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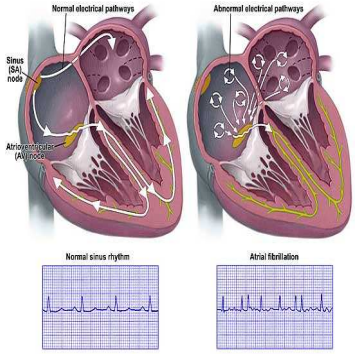
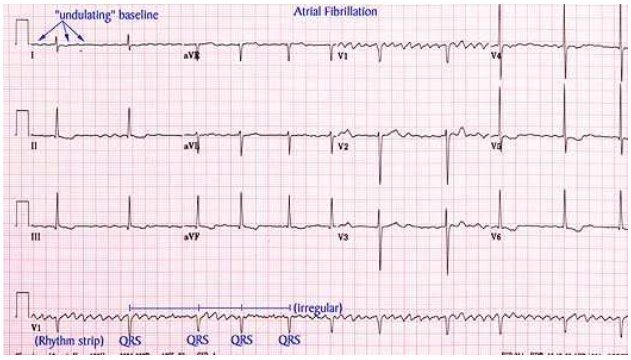
ATRIAL FIBRILLATION (A Fib)

BACKGROUND

Atrial fibrillation is the most common cardiac dysrhythmia seen today. It is estimated that almost 2.2 million Americans have A Fib. The risk of developing A Fib increases as we get older. About 5% of people older than 80 years have atrial fibrillation. A Fib is associated with an increased risk of stroke and heart failure. It is associated with more hospital admissions than any other dysrhythmia. The mortality rate for patients with AF is about twice that of people with normal sinus rhythm.





Special Points of interest:

- Atrial fibrillation is the most common cardiac dysrhythmia seen today.
- It is estimated that almost 2.2 million Americans have A Fib.
- The mortality rate for patients with AF is about twice of people with normal sinus rhythm.

Inside this issue:

NORMAL CARDIAC CONDUCTION

In normal conduction, the SA node initiates electrical impulses at a rate of 60 to 100 beats/min. The electrical impulse leaves the SA node and is conducted through the left atria by way of Bachmann's bundle and through the right atria by way of the internodal pathways which results in synchronized atrial depolarization which results in atrial contraction. The electrical activity is recorded on the ECG as a P wave. The electrical impulse is then conducted through the AV node. The AV node has three functions: slow conduction to let the atria contract and empty their contents into the ventricles, seen on the ECG as the PR segment; serve as a backup pacemaker at a rate of 40 to 60 beats/min. if the SA node fails or its impulses are blocked or in the SA node rate is less than the AV node rate; block impulses to the ventricles when the atrial rate is rapid to protect the ventricles from any dangerously fast rates. After the AV node, the electrical impulse moves rapidly through the bundle of HIS, right and left bundle branches and the Purkinje fibers which is recorded on the ECG as the QRS complex which represents ventricular depolarization resulting in ventricular contraction.

ATRIAL FIBRILLATION

In A Fib multiple impulses travel through the atria at the same time. Multiple pacemakers outside the SA node in the atria take over cardiac conduction. These pacemakers are responsible for firing impulses at the rate of 400 to 600 beats/min. These impulses spread through the atria competing for a chance to get through the AV node. The rapid firing causes the atria to quiver instead of contracting in a synchronized manner. Atrial activity is irregular, chaotic and very rapid. On the ECG you will see irregular wavy deflections (pg 2)

ATRIAL FIBRILLATION —Continued

replacing the P wave. t is not possible to count the atrial rate. A healthy AV node is able to limit the number of impulses that get through to the ventricle. The ventricular rate will be irregular with a normal rate or can be up to 180 beats/min.

"The most common signs and symptons of A Fib include shortness of breath, chest pain, fainting, weakness, atigue, very rapid heartbeat or palpitations anda very rapid pulse."

PATTERNS OF ATRIAL FIBRILLATION

► ***Intermittent or Paroxysmal***: The heart develops A Fib and typically converts back again spontaneously to normal sinus rhythm. Episodes can last anywhere from seconds to day.

