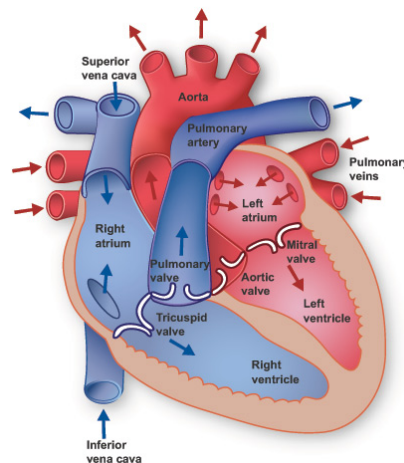


The Three Types of Heart Failure and How to Treat Them

By Dawn Gates

Heart failure is a disease that affects over 5.1 million people a year, about half the people who develop heart failure die within 5 years; costs for heart failure are approx. 32 billion a year in medical bills, and lost days of work. It is diagnosed by a combination of medical studies, lab tests, and symptoms; it is managed mostly by medications and lifestyle changes that include smoking cessation and dietary restrictions. There are three types of heart failure that are often grouped into one term called congestive heart failure or CHF even though they are different; these types include right-sided failure, left sided failure and true congestive heart failure. The symptoms are slightly different because they are different types of congestion/imbalance all of which can be treated with different herbs and supplements.

Anatomy and physiology of heart and disease process



The heart is a hollow-chamber organ that weighs about 8-10oz. for a woman and 10-12oz. for a man and. It is the size of a fist and beats up to 115,000 beats a day or 42 million times a year. It consists of 4 chambers, the right and left atrium and the right and left ventricle all the muscle is made up of fast-twitching cardiac smooth muscle that conducts electricity through it,

rapidly firing and then depolarizing in order to produce a beat. The heart is considered to be a four-chamber pump, with the right side receiving deoxygenated blood from the body at a low pressure and pumping it to the lungs (the pulmonary circulation). The left side receives oxygenated blood from the lungs and pumps it at high pressure around the body (the systemic circulation). The 'squeeze' of the atria is called systole and normally lasts for about 250ms. The relaxation period, when the atria and ventricles re-fill, is called diastole; the time given for diastole depends on the heart rate. The valves between the atria and ventricles Tricuspid and Mitral valve passively control the flow of blood through a one way valve as pressure is applied across the gradient during systole. The pumping effectiveness of the heart is also effectively controlled by the autonomic nervous system by both the sympathetic and parasympathetic components of this system. Cardiovascular function is also modulated through reflex mechanisms that involve baroreceptors which are related to the chemical composition of the blood, and the release of various cardiac hormones. More specifically, baroreceptors, which are located in the walls of some arteries and veins, exist to monitor and change systemic blood pressure. If the baroreceptors sense a change anything that affects cardiac function they have the ability to send chemical messages to different organs to adjust conditions to optimize cardiac function. The heart is not only a mechanical “pump”, it is also a hormone producing and electrical producing organ with its own set of electrical bundles called Purkinje fibers that go down the center of the heart called the septum which is between the right and left sides of the heart. As electrical signals go down the bundle it causes the heart to contract in a rhythmic beat which normally causes a strong, even, contraction of the atria and ventricles which causes blood to move throughout the system. The heart also produces its own set of hormones ANP from the atria, BNP from the ventricular myocardium, and CNP which is highly concentrated in the spinal

fluid and cerebellar fluid. The hormone BNP is the one most studied by modern medicine and is directly related to heart failure. BNP is produced in the heart in response to the ventricle stretching due to left-sided heart failure. The vasodilator and diuretic effects of the BNP hormone counteract this biomechanical action by releasing water from the body to the kidneys which therefore reduces the workload (pre-load) on the heart. The BNP is often measured to see how bad left-sided heart failure is; the more of it you have in the bloodstream the worse the heart failure is.

Heart failure

Heart failure is a general term used to describe someone who has symptoms that may include:

Symptoms of Heart Failure

- Cough, frequent
- Difficulty concentrating
- Fatigue
- Irregular heartbeat
- Lack of appetite and/or nausea
- Reduced ability to exercise
- Shortness of breath with activity
- Shortness of breath when lying flat
- Swelling in Legs
- Weight gain in abdomen
- Weakness

Often testing and a history and physical is done as well to confirm a heart failure diagnosis

Tests used to diagnose Heart failure

EKG- Looks for irregular heartbeat.

ECHO- measures the heart's pumping ability. Normal numbers are measured as something called Ejection Fraction (Often referred to as an EF). A normal ejection fraction (EF) is between 55% and 75%; most people in heart failure have ejection fractions under 40%, but a person with left diastolic function can have a normal EF. People with an EF of less than 35% are susceptible to life-threatening arrhythmias and often need pacemakers or defibrillators.

