces) of alcohol for men and half that for women,per day. Sadly, they cannot be saved up for weekend consumption alone!

Alcohol's beneficial effects come from raising the good cholesterol (HDL), thinning the blood, reducing stress, lowering blood pressure and providing natural antioxidants (flavonoids seen in red grapes). Multiple attempts at providing the key flavonoid – a polyphenol called resveratrol as a dietary supplement have been unsuccessful at providing any benefit. However, drinking pure grape juice does have some benefit although not as much as red wine. This again supports the concept that it is always better to consume the antioxidant rich food or drink rather than any concentrated pill supplement.

Alcohol may also have other benefits such as living longer especially as part of the Mediterranean diet. Alcohol can improve your libido, strengthen your immune system to common colds, reduce gallstones, lower the chances of dementia or diabetes.

The American Heart Association states that even though alcohol has beneficial properties if you don't drink it is NOT recommended to start. Alcohol in excess has many detrimental effects. It can impair judgment and is a leading risk factor for motor vehicle accidents that can result in injury to self or others. It can lead to dependency, alcoholism and social breakdown. Alcohol in excess can raise triglycerides (fats), blood pressure and strokes. While alcohol lowers blood sugar, most alcoholic drinks come with a lot of excess carbohydrates-resulting in the famous beer belly! Excess alcohol can also weaken heart muscle, cause arrhythmias and be toxic to the fetus.

If you are taking medications check with your health care professional about potential drug interactions especially with certain blood thinners such as warfarin. Patients with liver disease or pancreatitis must also abstain from alcohol as should pregnant mothers.

Alcohol is a part of our societal culture. Used wisely it can be both enjoyable and healthy but like most messages in life- moderation is the key. As the saying goes- please drink responsibly! ■

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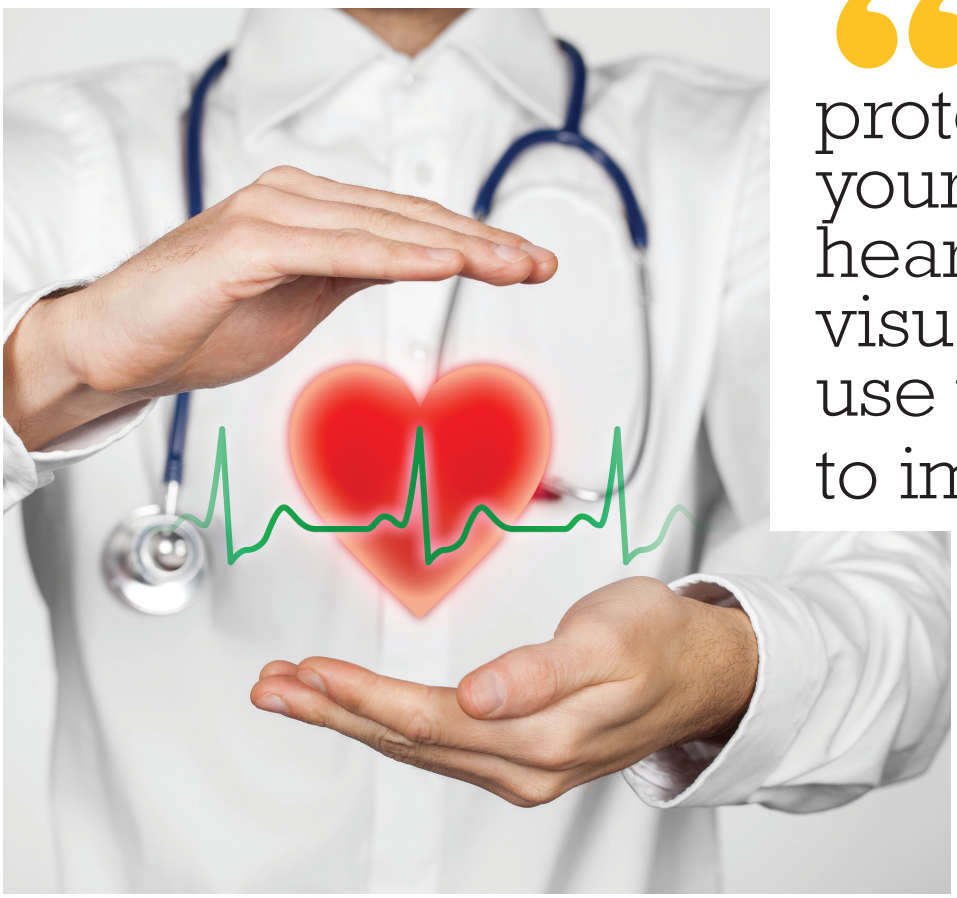


> "Hidden and protected behind your sternum the heart is not easily visualized, so we use various tools to image it."

CARDIAC IMAGING:
MORE THAN A PRETTY PICTURE

In many ways the heart is a simple organ. It is a specialized muscle that pumps blood to the rest of the body. That is its only role, but obviously a vital one; making sure it's healthy is critically important.

Hidden and protected behind your sternum the heart is not easily visualized, so we use various tools to image it. Often the first two tests you get to image the heart are a chest x-ray and an electrocardiogram (EKG). The chest x-ray can determine if the heart is enlarged and if the adjacent lungs are affected. The EKG tells us a lot about the electrical system of the heart and indirectly can tell us about heart damage. An EKG is more useful when taken during an episode of chest pain.

By far the most useful tool we have for imaging the heart is the echocardiogram (ECHO). Using safe ultrasound technology, the ECHO gives us very accurate information about the pumping function of the heart (your ejection fraction-normal being 60%), any enlargement of the four heart chambers and the functioning of the four heart valves. It can be combined with a stress test to look at heart function after exercise. It can also be attached to a probe that is inserted into your esophagus to visualize the valves more clearly. Most recently, handheld cardiac ultrasounds have been used in the emergency department for rapid evaluation and 3-D imaging in the operating room during valve repair.

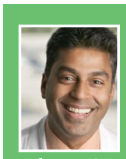
Radioactive isotopes can be used to image the heart usually during a stress test. These include the nuclear stress test, the MUGA scan and the PET scan. These tests are more expensive and the radiation exposure limits its routine use.

When a problem is identified in the heart our two best imaging tests are the CT scan and the MRI. CT scans are easier to obtain but do require a contrast agent and expose you to radiation. They can give detailed pictures of the heart, the aorta and the vessels that provide blood flow to the heart itself-the coronary arteries. MRI provide similar imaging but without the radiation. Congenital heart conditions and aortic aneurysms are best seen with this technique.

A powerful screening test for the heart is the coronary calcium score. This simple CT scan of the chest done without an IV or contrast is used to pick up early buildup of plaque (blockages) in the coronary arteries. Stress testing picks up only advanced blockages (greater than 70%). It is best done in patients with a family history of heart disease or those needing to go on statin therapy for high cholesterol. If the calcium score is zero, then statin therapy can be delayed for at least 3 years and a nuclear stress test can often be avoided. Once a calcium score is positive, subsequent tests to check a response to therapy should be avoided as healing and shrinkage of the plaque can actually increase the score. Despite the tremendous value of the test, most insurances do not cover the cost but it can often be done for $75-150 depending on the facility.

The final imaging tool is the cardiac catherization (angiogram). This is an invasive test which I have discussed in a previous article (June 2014). Now done most often through the wrist, the small catheter is taken directly to the heart and using a dye, images of the heart chambers, blood vessels and pressure measurements can all be obtained.

Check with your physician which imaging test best suits your needs—and don't forget to ask for a copy of the pictures! ■



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> "Heart disease is the number one cause of death in women."

WOMEN, HEARTS, AND HEALTH

Thanks to high profile awareness programs like the *Red Dress Campaign* and *Go Red for Women* there is increased recognition that heart disease is the number one cause of death in women. We have made great strides in reducing cardiovascular death rates but since 1984, at any age, death remain higher in women than men.

In certain ethnic groups (Blacks, Native Americans and South Asian women) the risk for heart attacks is disproportionally high. Women present later with their heart attacks, are diagnosed later, respond less well to treatments and have more complications. These findings are highlighted in an important scientific statement published January 2016 by the American Heart Association.

Rather than focus on grim statistics there is a lot that women can do proactively to prevent heart attacks. TLC (therapeutic lifestyle changes) is very important. While smoking is declining in the U.S., women have not shown the same rate of decline. Multiple resources to help quit smoking are available and should be tried. Weight gain and obesity are increasing in women and result in a higher incidence of diabetes and heart disease. Carbohydrate restriction, smaller portion sizes, and increased physical activity can reverse this trend. Knowing your blood pressure, cholesterol reading and blood glucose are an important part of prevention. Please take the time to get these checked through your primary care professionals or at health fairs. Psychosocial stressors are a major contributor to heart disease risk. They are often unrecognized and untreated. Depression, marital stress, excessive workloads, physical and sexual abuse are all worrisome risk factors that need to be addressed.

Recognizing symptoms is another important aspect of prevention. The classic descriptions of chest pain (pressure, tightness and squeezing) certainly do exist in women but many other varied presentations also can represent a heart attack. Sharp, aching, soreness in the chest, fatigue, shortness of breath, anxiety, neck and jaw discomfort, indigestion and palpitations should not be ignored if they are severe or recurrent. Women often put family needs above their own which also contributes to delayed presentation and consequently worse outcomes.

On average, heart disease presents seven years later in women than men: but women are not average! If you have risk factors, family history, and symptoms do not ignore them. While your body's own estrogens provide protection to women, unfortunately hormone supplements do not. They actually increase the risk of heart attacks, strokes and blood clots. They should be used sparingly when needed to relieve perimenopausal symptoms.

In general, treatment of heart attacks presently is no different in women versus men. That is not to say that this is correct. Too many of our devices and drugs have not been adequately tested in women. Women are under-represented in most clinical trials thus limiting our understanding. Much of this relates to a lack of family and social support that would allow for greater participation. Similar participation concerns for cardiac rehabilitation have been seen. I encourage women to increase their participation in high quality clinical trials so that future therapies can be tailored more specifically for them.

Women represent more than half the world's population—its time that their heart health take an equally significant importance! ■

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> "For many the new year marks a new insurance plan with new rules and new costs."

CO-PAYS, DEDUCTIBLES, NETWORKS & NONSENSE

Despite passage of the Affordable Care Act, health care delivery has become increasingly complex and costly. For many the new year marks a new insurance plan with new rules and new costs. Navigating the system is not always easy but here are a few tips to keeping your costs under control.