► ***Persistent:*** A fib occurs in episodes, but the arrhythmia does not convert back to normal sinus rhythm spontaneously. Medical treatment is required to end the episode.

► ***Permanent***: The heart is always in atrial fibrillation. Conversion back to normal sinus rhythm is not possible or is deemed not appropriate for medical reasons.

► ***Recurrent:*** Two or more episodes of A Fib – either paroxysmal or persistent.

CAUSES OF ATRIAL FIBRILLATION

Some of the causes that do not involve the heart include: hyperthyroidism, excessive alcohol use (holiday heart syndrome), pulmonary embolism, pneumonia, or surgery. Treating the underlying cause often resolves the A Fib.

Atrial fibrillation that occurs as a result of some other cardiac condition include: heart valve disease (congenital or can be caused by infection or degeneration), enlargement of the left ventricular wall, coronary artery disease due to atherosclerosis (blockages caused by fatty deposits that cause blockages), cardiomyopathy leading to CHF, sick sinus syndrome or pericarditis (inflammation of the heart wall).

RECOGNIZING and DIAGNOSING ATRIAL FIBRILLATION

Patients may be symptomatic or asymptomatic. The most common signs and symptoms of A Fib include shortness of breath, chest pain, fainting, weakness, fatigue, very rapid heartbeat or palpitations and a very rapid pulse.

- ***12 Lead ECG***: This is the primary test used to recognize the irregular rhythm of A fib.
- ***Ambulatory ECG***: This is used to catch intermittent episodes of A Fib. The patient wears a patient-activated event recorder for 1 to 4 weeks and presses a button to start the recording after sensing the irregular heartbeat symptoms.
- ***Electrophysiology (EP) Studies***: An attempt is made to induce the patient's A fib in order to treat it.
- ***Lab Tests***: There is no lab test to diagnose or confirm A Fib. Tests are done to check for an underlying cause and to rule out any heart damage. Tests include: CBC, cardiac markers, thyroid markers, electrolytes, PT, digoxin, hepatic and renal function tests and BNP.
- ***Chest X-ray***: This is used to check for cardiac enlargement and pulmonary pathology and to evaluate pulmonary vasculature.
- ***Echocardiography***: This is an ultrasound test that uses sound waves to make a picture of the inside of the heart while it is beating. It is done to identify problems in heart valves or ventricular function or to check for blood clots.

ARTERIAL BLOOD GAS COLLECTION DVD

The Center for Phlebotomy Education has released the DVD for arterial blood gas collection. If your facility collects blood gases, this DVD is a "must have".

The DVD gives detailed instructions for collecting blood gases by radial puncture, arterial line draw and capillary puncture based on the CLSI arterial blood gas standard.

www.phlebotomy.com/Videos.html or call The Phlebotomy Center at 866-657-9857

ATRIAL FIBRILLATION—Continued

TREATMENT OF ATRIAL FIBRILLATION

There are three goals in A Fib treatment: to slow down the heart rate, to restore and maintain normal heart rhythm and to prevent stroke.

Control Rate: IV or oral medications can be used to slow down the heart rate.

Restore Normal Sinus Rhythm: The frequency with which A Fib returns and the symptoms it cause partly determine whether or not anti-arrhythmia medication is needed.

Prevent Stroke: Coexisting medical conditions such as hypertension, CHF, heart valve abnormalities or CHD increase the risk of stroke especially in those over age 65 years. Most patients take Coumadin, a blood thinner, to lower the risk of a blood clots. Sometimes aspirin is used for those who cannot take Coumadin.

Cardioversion: This technique uses an external defibrillator to "shock" the heart back into a normal sinus rhythm. Cardioversion works best if the A Fib is newly diagnosed. It is successful in 90% of patients. For many patients this is only a temporary solution because the atrial fibrillation often comes back. Cardioversion increases the risk of stroke and requires pretreatment with an anticoagulant medication.

Catheter (radiofrequency)ablation: This technique electrically burns or destroys some of the abnormal conduction pathways in the atria. This procedure is used for patients that have tried antiarrhythmic medication without success or who cannot take the medications. This procedure has a 60-70% success rate and can have serious complications.