BNP lab test- Often done when patient comes to ER with shortness of breath (SOB), a normal BNP is under 100, a person with SOB with an elevated BNP greater than 100 indicates heart failure.

Risk Factors for developing Heart Failure include

Risk factors for Heart Failure

- Coronary Heart disease
- Alcoholism
- Diabetes
- Family history
- High blood pressure
- Obesity
- Prior heart attacks
- Serious Infection

- Smoking (primary and second hand smoke)

The Three Variations or Types of Heart Failure

There are actually three kinds of heart failure and often they are lumped into one category called congestive heart failure or CHF, but that is incorrect. The first type of heart failure is Left-Sided Heart failure where the left ventricle gets larger and weaker which does not allow it to get a strong contraction to push blood to vital organs. Left-sided heart failure can actually be divided into two different types of heart failure, one is called left-sided *systolic* failure and the other is called left-sided *diastolic* failure, Left sided systolic failure is where the left ventricle loses its ability to contract normally; the heart can't pump with enough force to push enough blood into circulation usually due to an enlarged size. With left-sided systolic failure the ventricle walls become thin, weak, enlarge, and lose tone as they stretch out.

The other left sided dysfunction is called left-sided diastolic failure (or dysfunction). The left ventricle loses its ability to relax normally (because the muscle has become stiff). The heart can't properly fill with blood during the resting period between each beat. Often times with this kind of failure the heart walls are thick, weak and stiff.

The last type of heart failure is right-sided heart failure which is where the right ventricle starts to get larger and it gets weaker. This often happens due to high pressures from the blood in the ventricle backing up into the lungs and causing something called pulmonary hypertension. It can also happen due to valve damage, or thickening of the heart wall due to smoking or other lung irritation/disease.

So when we look at the three types of heart failure we can see that the heart is in failure in three different ways. In left-sided heart failure there are two types of failure both of which require different treatment protocols. In the left-sided systolic heart failure the heart is stretched

thin, is weak and lacks tone; this indicates herbs that are astringent or toning in nature. In left-sided diastolic heart failure the heart is constricted and stiff and needs to be softened/opened so that nutrients can come into the tissue, relaxed so that it can again pump and gently stimulated so that it gets a good contraction without creating stiffness.

Two types of left-sided heart failure

Left-sided systolic failure

For clients in Left-sided systolic heart failure I often use astringent herbs like:

Herbs for LS Systolic heart failure (Toning the weakness)

Garlic (*Allium sativum*) - Tonifies weakness, strengthens blood vessels, vasodilator, so it lowers blood pressure.

Grape Leaves (*Vitis vinifera*) - High in tannins, helps lower blood pressure and strengthen blood vessels.

Ground Ivy (*Glechoma hederacea*) - Mild potassium sparing diuretic.

Hawthorn leaf/flower (*Crataegus monogyna*) - To lower blood pressure and increase contraction of heart.

Hibiscus flowers (*Hibiscus sabdariffa*) - lowers blood pressure, mild diuretic.

Motherwort (*Leonurus cardiaca*) - Helps stimulate regular, smooth contractions.

For rebuilding the heart in systolic heart failure

Alfalfa (*Medicago sativa*)-Multiple nutrients to strengthen contraction,

Nettles (*Urtica dioica*) - Multiple nutrients; use in small doses because large doses can increase blood pressure.

Peppermint (*Mentha Piperita*) - Multiple nutrients including calcium.

Supplements

Coenzyme Q10- Powerful anti-oxidant that supports the metabolism of the mitochondria in the heart muscle.

L-Carnitine- Amino acid for energy production in the cells.

Vitamin C. - At least 1000mg daily to reduce oxidation in cells.

Vitamin D. - Help with contraction and conduction.

Calcium- To aid in contraction of muscle.

Supplement to avoid: Magnesium

Left-sided diastolic heart failure

With left-sided diastolic heart failure the heart is thick, weak and stiff and needs a different approach to treatment. The heart needs herbs that soften, strengthen as well as relax the constriction in the muscle.

Herbs for left-sided diastolic heart failure (softening the constriction)

Burdock root (*Arctium lappa*) - softening to tissue, mild diuretic.

Celery seeds (*Apium graveolens*) - Mild diuretic but also reduces cardiovascular inflammation, and lowers blood pressure.

Dandelion leaf (*Taraxacum officinale*) - Mild mineral-sparing diuretic. Also works on balancing the kidney.