Co-Pays are unavoidable and vary between plans, primary versus speciality care, office versus emergency room visits. Make each visit as worthwhile as possible by:

1. Visiting the doctors website or calling the office to fill out forms in advance.
2. Preparing a list of medications including supplements.
3. Notifying the office if you need a translator or special resources.
4. Contacting the office to request notes in advance if you had recent tests or hospitalizations.
5. Preparing a list of questions you have for the doctor.

Testing can sometimes be done on the same day but increasingly insurance companies delay procedures in order to review prior to authorization. Costs for tests also vary and it's sometimes worth shopping around.

1. Ask why the test is being done and how it will change your management.
2. Understand the risks, benefits and any alternatives to testing.
3. In general, tests in non-hospital owned facilities are 2 to 4 times cheaper than the hospital.
4. Ensure that the test is being done in an accredited facility to ensure high quality.
5. Understand what your out-of–pocket costs will be as they are required to be paid upfront.

Unfortunately we are seeing more high deductible insurance plans. Often the full cost of a visit, a test or a drug are paid by you until you have met your deductible.

1. Ask if a generic drug is an acceptable alternative to the more expensive medication.
2. See if an alternative test can offer similar information.
3. If you have already met your deductible see if some preventive tests or procedures can be done sooner.
4. Ask about payment plan options and try to budget out savings to cover your deductible.

Narrow networks are another trend with insurance plans that restrict which doctors you can see and what hospital you can receive care in. Before signing up for such plans

1. See if the doctors you already see or want to be able to see are in network.
2. See if the hospitals covered in the plan are highly rated and conveiniently located.
3. Understand what your out of network costs would be in case of an emergency.

Finally understand that insurance companies, hospitals and offices often have rules that don't make a lot of sense, don't apply to your situation or don't treat you fairly. Speak out and help improve the system! As a practicing physician I always welcome constructive feedback and your health care providers should do the same. Wishing you a healthy and happy heart in 2016! ■

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To Your Heart!

Revisiting Risk Factors – Updates in Hypertension and Diabetes

By Narendra Singh MD

I recently returned from the American Heart Association Annual Scientific Sessions in Orlando, Florida. Each year at these meetings new advances in cardiovascular medicine are presented and discussed. Two major new stories emerged that I think are important as we work towards preventing heart attacks strokes and cardiovascular death.

A study sponsored by our National Institute of Health entitled SPRINT looked at individuals over the age of 50 who had hypertension and other risk factors. They randomized them to the standard strategy of lowering systolic blood pressure (top number) to below 140 mmHg versus a target of 120 mmHg. In September of this year, this 9361 patient study was ended early because of a significant benefit in favor of the lower blood pressure target. Patients had been followed-up for roughly three years and in the lower blood pressure group, death was reduced by 27%, heart failure was reduced by 38% and heart attacks and strokes also trended in a favorable direction. Intensive blood pressure lowering as conducted in this trial did result in some side effects. There was a higher risk of fainting, kidney injury and electrolyte abnormalities however the net benefit clearly favored the lower blood pressure target.

What does this mean for us? The first message is that we should be more aggressive in terms of our lifestyle and dietary approaches to maintaining a low blood pressure. Restricting salt intake, moderating alcohol, exercising regularly and avoiding medications that can raise blood pressure such as the anti-inflammatory agents will help us prevent hypertension in the first place. However, if you already have hypertension discuss these results with your doctor and see if the more intensive target is right for you since it has the potential to save life!

The second major study was entitled EMPA- REG OUTCOMES. This study, coordinated out of Canada, looked at a new class of diabetes medications called SGLT-2 inhibitors. Drugs in this class allow diabetics to release excess glucose through the urine. In doing so the patient's blood pressure is reduced and there is a modest weight loss of about 5-10 pounds. Empagliflozin (Jardiance) lowers blood sugar to the same degree as other diabetes medications. This 7020 patient study was also terminated early after just 3 years because of a significant benefit in favor of using the new medication versus conventional diabetes drugs. For the first time ever a diabetes drug has shown a survival benefit- reducing death by 32%, heart failure by 35% but with no significant difference in terms of heart attacks or strokes.

While these results are impressive, the challenge will be affordability. If you have diabetes, first start with improved dietary measures and inexpensive metformin. If the diabetes control is not optimal then at this point it is worthwhile to discuss with your physician using the new agent as second line therapy to improve your long-term survival.■

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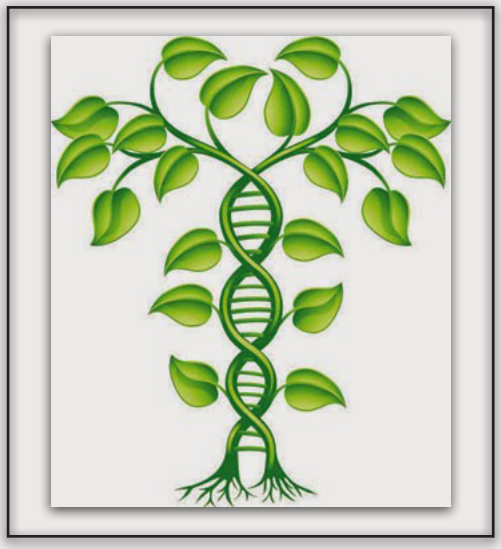
To Your Heart!

Family History and Genetic Testing: Worth the Worry?

By Narendra Singh MD



In 2000 President Clinton and Prime Minister Tony Blair jointly announced to the world that we had sequenced the human genome. Fifteen years later the promise of that accomplishment is not fully realized but we have made some important advances. Our body has 23 pairs of chromosomes. Each chromosome has multiple genes that contain DNA code that allows our body to produce enzymes and proteins that are vital to our existence.

When it comes to clogged arteries, the Interheart study showed that over 90% of your risk for this type of heart disease can be attributed to nine risk factors. Six factors increase risk - abnormal lipids, smoking, hypertension, diabetes, abdominal obesity, and psychosocial factors. Three factors decrease risk-regular physical activity, moderate alcohol intake, and regular consumption of fruits and vegetables.

A family history of a heart attack can increase the severity of presentation or age of onset for some of these risk factors but generally does not involve identifying new risk factors. Genetic tests are available that can help predict your predisposition for high cholesterol or diabetes but they usually do not alter management advice. A notable exception is a positive genetic test will help with insurance coverage for expensive meds such as the cholesterol lowering PCSK9 inhibitors or new blood thinners.

Genetic testing is very useful if there is a family history of sudden death or ventricular arrhythmias. Conditions with unusual names such as Brugada, Marfans, Long QT syndrome, hypertrophic cardiomyopathy and arrhythmogenic right ventricular dysplasia can be inherited. Early detection and the implantation of a defibrillator can be life saving!

If you were born with a congenital heart defect then genetic counseling and testing is often useful since the risk for the fetus to also have a heart defect is around 15 to 20%. Results of genetic testing are now protected against discrimination from employers or insurers.

Response to commonly used drugs such as warfarin, clopidogrel and statins can also be predicted by genetic testing however the test results presently do not routinely change our treatment decisions. Even if you have a detrimental gene, the environment you live in can affect if that gene will actually express itself. This is called epigenetics. Also, until we know what every gene does we can not provide a true estimate of individual risk. You may have 4 known genes that increase your risk for heart disease but 8 unknown genes that protect you from heart disease. If we test you for the known genes then we will have unnecessarily worried you…when in fact you were not at risk!

Earlier this year President Obama announced the Precision Medicine Initiative. The goal is to fund research that will in the future take into account an individual's genetic makeup, environment and lifestyle to determine the best course of disease prevention and treatment. This approach is already yielding much success in cancer therapy such as the Angelina Jolie BRACA gene decision to have a bilateral mastectomy. It is hoped that in the future this personalized guidance for risk will be the norm for all medical conditions.■

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To Your Heart!

Breakthroughs Big, Bold & Beneficial!

By Narendra Singh MD

Cardiology has always been a major focus of research and development. This year we have seen some very important breakthroughs that are worth reporting. While I can't hope to review all the advances I will highlight a few.

LOWERING BAD CHOLESTEROL While diet and exercise are always the first step, for many patients this is not enough. Statins have been the major class of drugs used to lower bad cholesterol (LDL). Overall these drugs are very safe, effective, and in many cases life-saving. However, for some patients the side effects of muscle aches, memory impairment, high sugars or elevated liver enzymes prevent their use. Two companies have developed an injectable drug that can be taken either once a month or every two weeks, and have the same LDL lowering ability that the top doses of statins can deliver! Alirocumab (Praluent) is the first to be approved and Evolocumab (Repatha) will likely be approved later this month. The side effect of these injectable agents is very favorable but cost will be a limiting factor.

IMPROVING HEART FAILURE SURVIVAL We are fortunate to have a number of drugs (beta-blockers, ACE inhibitors, ARB's and aldactone) that improve survival in patients with congestive heart failure. Unfortunately for many, this is still not enough. Heart failure has a mortality rate that is worse than most cancers. Last month a new class of medication called ARNI was approved. In patients with a low ejection fraction (less than 40 %) this combination pill sacubitril-valsartan (Entresto) improved chances of survival by 20% over the next two years! The drug would be used in place of the ACE inhibitor or ARB.

PREVENTING STROKES IN ATRIAL FIBRILLATION The last four years saw the development of four new alternative blood thinners that could replace warfarin in preventing strokes in patients with the rhythm disturbance called atrial fibrillation. All four agents—Pradaxa, Eliquis, Xarelto and Savaysa—are safer and at least as effective as warfarin. However, for some patient all blood thinners are unsafe. This year an implantable device called Watchman has been approved. It can be inserted with a catheter into the heart's left atrial appendage and will prevent stokes without the need for any blood thinners.

REDUCING FUTURE HEART ATTACKS After a first heart attack, despite the use of stents, surgery and multiple drugs, patients continue to be at risk for future heart attacks, stroke and death. Aspirin has been the main blood thinner used to reduce this risk but now two new anti-platelet drugs vorapaxar (Zontivity) and ticagrelor (Brilinta) have been shown to further reduce the risk when added to aspirin indefinitely! Careful monitoring for bleeding is of course needed.

WEIGHT LOSS TO REDUCE ATRIAL FIBRILLATION While many of the advances noted above are expensive options the LEGACY study showed the value of a healthy lifestyle. A goal directed weight loss program resulting in > 10% weight loss resulted in a 6-fold decrease in the recurrence of atrial fibrillation. Weight fluctuations > 5% however increased the risk of atrial arrhythmias.

As always, consult with your health care provider to see if any of these new therapies is right for you or contact us at research@ahsmed.com.■

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To Your Heart!

Salt, Sugar and Sauces – the 2015 Dietary Guidelines

By Narendra Singh MD

This year the Dietary Guidelines Advisory Committee (DGAC) issued a report that hopefully will shake up the food industry and more importantly individual Americans. While it would be impossible to summarize the 500 page report (http://www.health.gov/dietaryguidelines/2015-dga-timeline.pdf) I want to highlight some key recommendations that can inprove your heart health.