Pacemaker: This is used to override your own A Fib with a new electrical pacemaker. This technique is only used in a small number of patients.

Medications: The choice of meds depends on the type of A Fib.

- *Antiarrhythmia medications* control the heart rhythm rather than the rate. They reduce the frequency and duration of atrial fibrillation episodes.
- *Beta-blockers* slow the heart rate by decreasing the rate of the SA node and by slowing conduction through the AV node.
- *Calcium channel blockers*: These drugs work similar to beta-blockers.
- *Digoxin*: This drug decreases the conductivity of electrical impulses through the AV node, but onset of action is slower than with the beta-blockers or calcium channel blockers.
- *Dofetilide:* This is an oral antiarrhythmic drug that must be given over a three day period in the hospital and carefully monitored.

PREVENTION OF ATRIAL FIBRILLATION

You can reduce your risk of developing atrial fibrillation by not smoking, maintaining a healthy weight, make low fat foods the basis of your diet, exercise at least 30 minutes every day, control high blood pressure, use alcohol and caffeine in moderation or not at all and avoid all other stimulants.

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ACA RECERTIFICATION PACKETS TO BE MAILED!

ACA Recertification packets will be mailed out by mid-April. Please contact the ACA office by phone or email if you have not received your packet by the end of April.

What types of documents should be submitted to ACA?

- Certificates of attendance or completion
- Copies of transcripts
- Official statements from a manager to verify CE activities

The documentation must include date (s) of attendance, title of the activity, and signature of the official issuing or verifying the activity.

ACA Recertification Fees:

- One Category 2-year renewal $60.00
- Two Categories 2-year renewal $85.00
- Three Categories 2-year renewal $95.00
- Instructor 1-year renewal $60.00

Any recertification not postmarked on or before June 30, 2010 must include an additional $15.00 making their recertification fee $75.00. Visit www.acacert.com to download the application form.

ACAreer

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SEVEN WAYS TO BEAT STRESS FAT

When you are feeling stressed, your brain acts as though you are in physical danger and tells your body to release potent hormones like cortisol. Cortisol tells your body to replenish energy which makes you hungry. As long as the stress continues, your body keeps pumping out cortisol. We crave sweet, salty, and high fat food because they stimulate the brain to release pleasure chemicals that actually do reduce tension. This soothing effect becomes addicting, so we tend to reach for fattening foods every time we are anxious.

Drop and Do 10

Power down and do some push-ups. Moving your muscles is an effective, instant stress reliever. It actually fools the body into thinking that you are escaping the source of your stress. Exercise makes your blood circulate more quickly, transporting the cortisol to your kidneys and flushing it out of your system. Cortisol encourages the body to store fat and high cortisol levels also cause the body to burn fewer calories. Walking just 18 minutes three times a week can lower cortisol levels by 15%.

Go Slowly at Meals

We tend to each faster when under stress which leads to eating bigger portions and more belly fat. Eating slower decreases the amount of food eaten.

Stop Strict Dieting

Constant dieting can make cortisol levels rise as much as 18% and make the blood sugar go haywire. It is much better to eat three healthful meals with two snacks spaced evenly throughout the day.

Give In To Cravings

It is much better to indulge in a small way and cut off your cortisol response before it gets out of control. Have just one piece of chocolate and you will feel better…just stop at one.

Curtail Caffeine

When you combine stress with caffeine, it raises cortisol levels more than stress alone. A study showed that 6 cups of coffee throughout the day raised the cortisol level by 30% and that it stayed high all day long. High cortisols can contribute to stress eating. When under duress – drink decaf.

De-stress Breakfast

Deficiencies in Vitamins B and C as well as calcium and magnesium are stressful to your body, leading to increased cortisol levels and food cravings. Make sure to eat a breakfast high in these nutrients.

Sleep It Off

Enough sleep is the most effective stress reduction strategy of all. Studies have shown that getting an average of 6½ hours each night can increase Cortisol, appetite, and weight gain. The National Sleep Foundation recommends 7 to 9 hours. Lack of sleep also raises levels of ghrelin, a hunger boosting hormone.

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