Garlic (*Allium sativum*) - Mildly stimulating vasodilator. Reduces inflammation, moistening.

Hawthorn berries (*Crataegus monogyna*) - for decreasing blood pressure and increasing heart pumping action.

Skullcap (Scutellaria lateriflora) - Relaxing to cardiac and smooth muscle (Blood vessels are smooth muscle).

Rebuilding Herbs (softening/moisturizing)

Bladderwrack (Fucus vesiculosus) - Helps provide moistening nutrition

Nettles (Urtica dioica) - Micro nutrition (use in small doses).

Horsetail (Equisetum arvense) Micro nutrition (use in small doses).

Oatstraw (Avena sativa) - Micro nutrition.

Supplements

Borage seed oil- Reduces blood pressure, and stress-response action of adrenaline.

Coenzyme Q10- Powerful anti-oxidant that supports the metabolism of the mitochondria in the heart muscle.

L-Carnitine- Amino acid for energy production in the cells.

Vitamin C. - At least 1000mg daily to reduce oxidation in cells.

Vitamin D- to aide in transport of nutrients.

Magnesium- Helps relax heart muscle.

Supplement to avoid- Calcium.

Right-sided heart failure

Normally the heart's pumping action moves "used" blood that returns to the heart through the veins through the right atrium into the right ventricle. The right ventricle then pumps the blood back out of the heart into the lungs to be replenished with oxygen. Right-sided or right ventricular (RV) heart failure often occurs as a result of left-sided failure but can also be caused by certain respiratory diseases. When the left ventricle fails, increased fluid pressure is, in effect,

transferred back through the lungs, ultimately backing up into and damaging the heart's right side. When the right side loses pumping power (through left-sided failure, valve disease, or respiratory disease), blood backs up in the body's veins which causes swelling or congestion in the legs, lungs, ankles; swelling within the abdomen such as the GI tract and liver (causing ascites). In right-sided heart failure the main issue is to figure out what the problem is and address it. For valve disease like mitral valve prolapse if surgery is not an option aim at toning the valves and making the heart work more efficiently. If it is due to lung disease, address the lung imbalance and then proceed to work on the heart. If the left-sided failure is what is causing the issue, work on balancing the left-sided issue first. After the main issues that were causing the right-sided heart failure to occur are addressed, work on using diuretics to reduce pre-load and use herbs to make the heart work more efficiently. This can often be obtained by using a combination of astringents to tone tissue, diuretics to reduce fluids, and rebuilding herbs to make the heart work more efficiently.

Herbs for right-sided heart failure

Diuretics

Diuretics are important in this category to decrease the pre-load of fluid to keep it from backing up into the lungs.

Dandelion leaf- Mild to moderate diuretic with potassium sparing properties and micronutrients.

Ground Ivy- Mild diuretic with mild kidney stimulating effects.

Nettles- Mild diuretic with multiple vitamins, minerals, and micronutrients.

Toning herbs

Agrimony-mildly astringent, and diuretic, but also helps liver process fluids and toxins better.

Hawthorn leaves/flowers- helps heart contractions stay strong and equal, mildly toning.

Garlic- Toning to the tissues, protects against blood clots, mildly stimulating vasodilator.

Wild grape leaf- Mild tannins tone tissues including cardiac muscle and blood vessels.

Rebuilding herbs

Nettles- multiple nutrients, affinity towards both lungs and kidney.

Peppermint- Slightly stimulating to respiratory system, able to stimulate oxygen absorption.

Oatstraw- Both calming and nutrient rich this herb can strengthen tissue so that it works at its most efficient level.

Supplements

Borage seed oil- Reduces blood pressure, and stress-response action of adrenaline.

Coenzyme Q10- Powerful anti-oxidant that supports the metabolism of the mitochondria in the heart muscle.

L-Carnitine- Amino acid for energy production in the cells.

Melatonin- Reduces oxidative stress at 6mg/kg.

Vitamin C. - At least 1000mg daily to reduce oxidation in cells.

Vitamin D- to aide in transport of nutrients.

Summery

By targeting the type of heart failure your client has you will be more likely to come up with a better treatment plan because as you can see they all behave a little differently and require different herbs. In addition to the herbs, and supplements apply common sense to their treatment plan. If they smoke and they have heart failure recommend that they stop and help them with herbs. If they are inactive, have them do mild activity; even walking 15 minutes a day to start will help tonify and strengthen the cardiac muscle. If they are morbidly obese, assist them with nutritional education and if they are stressed, help them reduce it with herbs, aromatherapy, breathing exercises or meditation. Managing heart failure takes time but it is worth it to see your clients get stronger and able to have a better quality of life.