In general terms, DGAC reaffirms that a diet rich in vegetables, fruits, whole grains, low or non-fat dairy, seafood, legumes, nuts and moderate alcohol (adults only) is beneficial. Reducing red and processed meat, sugar-sweetened foods and drinks as well as refined grains is equally important. The report also confirms that a plant based diet is not only healthier but also environmentally more sustainable than our traditional animal foods diet.

The report reemphasizes the value of replacing saturated fats with polyunsaturated fats. This lowers your bad cholesterol (LDL) and thereby reduces heart attacks and strokes. On the other hand, our previous dietary policy of restricting total fats and replacing them with carbohydrates has no beneficial impact on cardiovascular risk! Saturated fats should be limited to less that 10% of total calories. Dietary cholesterol such as from butter and eggs should no longer be restricted. The majority (80%) of cholesterol is produced in the liver and thus dietary intake has limited impact on blood levels.

Sugar consumption came out as one of the biggest concerns. It is one of the key factors in why 2/3 of Americans and considered overwieght or obese. It is the trigger for diabetes and all its devastating complications. Sugar should represent no more than 10% of total energy intake…a daunting target in our carb-rich world!

Salt has been equally contentious but the goals for the general population are to limit to less than 2300 gm a day. Reading food labels and utilizing electronic or written diaries are important tools for recognizing and changing dietary patterns.

With respect to seafood, DGAC advised paying more attention to the type of fish rather than the farm versus wild caught debate. Salmon and trout have much higher omega 3 levels per serving than do catfish or crawfish.

Dietary supplement often lead to overconsumption of certain nutrients, which is not necessary, but in general also not harmful. Certain nutients such as Vitamins A, D, E,C, folate, calcium, magnesium, iron, potassium and fiber are undercomsumed. It's one of the reason why a multivitamin a day is still worthwhile.

The committee also understood the need to reduce overall caloric intake by decreasing portion size and improving product labeling of total calories. Equally important was the need to increase physical activity over all age groups and populations. The success of the tobacco cessation campaign is now being reengineered to impact dietary behavior. Curtailing marketing to kids, adding soda taxes, limiting caloric density, offering fitness memberships or healthy food subsidies, may all play a role as we work both individually and collectively towards a healthier America!■

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To Your Heart!

Technology to Tame the Heart

By Narendra Singh MD

This month I'd like to discuss how we can utilize technology to protect our heart and strengthen our body. Some of the biggest names in the business (Apple®, Google®, and Samsung®) and other enterprises are investing heavily on what is called wearable technology such as Google glasses®, iWatch®, Fitbit® wristbands and AliveCor® monitors.

With these devices individuals are able to gather information such as body temperature, heart rate, steps taken, calories consumed, sleep patterns, respiratory rate, blood sugar and heart rhythm. Combine this with the thousands of health apps available on both the iPhone and Android platforms and the possibilities to monitor your body are nearly limitless.

With all new advances come new challenges. These devices are expensive and often can't reach those that need it most. The amount of information collected is huge and can almost be overwhelming. Knowing what to do with the information becomes the next hurdle.

This is a rapidly evolving field but I will provide some general thoughts on how best to take advantage of these technologies.

First identify what information you are seeking and determine which of the many apps or devices can offer it to you in the most affordable and user friendly manner. Second, determine what you plan on doing with the information. Tracking steps taken is of little value if you don't plan to increase those steps to a healthier target. Third, work with your health care professional to interpret your data in a meaningful way that allows you to safely achieve your personal health care goals.

Understanding the limitations of technology are also important. Many of these devices have not been well tested or ever validated. This can lead to false readings creating unnecessary concerns or a false sense of security. Whenever possible try and calibrate your device with standard medical equipment.

Limit who gets your information. We are in an era of big data and the apps you use to store information can also in turn be used to market merchandise and services back to you. The vendors collectively analyze and leverage population behaviors but with recent security breaches your personal behavior can also exposed. Personally collected data if released could also affect your future heath insurance premiums, disability and life insurance coverage and possibly employability.

Overall I believe these new devices have the potential to completely transform healthcare! In conjunction with endless access to internet information, you are empowered more than ever before to take control of your own health. So go ahead and wear your favorite technology to set new goals for optimal activity, restful sleep , calories consumed and weight lost!■

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To Your Heart!

Sleep Your Heart to Health

By Narendra Singh MD

It has been one of the greatest mysteries of the human body: why do we need to sleep? At a glance, it doesn't seem to serve a useful purpose and yet, deprived of sleep, most of us are eventually unable to function.

Studies now show that when we go to sleep the brain actually goes into action with a different series of functions similar to a computer that cleans out and backs up its hard drive overnight. Sleep helps restore and rejuvenate the human brain and body. It improves concentration, sharpens memory skills, regulates our weight, reduces the risk of depression and anxiety and potentially lowers the risk of Alzheimer's disease, osteoporosis, and cancer. From a cardiac perspective it reduces the risk for developing type 2 diabetes and helps regulate our autonomic nervous system and stress hormones.

During the sleep process the brain shrinks in size and gets rid of toxic byproducts generated by brain cells (neurons) using another set of brain cells previously ignored called glial cells. If we are unable to get rid of these toxic free radicals they deposit in the brain and can accelerate the development of degenerative brain disorders such as Alzheimer's. At the same time during sleep hormones that regulate weight, glucose control and body metabolism are resynchronized. Getting adequate sleep actually enhances your chances to lose weight!

The challenge in today's society is getting enough sleep. It is recommended that we get anywhere between 7-9 hours of sleep. Unfortunately in our 24/7 society getting this much sleep is often considered a luxury. It is estimated that 70 million Americans suffer from insomnia, 5% have fallen asleep while driving and 4% of the US population is dependent on prescription sleep aids. While these medications provide sleep, they don't allow the brain to work in the same way that natural sleep does.■

Better sleep will lead to a healthier brain and body in the morning. Your heart will thank you!

Here are some recommendations to improve your sleep pattern:

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To Your Heart!

Sunshine, Open Payments and Trusting your Physician

By Narendra Singh MD

IN the coming month we will see for the first time data from the Physician Payments Sunshine Act now entitled the Open Payments Program. Open Payments is a national disclosure program that promotes transparency by publishing the financial relationships between the medical industry and healthcare providers (physicians and hospitals) on a publicly accessible website developed by Centers for Medicare and Medicaid Services. This public website will be organized and designed to increase access to and knowledge about these relationships and to provide information to enable consumers to make informed decisions.

The goal of the program is to increase transparency in terms of the relationships that the industry has with health care professionals and institutions. It is important that the public understand the significance of these payments and what to do with the information.

Industry plays a vital role in health care, providing significant support for research, patient care assistance, and education of healthcare professionals. At the same time industry also has a mandate to its shareholders to maximize profitability through sales and marketing. This can sometimes lead to interactions that may be perceived inappropriate.

When a physician prescribes a medication but also has accepted a meal during an educational program, spoke on behalf of the company or received payment for research work on the product, is this automatically inappropriate? The answer should be no, but disclosure of this information is important so that the recipient can make an informed judgment on whether or not to accept the prescription or in some cases the device or procedure.

If a dinner presentation enhances a physician's knowledge and safe use of a new drug then the interaction is beneficial. If a physician speaks on behalf of the company to increase utilization of lifesaving drugs then the public is well-served. If a physician carries out a high quality clinical trial that enhances our knowledge about the utility of a new drug then the practice of medicine is favorably advanced. If similar activities are done for ulterior motives then we have a problem.

> **"The goal of the program is to increase transparency..."**

Conflicts of interest in medicine will always exist. Physicians are often given incentives to refer within their own hospital network, use generic drugs, order more tests or order less tests. Physicians often own their own testing facilities and therefore have an inherent conflict of interest when a test is ordered. Surgeons that recommend an operation gain to benefit financially from the procedure. Academic institutions reward doctors for publications, patents and productivity. None of this is inherently wrong but disclosure is critical to maintaining trust.

Open payments should lead to open discussion with your physician. Your doctor should be able to justify any perceived conflicts and should feel comfortable with your desire to receive an explanation . Trust is essential to a healthy patient-physician relationship. Truth and honesty help build that trust. Let the sunshine in!■

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TO YOUR HEART!

TO CATH OR NOT TO CATH... THAT IS THE QUESTION

By: Narendra Singh MD

Without a doubt one of the most powerful tools in cardiology is the heart catheterization (often called a cardiac angiogram). This involves advancing a very small flexible tube directly into the heart chambers and the blood vessels that supply the heart. This then enables us to get accurate pressure measurements in each of the heart chambers, assess the pumping function of the heart, identify any congenital abnormalities and most importantly determine the amount of plaque build up in the blood vessels supplying the heart. There are two main blood vessels to the heart –the RCA (right coronary artery) and the left main artery that quickly branches into the LAD (left anterior descending) and the LCX (left circumflex).

The heart cath is an invasive test and has rare but significant risks that must be weighed against the information gathered. Information from a cath can determine the need for new medications, open heart surgery, coronary artery bypass operation, valve repair or replacement and most often the need for a balloon and stent procedure.

In the past, heart caths were mainly done by accessing an artery in the leg (femoral approach). This led to the need for prolonged bed rest. Today many cardiologists can do the procedure through the wrist (radial approach)! Not only does this allow the patient to mobilize sooner but it results in less complications especially bleeding post procedure.

So who should get a heart catheterization? There is little doubt that if you are in the midst of a heart attack going directly to the cath lab is the best treatment option. Rapidly clearing a blockage with a combination of blood thinners and a stent can be life saving!

Most often however heart caths are done as an outpatient procedure in an elective setting. This should be considered if you have a stress test that suggest significant blockages, especially if your chest pain symptoms cannot be controlled with medications. Sometimes a heart cath is recommended because of ongoing chest pain for which no other explanation can be found. A heart cath may also be advisable if you have evidence of heart muscle damage or severe heart valve problems. A right heart cath is often needed to guide therapy for advanced lung disease.

Of course nobody likes the idea of having tubes advanced to the heart if its not needed. So what are some alternatives? There are at least four options to consider with your doctor.

A nuclear stress test, using a radioactive tracer can often identify if a blockage involves a small or large area of the heart. Small areas at risk can often be managed just with medications.

A CT angiogram give great pictures of the heart and blood vessels through a simple intravenous needle. The test, however, results in greater radiation exposure and greater contrast dye load. It is best done when the coronaries are expected to be normal otherwise you end up getting the heart cath anyways for a stent.

