Heart Failure

There are at least 4 to 5 million people in the United States with heart failure, about 50% are over 65 years old.

What is heart failure? Heart failure is a decreased ability of the heart to fill and empty. The major purpose of the heart is to circulate blood, which carries oxygen and nutrients to the body. In the normal heart, 50% to 70% of the blood in the pumping chambers is ejected out of the heart with each contraction of the heart muscle. The normal heart has strength far beyond what we need every day. Even if the heart has decreased ability, it can pump well enough for the person to enjoy usual daily activities. Heart failure has several different forms:

**Systolic** heart failure is when the heart muscle pumps blood out with less strength than normal. Eventually, the pumping chambers thin and enlarge. In late stages, there is not enough blood pumped around the body to meet the body’s needs.

**Diastolic** heart failure occurs when the heart grows stiff and cannot relax enough to accept the blood returning to it. In these people, fluid built up can cause symptoms of heart failure with peripheral edema “congestion,” even though the heart’s normal pumping function is normal. This often occurs in older people who have histories of hypertension and diabetes. Anything that causes damage to the heart muscle can lead to heart failure. This damage could be caused by the following:

- Heart attacks due to coronary artery disease
- Viral infections
- Genetic abnormalities
- Some chemotherapeutic agents
- Illicit drugs
- Excessive alcohol intake

### Symptoms of Heart Failure

- Unusual fatigue with activity
- Shortness of breath with activity & at rest
- Difficulty breathing with lying down
- Cough with exercise or lying down
- Ankle swelling
- Loss of appetite and abdominal discomfort
- Fluid weight gain

These symptoms are also common to other medical conditions.

For additional information please contact:
Mary Ann Suda at 412-257-1263

### Diagnosis: Heart Failure

There are a variety of tests that the resident must undergo to confirm HF and gauge its severity, type and cause. Some of the tests include:

- **Arterial Blood Gas (ABG)** analysis, evaluates oxygenation
- **Chest X-Ray**, detects fluid in the lungs or cardiac enlargement
- **Cardiac blood pool imaging**, determines how well the left ventricle pumps by using a dye contrast injected into the vein with an EKG attached. The heart will be synchronized with the EKG to correlate both images. The EKG reveals conduction abnormalities.
- **Cardiac Catheterization**, evaluates the function of the heart and areas of delivered blood flow in vessels.
Heart Failure Treatments

The body normally reacts to sudden emergencies by activating reflexes that make the heart pump harder and faster. These reflexes remain turned on in Heart Failure, increasing the work of the injured heart and weakening it further. The medications for heart failure counteract these reflexes and help the heart work more efficiently.

ACE (Angiotension Converting Enzyme) Inhibitors neutralize the effects of hormones that constrict blood vessels, increase fluid, and alter heart muscle proteins.

**Diuretics** help the kidneys eliminate extra fluid.

**Digoxin** may slow a fast heart in the case of abnormal rhythm and increase the force of contraction.

**K & Mg** supplements may be needed to replace the losses of these minerals in the urine when taking diuretics.

Other medications may be prescribed for related conditions, such as coronary artery disease, clot formation and irregular heart rhythms.

Depending on the stage of heart failure patients may take two or more of these classes of medications.

### Medications that Treat Heart Failure

<table>
<thead>
<tr>
<th>ACE Inhibitors</th>
<th>Cardiac Glycosides</th>
<th>Beta Blockers</th>
<th>Diuretics</th>
<th>Angiotension Receptor Blockers (ARB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enalapril (Vasotec)</td>
<td>Digitoxin (Crystodigin)</td>
<td>Atenolol (Tenormin)</td>
<td>Furosemide (Lasix)</td>
<td>Atacand (Candesartan ciletil)</td>
</tr>
<tr>
<td>Captopril (Capoten)</td>
<td>Digoxin (Lanoxin) (Deslanoside)</td>
<td>Carvedilol (Coreg)</td>
<td>Bumetanide (Bumex)</td>
<td>Diovon (Valsartan)</td>
</tr>
<tr>
<td>Linsinopril (Zestril) (Prinivil)</td>
<td></td>
<td>Metoprolol (Lopressor, Toprol XL )</td>
<td>Spironolactone (Aldactone)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Bisoprolol (Zebeta)</td>
<td>HCTZ (Hydrodiurel)</td>
<td></td>
</tr>
</tbody>
</table>
Actions To Improve Heart Failure

Manage other diseases that may affect heart failure: diabetes, hypertension, obesity and lung disease. Know your medications and possible side effects. Weigh the resident at the same time every morning, document any weight increase. This is often the first sign of fluid buildup. Sodium promotes fluid retention. Limit sodium intake. Monitor the resident’s daily fluid intake. Too much or too little can both be problems. Regular exercise program with adequate rest.

Symptoms of toxicity:
- Abdominal pain
- Headache
- Diarrhea
- Fatigue
- Visual disturbances
- Nausea/vomiting
- Weakness

Testing for toxicity:
Serum samples taken at least 6 hours after an oral dose. The duration is necessary for serum and tissue level to reach equilibrium.

Treating Digoxin Toxicity:
Digibind is the antidote for overdose or holding medication.

Digoxin Toxicity A Potential Problem

Nearly one third of residents using Digoxin experience Digoxin toxicity.

Therapeutic Level: 0.8-2.0 ng/ml

Toxicity Level: >2.4ng/ml

Risks of Hypertension

Hereditity:
If your parents have or had high blood pressure, there is a greater chance that you will also have it.

Race:
African-Americans are more likely to develop high blood pressure than their white counterparts.

Gender:
Men run a greater overall risk for developing high blood pressure than women do.

Age:
The older we get, the greater the risk for developing high blood pressure.

Obesity:
People who are overweight are more likely to develop high blood pressure.

DID YOU KNOW………..

Source: http://www.webmd.com/content/pages/9/1675_57819.htm;
Inside Edition…
Heart Failure
Diagnosis
Signs and Symptoms
Treatments

Your prescription to clinical excellence