A calcium score is a simple and very useful test when the goal is to identify if there is early plaque buildup. It does not require any needles but also cant tell you how tight a blockage is.

Finally, an MRI often gives the best pictures but the test is expensive, the equipment is not readily available and patients often feel claustrophobic. It is best used to identify congenital abnormalities, aneurysm of the aorta or unusual finding on other tests.

Always consult with your cardiologist about the best option for you!■

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Waist Loss, Weight Loss, Health Gained

As American we have the dubious distinction of being the most overweight country in the world. Much of this can be attributed to a "toxic" lifestyle we have become accustomed to. We eat too much (super sizing and unlimited buffets) yet we exercise too little (drive thrus and remotes). We worry too much (finances and appearances) yet we relax too little (overscheduling and forfeited vacations).

The net result of all of this is an increase in obesity, diabetes ,hypertension and subsequently heart attacks, strokes and renal failure. We need to make a change! There are a lot of societal changes that can and should be made such as improving food labeling, restricting salts, teaching children and rewarding healthy choices by adults.

However while these societal changes slowly evolve, each one of us has the ability to make changes within ourselves right now. There are two body measurement that one should be familiar with. The first is BMI (body mass index=your weight in pounds x 703 divided by your height in inches squared) A BMI less that 18.5 is considered underweight, 18.5-25 is ideal, 25–30 is overweight, and greater than 30 is obese. The second measurement is WHR (waist to hip ratio=your waist size at the belly button divided by your hip size at the top of your pelvic bone). Ideal in men is <0.95 and in women <0.80. Ratios greater then 1 significantly increase your risk of cardiovascular disease.

Most of us turn to various diets and supplements. In general these are of limited value and much of the weight loss or inches off the waist will return all too soon. Consequently I don't endorse any but don't dissuade people from trying one as a way of kick starting their efforts. Sustained benefits will only be seen when caloric restriction (decreasing portion sizes and snacks) is coupled with healthy food choices (less carbohydrates, more Mediterranean diet) and increased energy expenditure (aerobic exercises and sports).

Weight loss drugs are available but all have some side effects, significant expense and only modest benefits. Two new weight loss drugs are being currently evaluated for cardiovascular benefit by our research team (Belviq and Qsymia) . Bariatric surgery is limited to those that are obese. While the three forms of this surgery (banding, gastric bypass and duodenal bypass) all carry increasing levels of risk, they are relatively safe in experienced centers. Unlike drugs and supplements, bariatric surgery has been shown to reverse diabetes, high blood pressure, high cholesterol and improve survival.

Many excellent resources are available through my website (www.heartdrsingh.com) or the AHA (www.heart.org) to help you get started on a path to a slimmer and healthier self!

By: Narendra Singh, MD

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FEAR NOT, FAINT NOT

One of the most common reasons to be seen in my office is for a fainting or near fainting episode. Fainting can occur for a number of reasons. It can be neurological such as stroke or seizure. Other times it can be heart related such as electrical disturbances or heart valve problems. A third type of fainting is caused by too low blood pressure and sudden changes in posture. These forms can usually be sorted out from the initial history and examination especially if there was someone present to observe and describe what happened.

Electrical causes for fainting include both a slow heart rate for which a pacemaker may be needed, and a fast heart rate for which drugs, a defibrillator or a burning procedure called an ablation may be required. Monitoring the heart externally (24 hrs-2 weeks) or internally with an implantable device (3 years) will often capture the arrhythmia.

Valvular causes for fainting occur if a heart valve is too tight and cannot open sufficiently for blood to flow to the head. This is usually identified by a murmur on examination and further confirmed by an ultrasound of the heart called an echocardiogram. Treatment is usually surgical.

Low blood pressure as a cause can be identified by checking the blood pressure and heart rate while lying down and then again after getting up to a standing position suddenly. Wearing compression stockings or adjusting medications that lower heart rate or blood pressure often resolve this form of fainting.

The final form of fainting is also the most common and it is called a vasovagal attack or neurocardiogenic syncope. This occurs more often in young individuals. Over excitement, fear, sight of blood, excessive heat, nausea, coughing or sometime even voiding can be triggers. Dehydration will aggravate the situation. Usually there are warning signs – feeling sweaty, flushed and weak while looking pale and unfocussed. Sitting down is essential, a cool cloth, fresh air and fluids will all help abort the episode. If one does faint, they usually awaken promptly with minimal confusion.

The mechanism for this type of fainting involves reflexes between the heart and brain. When one of the above triggers makes the heart rate go up, it in turn makes the walls of the heart touch each other. Through special nerves called mechanoreceptors the heart sends a message to the brain which then responds back with vagal nerve impulses that suddenly slows down the heart rate and drop blood pressure. This abrupt change causes the body to faint. This reflex can be reproduced by a test called a tilt table. Avoiding the triggers and improving daily hydration are the keys to prevention. Occasionally anti anxiety meds or beta blockers can be used but relaxation exercises are safer alternative. In rare circumstances when this type of fainting leads to injury a pacemaker is required. I hope that this knowledge can reduce fear which in turn can reduce faints!

By: Narendra Singh, MD

Narendra Singh MD FRCPC FACC FAHA, is a Clinical Assistant Professor, Georgia Regents University in Augusta, and the Director-Clinical Research, Atlanta Heart Specialists, LLC. Dr. Singh studied at the Dalhouse Medical School in Halifax, Nova Scotia and went on to complete a residency and cardiology fellowship at the University of Toronto. He may be reached at 678-679-6800.

Atrial Fibrillation and Stroke Prevention

Atrial fibrillation is the most common rhythm disturbance of the heart resulting in hospitalization. Fortunately, both prevention and treatment of atrial fibrillation has improved significantly. Common presenting symptoms include a racing heart, irregular heart rhythm, dizziness, fluid congestion, near fainting, and most serious of all, stroke. Atrial fibrillation causes the upper chamber of the heart to beat very fast and irregular. This in turn causes the lower chambers of the heart to also beat fast. In addition because the upper chamber of the heart is not contracting properly there is an increased risk of blood clot forming in an area called the atrial appendage. If the blood clot dislodges it can go to the head and cause an ischemic stroke.

The first step in the treatment of atrial fibrillation is to control the heart rate. This can be done by three different medications – beta blockers, calcium channel blockers, and digoxin. Ideally the heart rate at rest should be brought down to less than 100 beats/min.

Once the heart rate is controlled, an attempt to get back into regular rhythm should be made. This can be done with medications such as flecainide, propafenone, sotalol, amiodarone, or dronedarone. If these medications are not successful or if there is a need to convert back more urgently, then an electrical shock under anesthesia can be delivered. This will usually reset the heart back to normal rhythm immediately.

To determine the cause of atrial fibrillation, blood work, an ultrasound of the heart (echo) and a stress test are often performed. Unfortunately in many patients, atrial fibrillation keeps recurring despite medications. In those individuals a procedure called ablation can be performed. Under x-ray guidance catheters are advanced to the left side of the heart and an electrophysiologist burns portions of the upper chamber of the heart from where atrial fibrillation originates. These procedures are successful 65–75% with the first attempt. Additional attempts are sometimes required and should only be done in individuals in whom the atrial fibrillation is highly symptomatic.

In all patients who have atrial fibrillation, the risk of a stroke is determined by calculating a CHADSVASC score. Individuals having a score of one or more should be considered for treatment with a strong blood thinner called an anticoagulant. In the past this meant using warfarin, which is a drug that is very difficult to take as it requires repeat blood tests to monitor, multiple dose adjustments, dietary restrictions, and drug interactions. Fortunately three new alternative oral anticoagulants have come on the market in recent years. These include dabigatran (Pradaxa), rivaroxiban (Xaralto), and apixaban (Eliquis) and in the near future edoxaban (Lixiana). Although these drugs are more expensive, in general they are easier to take and safer to use and in the case of dabigatran and apixiban, superior to warfarin in reducing strokes.

If you have atrial fibrillation it is important to be followed by both a cardiologist and a primary care physician. As always, prevention is the key. Controlling your blood pressure, reducing stress, and avoiding strong stimulants will reduce your chances of developing these unwanted heart beats.

By: Narendra Singh, MD

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New Cholesterol Guidelines: What it Means for You

Last fall the American College of Cardiology and the American Heart Association jointly issued the long awaited new guidelines for cholesterol management. These guidelines represent a significant departure from our traditional approach. Rather than targeting to a specific LDL (bad cholesterol) or HDL (good cholesterol) number, the new guidelines emphasize the use of proven therapies (essentially statins) at proven doses (high or moderate intensity statin regimens) in specific populations.

The first group are individuals with established atherosclerotic cardiovascular disease (a prior heart attack, stroke, stent, coronary bypass or vascular surgery). They should in general, be on a high intensity statin regimen which aims to drop LDL by >50% from baseline. This usually means atorvastatin 40-80 mg or rosuvastatiin 20-40 mg daily. In patients over the age of 75, a moderate intensity regimen which aims to drop LDL by 30 to 50% should be used. Many of the older statins fall into this category.

The next group of individuals are diabetics. If you are over the age of 40 then at least one of the two statin regimens should be used. The next group are individuals who have a baseline LDL of > 190. Generally such individuals have a genetic cause for the high LDL and should be on a high intensity statin regimen.

> The report reemphasizes the importance of a healthy lifestyle that incorporates exercise and dietary modifications.

The 4th and largest group is also the most controversial recommendation. Using a specific risk calculator which can be downloaded (my.americanheart.org/professional/StatementsGuidelines/PreventionGuidelines/Prevention-Guidelines_UCM_457698_SubHomePage.jsp) individuals can determine their 10 year and lifetime risk for atherosclerotic cardiovascular disease. The risk calculator looks at age, sex, race, blood pressure, and baseline cholesterol level. If your 10 year risk is greater than 7.5% then statin therapy is recommended. For individuals having a lower risk, 4 additional factors are asked to be considered before determining the need for treatment. They include family history, a marker of inflammation hs-CRP >2, a calcium score >300 or a blood pressure measurement ankle-brachial index <0.9.

The use of other cholesterol lowering agents such as bile acid sequestrants, fibrates, niacin, ezetimibe and fish oils is now discouraged except in limited specific situations.

The report reemphasizes the importance of a healthy lifestyle that incorporates exercise and dietary modifications. In addition, prior to the initiation of statin therapy a discussion on side effects, drug interactions, and medication adherence needs to occur with the treating physician. I encourage you to use this opportunity to reassess your cholesterol and reduce your risk!

By: Narendra Singh, MD

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INSIGHTS INTO CLINICAL TRIALS

Over the years medical research has advanced our knowledge of medicine. Treatments for various diseases and illnesses are now available because of research studies. While advancements are welcomed by most, not so is the ability to take that leap of faith and sign up for a research study. Fear, misinformation and lack of trust may keep patients and volunteers from helping advance the knowledge of medicine and treatments.

At the forefront of worldwide research is Dr. Narendra Singh, board certified cardiologist and Director of Clinical Research with Atlanta Heart Specialists, LLC. He leads a nationally and internationally recognized research team based out of Cumming Georgia.

"Clinical trials are the cornerstone to medical progress and we are excited to offer these opportunities to our community" stated Dr. Singh. Clinical trials look at new ways to prevent, detect, or treat disease. Treatments might be new drugs or new combinations of drugs, new surgical procedures or devices, or new ways to use existing treatments.

"The goal of clinical trials is to determine if a new test or treatment works and is safe. Clinical trials can also look at other aspects of care, such as improving the quality of life for people with chronic illnesses," Dr. Singh added.

Clinical Trials Research

Should I participate?

Informed consent is essential to performing high-quality research. The investigator should be able to explain to you what the study is about, who is doing it, what are the risks, benefits and alternatives, what the safeguards are, and how your privacy is protected. All quality research is overseen by an institutional review board (IRB) and a data and safety monitoring board (DSMB) who provides independent oversight to ensure that the work is conducted to the highest ethical standards.

"Participating in a clinical trial gave me the opportunity to play a role in the discovery of treatments, cures, and preventions for certain diseases or medical conditions," explained Daniel G., patient.

While payment to participate in research is not considered ethical, our practice is able to compensate you for all travel related costs and there are no additional expenses to you or your insurance company.

Research also has a potential to provide the

Dr Singh has been a site investigator in over 100 national and international trials. He actively designs and conducts independent research. He has published extensively on topics ranging from South Asian heart disease, acute coronary syndromes, health outcomes, and disparities in access to care. He is the recipient of numerous awards and a highly sought after speaker and educator.

Clinical trials are the cornerstone to medical progress…

terms of more diligent care, early access to a new drug or device and free medical evaluations with a specialized team. It's one of the reasons why patients who participate in clinical trials usually do better than patients outside of trials regardless of which treatment arm they are assigned.

In clinical trials there is often a placebo (standard of care) arm. The purpose of this blinded random assignment to active treatment versus placebo is to reduce the possibility of introducing bias regarding the effect of the new intervention. In addition it is well known that the power of suggestion has a large therapeutic effect and therefore must be balanced.

Many of the drugs and devices that we now take for granted would not have been available had it not been for clinical trials research.

"Only with research did we find that a drug as simple as aspirin used previously for pain control, actually improved survival during a heart attack," Dr. Singh added.

The Phases of Research

Research is conducted in phases. Phase I studies are the first exposure in humans and carry with them the greatest risk or uncertainty. Phase II studies are small and designed to see if the experimental agent is beneficial.

Phase 3 studies are the large clinical trials that determine whether the drug should make it to market. Phase 4 studies take the approved compound and look for new indications for its use and are usually the safest of the trials.

"Being involved with research for the past 20 years and working with an outstanding team of highly experienced certified research coordinators and physicians I encourage you to consider involvement when the opportunity arises. You don't

Meet Dr. Narendra Singh

Dr. Singh is a Fellow of the American College of Cardiology, American Heart Association and Royal College of Physicians and Surgeons of Canada. He is a Clinical Assistant Professor at Georgia Regents University and Director of clinical research within his group. He is a Clinician Scientist with the Canadian Cardiovascular Research Network. Dr Singh also serves as a councilor on the Georgia Chapter, American College of Cardiology board.

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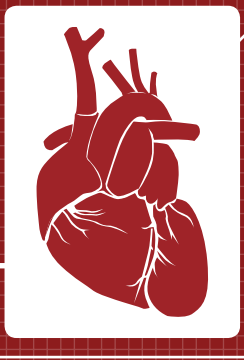

Clinical trials provide participants with an opportunity to help people suffering from medical conditions.

Research Team - *Left to Right:* Shraddha Dubal, Denise Whitlock, Gulanara Gousseinova, Erin Hampton, Courtney Clark, Kati Turner, absent-Deb Logwood

Clinical trials often come with hard to pronounce names but cover a wide range of conditions such as diabetes, high cholesterol, heart attacks, atrial fibrillation, heart failure, pacemakers, inflammation and peripheral atrial disease. If you would like to learn more about eligibility you can contact us at 678-679-1065 or e-mail DrSingh@heartdrsingh.com

Atlanta Heart Specialists studies open to enrollment: Cantos, Reduce-It, Odyssey Outcomes, Grand, Gloria-AF, CIRT, Siello, Declare Paragon HF, Tigris, Orbit AF Registry.

They are a nationally and internationally recognized research team based out of Cumming, Georgia.

even have to be a patient in our practice as long as your other physicians agree to your participation" stated Dr. Singh.

Each clinical trial in the United States must be approved and monitored by an Institutional Review Board (IRB) to ensure that the risks are minimal and are worth any potential benefits. An IRB is an independent committee that consists of physicians, statisticians, and members of the community who ensure that clinical trials are ethical and that the rights of participants are protected. Federal regulation requires all institutions in the United States that conduct or support biomedical research involving people to have an IRB initially approve and periodically review the research. Atlanta Heart Specialists has 10 other cardiologists in 7 locations throughout the city and a second research facility based out of the flagship office in Tucker, Georgia.

To learn more about trials at Atlanta Heart Specialists, LLC visit www.heartdrsingh.com or nationally at www.clinicaltrials.gov.

DRUG INTERACTIONS AND THE HEART

In clinical research we test a new drug under a controlled and closely monitored setting. When the drug gets approved for general use the same safeguards are not in place, and many new drugs have subsequently been restricted or taken off the market because of drug to drug interactions.

In cardiology we see many different types of drug interactions. One of the most common is related to the use of a blood thinner warfarin. This drug interacts with many medications including aspirin, anti-inflammatories, vitamin E, vitamin K rich foods, and fish oil supplements. Use of these agents in combination can result in either the blood becoming too thin or too thick.

Another common drug interaction is related to pain medications. While acetaminophen (Tylenol) is considered the safest, it is metabolized in the liver and excessive use can affect liver function and therefore impact the level of other drugs. Many patients use nonsteroidals (NSAID's) for treatment of headaches, cramps and arthritis. All NSAIDs increase the risk of heart attacks and strokes. They can also raise blood pressure and cause fluid retention . The safest of the NSAIDs is naproxen and whenever possible should be used instead of another common over- the-counter NSAID, ibuprofen, in patients with heart disease.

Drug interactions can also cause rhythm disturbances of the heart. Many drugs prolong the QT interval on a electrocardiogram. This can increase the risk of faintingor even sudden death. Individuals who are put on multiple drugs that prolong the QT interval should have an EKG done on a regular basis.

To reduce your risk here are some general guidelines to observe.

1. Always ask your doctor why a specific medication has been prescribed, how long it needs to continue and what are potential side effects and drug interactions.
2. Most drugs are metabolized in the liver and excreted either through the liver or kidneys. As a result any impairment of your liver or kidneys increases your potential for a drug interaction. A simple blood test can often confirm that these organs are functioning normally.
3. When a new drug or herbal supplement is added to existing meds please review with your doctor or pharmacist for potential drug interactions. Many websites can also provide this information but are unable to put it into context. Some interactions are mild and the net clinical benefit favors using both products.
4. Always keep an up to date list of your medications, including supplements, and provide this to any health care professional who will be prescribing another medication.
5. If you are feeling unwell upon initiating a new drug, contact your doctor immediately, but do not stop the drug suddenly without reviewing potential alternatives and implications.
6. Minimize the number of drugs and supplements you are taking. Continue only those that are essential to improve the quality or longevity of your life.

Taking multiple medications and supplements can go a long way towards healing our bodies. However it is up to all of us to ensure that we choose a combination that is safe and sensible.

By: Narendra Singh, MD

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STRESS | SPIRITUALITY | SIMPLICITY: Soothing the Heart!

Medicine is both an art and a science. The scientific progress of medicine has been breathtaking in its successes but there is still so much we don't understand about the human body and mind. Each year my wife Mitra, a Life Coach (embracethelimitlessyou.com) and Pranic (energy) healer takes me to an uplifting authors conference entitled ' I Can Do It '. These sessions reinforce in me the powerful healing our body can do often without the aid of drugs or devices.

In clinical research we compare new treatments to a 'placebo' arm to see the true difference. We do this in part because there is always benefit in the placebo arm, a clear demonstration of the power our own minds have upon healing. I have seen repeatedly in my practice two patients with similar heart conditions but the one with the more positive outlook on life always seems to do better.

Our world is becoming increasingly complex, our societies are undergoing rapid transformations and our values are constantly being challenged. This leads to tremendous stress which can have a detrimental effect on the heart. The autonomic nervous system that controls our 'fight or flight' response is put on high alert (sympathetic overload). Our adrenal glands release high doses of cortisol and adrenaline. This leads to the heart rate, blood pressure and respiratory rate going up. Blood vessels constrict, the blood itself thickens and the potential for heart attacks, stroke and death rises significantly.

We can take many steps to reverse this process. Let me outline a few examples to consider. ***Deep breathing exercises***, through yoga, meditation, tai chi or hypnosis help to slow down the heart rate and calm the body. Even as little as15 minutes a day has been shown to be beneficial.

Relaxation through massage therapy, exercise, music, craft work or other hobbies will do wonders for the heart by raising levels of healing hormones such as endorphins and s erotonin.

Socialization in church groups, community centers or other venues increases oxytocin (the 'love' hormone) levels and provides a sense of well being and self worth.

Pets, especially dogs, demonstrate an unconditional love that is worth emulating in our own lives. Owners of pets have less heart attacks and also heal faster after a heart attack.

Many studies have looked at the power of ***prayer and spiritual thinking***. They have repeatedly shown benefit in mending the heart and other illnesses.

Mindfulness is defined as "a moment-to-moment, non-judgmental awareness." This type of therapy has been shown to reduce stress, improve health, work performance and education.

While many of these approaches can be done on your own, the help of others can often speed up the path to recovery. Expertise from psychologists and certified life coaches, touch (reiki), energy (pranic) healers, biofeedback therapists and of course physicians willing to incorporate complementary techniques into the art of medicine are all valuable resources in our quest to stay healthy and healed!

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MYSTERIOUS MURMURS

The iconic black stethoscope is synonomous with physicians. For cardiologists it is a key tool to unravel the mystery of heart murmurs. Murmurs occur due to the flow of blood through various chambers of the heart. We have two valves that connect the upper (atria) and lower (ventricle) chambers of the heart (tricuspid valve on the right and mitral on the left side) , one pulmonic valve that connects the right ventricle to the lungs through the pulmonary artery, and, one aortic valve that connects the left ventricle to the rest of the body through the aorta. If the valve is too tight (stenosis) or too loose (prolapse or regurgitation) it will result in a murmur.

"Preventing damage is achieved by good blood pressure/heart rate control and good dental hygiene…"

By listening to the timing, intensity, quality and location of the murmur, physicians can quite often determine exactly which valve is involved and how severe that involvement is. Occasionally the murmur is related to a hole in the heart or an abnormal blood vessel connection. Fortunately we now have high resolution safe ultrasound technology called 'echocardiography' to image the entire heart, its valves and blood flow in great detail. Many of you may have been born with a murmur which is often called 'innocent' or 'physiologic'. As our heart enlarges and our body fat increases the murmur usually disappears. Murmurs that persist later in childhood should be investigated to make sure that a congenital heart defect is not present. In parts of the world where rheumatic or scarlet fever still persist, the valves can become scarred and result in murmurs later in life.

Identifying a murmur is important since abnormalities of the heart valve can lead to many different problems. They can trigger rhythm disturbances of the heart such as skipped beats or atrial fibrillation. Murmurs can cause shortness of breath, congestion in the lungs or swelling of the feet. Tight valves can result in chest pain, fatigue, lightheadedness or even a fainting spell. Infected valves can lead to strokes.

The most common reason for heart valves to get damaged is the wear and tear of repeatedly opening and closing 60-80 times a minutes 24/7 over a lifetime. Preventing damage to heart valves is achieved by good blood pressure/heart rate control and good dental hygiene since bleeding of the gums can result in the valves becoming infected or damaged further. Antibiotics prior to dental work however are no longer routinely recommended.

If you are diagnosed with a heart murmur your cardiologist will identify which valve is involved and monitor changes to the valve clinically and with an echo at varying intervals. In general, valve damage progresses slowly. Many murmurs never require any surgical intervention.

The treatment for advanced heart valve damage is to either attempt a repair of the valve or replace the valve. Some valve repairs can now be done robotically at specialized centers. Similarly, some valves can be replaced through a catheter-based technique called TAVI at specialized centers. The majority of valves still require a major open heart surgical procedure. Valves that are removed can either be replaced with a tissue valve or a mechanical valve. Mechanical valves last longer but require the lifelong use of strong blood thinners such as warfarin.

If you have a heart murmur let your physician solve the mystery and help you protect your valves.

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DENYING DIABETES THROUGH DIET AND DRUGS

The incidence of diabetes is increasing here in Georgia and around the world at an alarming rate. Type 1 diabetes usually occurs in childhood. It is an autoimmune attack against the pancreas, the organ responsible for producing the hormone insulin, which in turn regulates the body's blood glucose level. Type 2 diabetes is the more common form and occurs when weight gain and abdominal fat lead to insulin resistance and overwhelm the body's ability to produce enough insulin. Type 2 diabetes also goes by the term non-insulin dependent diabetes (NIDDM) or adult onset diabetes.

Elevated blood sugars over time lead to many serious problems such as heart disease, stroke, renal failure, cataracts, blindness, peripheral neuropathy and amputations. Well over half of my patients have or are at risk for diabetes!

The first step towards prevention of diabetes is to know your risk. If you have a family history of diabetes or a personal history of gestational diabetes you are at increased risk. If you are of African American, Hispanic or of South Asian origin you are also at increased risk. Such individuals should get a fasting blood glucose and a hemoglobin A1c checked (this is a 3 month average of your glucose control). A fasting glucose less than 100 is normal while greater than 126 represents diabetes. In between is what is known as impaired glucose tolerance or "prediabetes". Similarly, an A1c of 5.6% or less is normal while 6.5% or more represents diabetes. In between once again is the pre-diabetes range.

Dietary measures are the first step to improving glucose control. Many websites such as **www.diabetes.org** can provide helpful guidance along with a dietician. In general cutting back on carbohydrates is essential. When choosing carbohydrates those with a low "glycemic index" (55 or less) are recommended. These include beans, small seeds, whole grains, fruits and vegetables. The lower the glycemic index the longer it takes the gut to break down the carbohydrate thereby providing a more gradual rise in blood glucose post meals. Reducing portion size and eating more frequent but smaller meals or snacks also improves blood glucose. Regular exercise complements dietary measures by improving blood flow to the muscles. This in turn improves uptake of glucose by muscles and decreases insulin resistance.

Obesity, defined as a body mass index (BMI) of greater than 30 is often a precursor to diabetes. Such individuals should also check their waist circumference and a blood fat called triglycerides. When both are elevated your risk of diabetes is much greater.

When dietary measures are not enough it is important to discuss medication options before the complications of diabetes set in. Metformin is usually our first drug of choice as it lowers sugar while causing some weight loss. Many other classes of drugs have also been developed but all have some limitations. Some cause weight gain, others increase cancer risk while most are unproven with respect to cardiovascular safety. Your physician will discuss the options and advise regarding the best regimen. If sugars remain elevated despite combination therapy then insulin delivered through intermittent injections or a continuous pump are another option. For some individuals bariatric (weight loss) surgery can provide significant benefit.

The diabetes epidemic can be reversed but it will take a concerted effort to change our diets at home, in our schools and in the choices we make at restaurants and grocers throughout our neighborhoods!

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CASHING IN ON THE MEDITERRANEAN…DIET WISE

Lately the news from the Mediterranean has been discouraging financially However amidst the economic tumoil, a study out of Spain called PREDIMED has changed the way cardiologists and others view dietary patterns for the prevention of cardiovascular disease. Published in the prestigious New England Journal of Medicine in February 2013, the study looked at 7447 persons over the age of 55 who were free of heart disease. They were randomized to one of dietary treatment groups: a Mediterrranean diet supplemented with unlimited use of extra virgin olive oil, a Mediterrranean diet supplemented with unlimited consumption of mixed nuts, or a control diet with advice to consume less fat.

« The largest benefit came in the reduction of stroke.»

The study was terminated early in favor of both Mediterranean diets after a median follow up of just 4.8 years because of a 30% reduction in the combined endpoints of heart attacks, strokes and death from cardiovascular causes. The largest benefit came in the reduction of stroke. What made this study stand out was that it was randomized (removes potential selection bias) and rigorously monitored. The outcomes were meaningful. Rather than just looking at weight loss, caloric intake or lab values it focussed on what matters most to such patients: survival free of serious complications! The study also shattered the myth that restricting calories is more important that choosing the right foods. The olive oil group was asked to consume an extra 50 grams (4 tablespoons) daily of the polyphenol rich variety. The mixed nut group was asked to consume an extra daily serving consisting of 15gm walnuts, 7.5 gm almonds and 7.5 gm of hazelnuts.

In addition to these extra servings, the Mediterranean diet groups were recommended the following : olive oil – 4 or more tbsp/day, tree nuts and peanuts – 3 or more servings per week, fresh fruits – 3 or more servings a day, vegetables - 3 or more servings a day, fish (especially fatty fish),seafood - 3 or more servings per week, legumes-3 or more servings per week, Sofrito (tomato sauce with onions garlic, aromatic herbs and olive oil) – 2 or more servings per week, white meat instead of red meat and finally wine with meals for those that enjoy drinking – 7 or more glasses per week. These individuals were also asked to limit soda drinks to less than 1 drink a day and commeercial bakery goods, sweets and pasteries to < 3 servings per week , spread fats to less than 1 serving per day and red or processed meats to less than 1 serving a day.

All studies have their limitations and all diets have some challenges. Here in North America consumption of such a diet will undoubtably cost more. In addition, other social factors such as the amount of daily exercise, chronic stress levels, and medication compliance will all impact your cardiovascular health, but this is without a doubt a great way to start the process of better eating and healthier lives!

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LOVE YOUR HEART THROUGH EXERCISE!

February is heart month and you can show your heart some love through the benefits of exercise. If you are like me, the winter has taken a toll on the waistline and weight. In the landmark INTERHEART study 3 risk factors were deemed protective ; daily consumption of fresh fruits and vegetables, moderate > 3x/week consumption of alcohol and moderate to strenuous exercise.

Exercise has a wide range of benefits. Starting with the obvious, it burns calories and improves overall cardiovascular fitness. That's why cardiac rehabilitation programs are an essential component of recovery following a heart attack or surgery. While exercise initially may raise your blood pressure, with time it comes down. Exercise increases blood flow to muscles and thereby improves blood sugar levels by allowing better glucose uptake. Exercise is one of the best means for raising your HDL 'good' cholesterol. Through the release of various hormones exercise helps generate new blood vessels, improve vascular tone and decrease inflammation in the body as measured by hs-CRP. Exercise has also been shown to release endorphins, the body's 'feel good' substance that can lift depression ease anxiety and reduce stress!

« Exercise increases blood flow to muscles and thereby improves blood sugar levels by allowing better glucose uptake. »

So lets get started... If you have not been active for a long time, or have any chest discomfort symptoms, or have risk factors for heart disease, it may be worthwhile to see your doctor first to get some baseline bloodwork as well as an EKG and a simple treadmill test. Proper footware is essential to prevent injury. Your regimen should consist of both isometric exercises (designed to improve muscle tone and strenthen your body core) and aerobic exercises (designed to improve cardiovascular fitness and endurance).

The simplest form of exercising is brisk walking. It can be done in the comfort of your home, in a gym, indoor shopping malls or within your neighborhood streets. No equipment is needed but you do want to get out at least 5 days a week for a minimum of 30 minutes. Another useful target to acheive is counting footsteps. Inexpensive pedometers can help track each step you take towards a target of 7500-10000 a day.

Heart rate should be checked during exercise and in general we use the formula of 220 minus your age as the target heart rate. You should avoid exceeding the target heart rate for extended time periods and ideally workout at 85% of the target heart rate.

For some individuals arthritis and other medical conditions prevent one from walking. In those situations a stationary bicycle, elliptical equipment or water aoerbics may be easier to perform.

In our busy lives finding even 30 minutes a day sometimes seems challenging. Incorporating exercise into our daily activites can offer the same benefits. Walk to your destination a little faster, use stairs rather than elevators, use your coffee breaks to stretch rather than sip, hide the remote control or better yet unplug the TV!

If at anytime during exercise you notice unusual shortness of breath or chest discomfort, stop, and consult with you doctor. Otherwise enjoy your path to a trimmer and healthier self!

By: Narendra Singh, MD

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However, in all individuals who are having prolonged chest pain, chewing aspirin could save your life!

Beyond Aspirin- How thin is thin?

By NARENDRA SINGH, MD, FRCP(C), FACC, FAHA

Cardiologists seem to have a facination with blood. More specifically … they love to thin blood! To understand our fascination, one needs to understand how heart attacks occur. Within our body are small plaques that look like pimples on the surface of blood vessels. Even though these plaques may only be causing a 20-30% blockage, if they rupture (through high blood pressure or inflammation), the exposed surface gets quickly covered by clot and now the blockage suddenly becomes 100% and you have a full blown heart attack!

The iconic Bayer® aspirin, once used mainly for pain relief, was discovered to also thin blood. This platelet inhibitor reduces the risk of stroke and future heart attacks in individuals who have already had an event. Its role in primary prevention is less clear with benefits being greater in men than women. However, in all individuals who are having prolonged chest pain, chewing aspirin could save your life! After aspirin came another wonder drug called Plavix® (clopidogel). In combination with aspirin this can further reduce heart attacks, keep stents open and improve peripheral arterial disease. The newest and most effective platelet inhibitor is called Brilinta (ticagrelor) which reduces cardiovascular deaths an additional 21% over clopidogrel.

When antiplatelet agents are not enough 'anticoagulants' are considered. The most famous of these is warfarin (not so fondly referred to as 'rat poison'). Although the dosing of this drug is tricky (monitor the INR) it protects against strokes, heart attacks, blood clots on valves, in the legs, and to the lungs. Only in the past two years have newer alternatives that are safer and in some cases more effective than warfarin been developed. Pradaxa® (dabigatran), Xaralto® (rivaroxaban) and now Eliquis® (apixaban) all have the advantage of little monitoring requirements and less dietary food restrictions.

Within the hospital, patients may be put on a host of blood thinners intervenously (heparin, bivalarudin, eptifibatide) or through needle injections (enoxaparin,dalteparin, fondaparinux) to prevent leg clots or acute closure of a stent. The most powerful of all blood thinners are called thrombolytics (TPA,TNK) and are used to open up 100% blockages in the heart or head when a balloon procedure is not feasible.

Blood thinners are of immense value to those that need them but precautions must be taken. If you cut or injure yourself you may bleed more. Slow blood loss can result in anemia, while rapid blood loss can cause collapse. Avoid other drugs (eg. NSAID's) or supplements (Vitamin E, fish oils) that can increase the risk of bleeing. Minimize alcohol consumption on blood thinners.While the newer agents reduce bleeding complications in the head, they are more expensive and as yet do not have a reversing agent. Always consult with your doctor for the right choice….and know that these modern day vampires only have your heart in mind!

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Despite our best efforts some patient's heart function does not improve. In this setting we often move to device therapies.

Achieving Success With Heart Failure

By NARENDRA SINGH, MD, FRCP(C), FACC, FAHA

The diagnosis of heart failure is one of the most dreaded your cardiologist can deliver. It carries with it a prognosis that is worse than most cancers. It is the final common pathway by which the heart fails to meet the needs of the body. As a result one feels shortness of breath, congestion in the lungs, swelling of the legs, generalized fatigue, weight gain and arrhythmias.

To make the diagnosis of heart failure in addition to a thorough examination, your cardiologist will often order an EKG, chest x-ray, echocardiogram, and sometimes a heart catheterization or cardiac MRI. Normally the main chamber of the heart (left ventricle) pumps about 60% of its blood content with each beat. This is called the ejection fraction (EF). Although some heart failure occurs in the setting of a normal ejection fraction and a stiff ventricle (diastolic) most are due to weakening. An ejection fraction of less then 35% usually results in heart failure symptoms.

Treatment for heart failure often involves educating the patient. Normally we encourage people to drink lots of water but in heart failure the patient must greatly restrict their fluid and sodium intake. We monitor fluid retention by using a scale to weigh themselves daily. Based on this one can adjust their diuretic dose which will get rid of the fluid but at the expense of drying out the kidneys.

All heart failure patients need to be on a number of medications that will gradually increase the ejection fraction. The most important of these are beta blockers (carvedilol, metoprolol). Subsequently an ACE inhibitor or ARB (but not both) are added. Finally a medication called spironolactone is needed. Since these medications can affect blood pressure, heart rate, and the kidneys, they need to be monitored closely. These medications are truly wonder drugs having taken patients on the verge of heart transplantation to being able to lead a healthy and energetic life !

Despite our best efforts some patient's heart function does not improve. In this setting we often move to device therapies. These include ICDs (implantable cardioverter defibrillators), CRTs (cardiac resynchronization therapy) and VAD's (ventricular assist device). The latter is essentially a mini artificial heart powered by batteries that the patient carries in an attached backpack! The final option is receiving a heart transplantation. This is unfortunately restricted by donor supply and therefore I encourage everyone to consider registering as a donor.

Of course, the best treatment for heart failure is not developing it at all. Some forms of heart failure are congenital, viral, or the undesirable side effect of chemotherapy. These cannot be avoided but the majority are related to risk factors (hypertension, diabetes) and lifestyle choices (smoking, inactivity) that we make each day. Let's continue our success in heart failure by preventing its presentation!

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However in some individuals the fast heart rate can be due to a 'short circuiting ' of the electrical fibers of the heart.

Flutters in the Night- Be Still My Beating Heart !

By NARENDRA SINGH, MD, FRCP(C), FACC, FAHA

One of the most common reasons for a cardiology consultation is the uncomfortable sensation of ones own heart beat either pausing, skipping or even racing. These are often most notable at night or when we are resting on our left side. Symptoms also include chest pain, shortness of breath, dizziness and lightheadedness.

Capturing these events is the key to making a diagnosis. Frequent events can be picked up on an EKG, stress test or a 24-hr holter monitor. Rare events may require a four week event monitor or even an implantable loop recorder that stays active for up to three years.

Pauses (bradycardia) can be caused by certain medications that slow down the heart rate or following an extra beat when the heart rhythm must reset itself. A pause greater than three seconds may require a pacemaker to prevent fainting episodes.

Skip beats are extra heartbeats that can originate in the upper chamber of the heart (PAC – premature atrial contraction) or the lower chamber (PVC- premature ventricular contraction). While sometimes distressing, even if every other heart beat was a skipped beat no harm would be done. Avoidance of triggers is the key to reducing these episodes. Lack of sleep, dehydration, chronic stress, caffeine, decongestants, antihistamines, energy drinks and weight loss supplements are common causes. Occasionally beta-blockers or calcium channel blockers are used to suppress these extra beats.

A racing heart (heart rate > 100 beats/min) is what concerns doctors the most. Most commonly this is your own natural heart rhythm going fast (sinus tachcardia) . The same triggers as noted above along with anemia, hyperthyroidism and anxiety are often culprits. However in some individuals the fast heart rate can be due to a 'short circuiting ' of the electrical fibers of the heart. This can lead to more serious rhythm disturbance called atrial flutter (AF), atrial fibrillation (AFIB), supraventricular tachycardia (SVT) or ventricular tachycardia (VT). Since these disorders have the potential to make you collapse, longterm rhythm medications and blood thinners (to prevent strokes) are recommended. In more serious cases a specialized catheter-guided burning procedure called an 'ablation' can be performed or an electical shock can be delivered through a defibrillator to reset the heart rhythm.

Yoga, meditation, deep breathing and regular aerobic exercise all help to control your heart rate but if those fluttering persist, let us help quieten them down!

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A promising drug that lowers blood sugar ended up having a harmful effect on the heart.

Clinical Trials Research Why should I participate?

By NARENDRA SINGH, MD, FRCP(C), FACC, FAHA

Research is the cornerstone for advancement of knowledge in medicine. Many of the drugs and devices that we now take for granted would not have been available had it not been for clinical trials research.

Informed consent is essential to performing high-quality research. The investigator should be able to explain to you what the study is about, who is doing it, what are the risks, benefits and alternatives, what the safeguards are, and how your privacy is protected. All quality research is overseen by an institutional review board (IRB) who provides independent oversight to ensure that the work is conducted to the highest ethical standards.

Research is voluntary. It has the potential to provide the participant with some benefits in terms of more diligent care, early access to a new drug or device and free medical evaluations with a specialized team. This is one of the reasons why patients who participate in clinical trials usually do better than patients outside of trials.

In clinical trials there is often a placebo (standard of care) arm. The purpose of this blinded random assignment to active treatment versus placebo is to reduce the possibility of introducing bias regarding the effect of the new intervention. In addition, it is well known that the power of suggestion has a large therapeutic effect and therefore must be balanced.

In cardiology we have learned that when we use drugs or devices, there are often unforeseen consequences. A promising drug that lowers blood sugar ended up having a harmful effect on the heart. Similarly, a drug that raised good cholesterol also raised blood pressure. Another drug that was effective at eliminating skipped beats turned out to cause more severe arrhythmias. We have seen equally surprising benefits. A drug that slows down your heart rate in turn makes you live longer. Only with research did we find that a drug as simple as aspirin used previously for pain control, actually improved survival during a heart attack!

Research is conducted in phases. Phase I studies are the first exposure in humans and carry with them the greatest risk or uncertainty. Phase II studies are small and designed to see if the experimental agent is beneficial. Phase 3 studies are the large clinical trials that determine whether the drug should make it to market. Phase 4 studies take the approved compound and look for new indications for its use and are usually the safest of the trials.

Being involved with research for the past 20 years and working with an outstanding team of nurses and physicians I want to encourage you to consider participating in clinical trials when the opportunity arises. To learn more about trials visit us at ***www.ahsmed.com*** or nationally at ***www.clinicaltrials.gov***.

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We now know that it is the sudden surge of blood pressure that can often precipitate acute events such as a heart attack, stroke or sudden death.

Hypertension is no Hype

By NARENDRA SINGH, MD, FRCP(C), FACC, FAHA

We have all heard about hypertension ; some of us have hypertension, less are treated for hypertension and too few are adequately protected from hypertension. Hypertension (high blood pressure- HBP) is the leading treatable risk factor for death worldwide. It affects all organs and contributes to strokes, heart attacks, and kidney failure. Other than a headache, hypertension rarely is noticeable without a blood pressure measurement. Blood pressure readings can be obtained in the doctor's office , most pharmacies and at home. Systolic represents the top number and diastolic represents the bottom number. Systolic readings go up as vessels harden over time. Diastolic numbers are more influenced by your autonomic nervous system and vascular tone. If your systolic reading is over 140 mmHg or your diastolic is over 90 mmHg, you have hypertension.

Age, family history and ethnic backgrounds are important determinants of HBP. Your weight, salt intake, alcohol consumption and activity level all contribute to HBP. Many patients believe that they have 'white coat' hypertension, a phenomenon in which patients exhibit elevated blood pressure in a clinical setting but not in other settings. It is believed that this is due to the anxiety some people experience during a clinic visit. In the past we often did not treat such patients. We now know that it is the sudden surge of blood pressure that can often precipitate acute events such as a heart attack, stroke or sudden death, by causing a plaque in the heart or neck to rupture. Therefore controlling blood pressure surges is important. If your blood pressure goes up in the doctor's office, chances are that other life situations also cause similar surges.

A minimum of three elevated readings on separate occasions is required to diagnose hypertension. Initial treatment for mild cases is lifestyle modification. Reducing your sodium intake to under 2g a day, exercising vigorously for 30 minutes 5 times a week, losing weight and reducing alcohol intake to less than two drinks a day will all significantly lower your blood pressure. Many over-the-counter medications most notably the anti-inflammatory agents such as ibuprofen, decongestants, and stimulants including caffeine can raise your blood pressure.

There are a few medical conditions such as hyperthyroid disease, kidney disease and adrenal gland tumors that can cause high blood pressure. These are relatively rare.

When lifestyle modification fails, or if you already have evidence of hypertension induced injury to vital organs, then drug therapy needs to be initiated. In the past, hypertensive drugs were expensive and filled with side effects. Today, we are fortunate to have many drugs which work well independently or in combination. Most are now generic and easily affordable. ACE inhibitor, angiotensin receptor blockers, aldosterone antagonists, calcium channel blockers, beta blockers, alpha blockers, direct renin inhibitors, direct vasodilators, nitrates and diuretics are all options. Your doctor will help choose the right combination of these drugs to minimize side effects, cost, and inconvenience while maximizing benefit both in terms of reducing blood pressure but more importantly preventing bad outcomes. It's worth knowing your blood pressure!

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Many companies have samples, assistance programs, voucher cards, and free 30 day supplies for branded prescription drugs.

GENERIC MEDICATIONS
Are They Right For You ?

By NARENDRA SINGH, MD, FRCP(C), FACC, FAHA

Generic medications are drugs that have been approved by the FDA as being 'equivalent' to the original brand name medication. They tend to be considerably less expensive . As the cost of healthcare rises the push to use generic medications increases both from a patients perspective and from your insurance company.

The following are some points I want you to consider when choosing generic medications.

- The FDA considers a generic medication 'equivalent' to the branded medication if it is at least 80% of the strength to as much as 125% of the strength. It is therefore very important to ensure that your pharmacy provide you with the same generic company each time. If not, you can have significant fluctuation in your drug dosage and drug effect.
- Generic meds use different fillers than branded meds. This is usually not an issue unless you have a lot of gastrointestinal sensitivities.
- For some medications there is no true generic equivalent. In such cases you must stay with the branded product until you discuss with your doctor any cost implications.
- For some medications the 'branded' product has additional benefits beyond the generic option. In such cases a discussion with you doctor will allow you to make the best and most informed choice for yourself.
- Be careful about purchasing any drugs from abroad. While drugs from real Canadian pharmacies are generally safe, the same cannot be said for drugs from India, China and Mexico.
- While generic medications are regulated by the FDA, over-the-counter (OTC) supplements are not. It is best to consult a naturopath before using OTC supplements. OTC supplements should complement rather than replace prescription drugs. Always keep an updated list of your medications including supplements and bring to each office visit. This will help reduce the risk of overmedicating and potential drug interactions.
- Do not stop any medication without notifying your physician. In general physicians will alway opt to prescribe the best treatment for you, however if it is not affordable, we will work with you to determine reasonable alternatives
- Many companies have samples, assistance programs, voucher cards, and free 30 day supplies for branded prescription drugs. There are no samples for generic meds but some stores offer these drugs for FREE with a prescription.

From a cardiologist perspective its nice to know that we now have a wide variety of generic medications to help prevent future progression of heart disease relatively inexpensively !

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> "I strongly recommend all individuals who have any evidence of vascular disease, whether that be a previous stroke, heart attack, stents, or bypass surgery to stay on a statin capable of bringing their LDL cholesterol at least below 100."

Statins : *What's real what's not!*

By NARENDRA SINGH, MD, FRCP(C), FACC, FAHA

A class of cardiac medications called 'statins' has recently received a lot of press coverage. The headlines include claims that statins save lives, cause diabetes, reduce Parkinson's disease, and increase memory loss. These are amongst the top selling medications worldwide and the implications of each headline on patient compliance can be substantial.

There are six statins available in the United States with simvastatin(Zocor), atorvastatin(Lipitor) and rosuvastatin (Crestor) being the most commonly used. All statins work by shutting off the liver's ability to produce cholesterol. This in turn reduces plaque buildup in our arteries. Statins have been studied for over 25 years and multiple studies have confirmed their benefit in reducing the risk of heart attacks, strokes, and even death. The greatest benefit occurs in those individuals who have established plaque buildup (secondary prevention).

Statins reduce your bad cholesterol (LDL) but have minimal affect on the good cholesterol (HDL). Statins also decrease inflammation in the body (as measured by hsCRP). In order to prevent the progression of plaque buildup your LDL needs to be less than 100 mg/dl, and to reverse plaque buildup your LDL needs to be less than 70 mg/dl. Achieving these numbers through today's calorie rich diets is difficult although not impossible (www.ornishspectrum.com).

I strongly recommend all individuals who have any evidence of vascular disease, whether that be a previous stroke, heart attack, stents, or bypass surgery to stay on a statin capable of bringing their LDL cholesterol at least below 100.

The picture is less clear when it comes to primary prevention. These are individuals who may have risk factors for heart disease but no evidence of it presently. For many high-risk individuals such as those with a strong family history of heart disease, diabetes, inflammation or hypertension, studies support the use of a statin. For lower risk individuals the potential risks of statins need to be considered. While these are among the safest drugs on the market, in a few patients they can affect the liver.
Muscle injury is also very rare but 'muscle pain' is one of the most frequent side effects. For most patients good hydration and sometime the use of CoQ10 from the health food store can alleviate these symptoms. Statins are likely harmful and contraindicated during pregnancy. The long-term use of statins is quite favorable but in a small percentage of patients diabetes will develop. The data on memory loss however is less convincing and in some cases statins actually improves cognition.

As a result for individuals at low-risk I would not recommend a statin and reemphasize dietary measures to get the cholesterol as optimal as possible. For individuals at intermediate risk, two noninvasive tests are helpful in guiding who should be treated. Unfortunately insurance companies generally do not cover these tests but they are relatively inexpensive. An ultrasound of the carotid arteries to look for intimal medial thickness (IMT) or a low radiation dose CT called a calcium score can help determine if there is early plaque buildup. In such individuals I would favor treatment with a statin if dietary measures are unsuccessful. Studies are currently underway to validate this approach.

Statins undoubtedly are one of the greatest medicines ever developed, but all medicines have their limitations and side effects. Consult with your physician before initiating or terminating statin therapy. I personally am into my ninth year of taking a statin for primary prevention!

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Supplements and YOUR HEART

[By Dr. Narendra Singh, MD, FRCPC FACC FAHA]

One of the most common questions I am asked in my clinic is what supplements do you recommend to protect against heart disease. The answer is both simple…NONE… and complex… depends on what you mean by a supplement.

A landmark study entitled INTERHEART showed that 90% of heart disease risk can be predicted by 9 risk factors.The six risk factors that increased risk include abnormal lipids, smoking, hypertension, diabetes, abdominal obesity, and psychosocial factors. The 3 risk factors that decrease cardiovascular risk include regular physical activity, moderate alcohol intake, and regular consumption of fruits and vegetables.

Many large trials looking at supplements such as vitamin B 12, folic acid, niacin, vitamin C, vitamin E and most recently vitamin D have failed to reduced cardiovascular risk and in some cases increased risk of other complications slightly. The concept of using supplements results from a lifestyle that has become more sedentar and stressful, and a diet that has become more processed and calorie decadent. Supplements are felt to help neutralize these adverse changes.

I would counter that the best supplements one can take come from proper dietary choices. There is ample evidence that antioxidants reduce the risk of heart disease. Finding the right mixture of supplements is more difficult than choosing the right foods such as vegetables rich in flavinoids, (tomatoes, berries, chocolate and even caffeine). The highly touted Mediterranean diets' success is largely in part to the incorporation of such foods.

Another important supplement (dietary choice) are omega-3 fats. The American Heart Association recommends 2 grams of omega 3-containing foods or supplements on a daily basis while eliminating all trans fats.

Multiple studies have shown that alcohol in moderation reduces cardiovascular risk in part by raising good (HDL) cholesterol. This amounts to 1 drink for women and 2 drinks for men daily, without the luxury of saving up all consumption for the weekend! Red wine confers the added bennefit of antioxidants such as resveratrol.

Foods rich in dietary fiber and having a low glycemic index (nuts, legumes and whole grains) work by reducing total caloric intake, improving diabetes control, and protecting against both heart disease and cancer risk.

So …other than a simple multivitamin…the path to a healthier heart is not in supplementing with tablets but rather with a richer choice of food and drinks in your daily lives!

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Preventing Eye Injuries

[by Dr. Mira Sivan]

Experts say more than 90% of eye injuries can be prevented by simply taking a few precautions and wearing safety glasses. Those can be with corrective lenses or without any power. Either way, the lenses have to be made from Polycarbonate or Trivex material.

If you use a lawn mower, leaf-blower, drill or similar power tools, you need protective eyewear. These glasses should have a snug, wrap-style frame to decrease the likelihood of small, airborne particles getting behind the lenses.

WORKPLACE EYE SAFETY PROGRAMS

In U.S. workplaces that involve any kind of airborne particles or noxious chemicals, employers must adhere to Occupational Safety and Health Administration (OSHA) guidelines for protective eyewear and emergency eye care.

Most protective eyewear standards require employers to provide prescription safety lenses to employees who need corrective eyewear.

LASER POINTERS, CHAMPAGNE CORKS AND FIREWORKS

Be careful with household chemicals, since many can burn your eyes. Always wear goggles, read instructions carefully, work in well ventilated areas and make sure the nozzle is pointed away from you.

Always wear appropriate eye protection when playing sports (protective sports eyewear). Have fun in the sun, but always wear sunglasses that block 99 to 100 percent of UV-A and UV-B rays when outdoors for extended times.

Looking directly at the light beam of a laser pointer can cause temporary vision loss and even permanent damage to the retina.

Champagne corks. During a celebration, you're probably not thinking about eye damage. But a flying cork from a bottle of champagne can rupture an eyeball or cause a detached retina, both of which can cause blindness.

NEVER USE FIREWORKS. EVEN SPARKLERS BURN HOT ENOUGH TO MELT GOLD!

Safety is important and taking the necessary precautions to protect your eyes can help you prevent injuries.

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