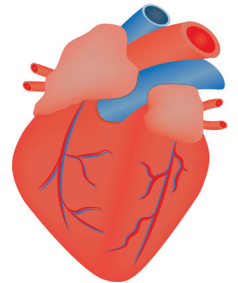


Understanding Congestive Heart Failure & Chronic Kidney Disease

The interplay between the heart and the kidneys is one of a fine balance. While each one of these conditions represents a series of events that are independently complicated, when they occur together, it can become even more of a challenge to manage them simultaneously. In order to understand the interplay between these two conditions it is important to understand each individually.

Heart failure, also known as **Congestive Heart Failure** is a chronic progressive medical condition that affects the proper functioning of the heart pump. Poor functioning of this pump either from a weakened heart muscle or inability of the heart muscle to handle excess fluid results in symptoms of heart failure like: fatigue, shortness of breath (especially upon exertion or lying flat) and swelling of the legs or abdomen (called edema). Congestive Heart Failure can be caused by a number of medical conditions, including blocked arteries, previous heart attacks, certain medications, high blood pressure (or hypertension) and even underlying Chronic Kidney Disease.



So, what is the role of our kidneys and what causes kidney disease? The kidneys are two bean-shaped organs located in the mid to lower back area and are about the size of a fist. The kidneys are responsible for a number of items, including filtering of waste products from the blood and eliminating them in the urine. The kidneys are responsible for removing excess fluid from the body. Therefore, they play an important role in patients with congestive heart failure to maintain the body's fluid balance and help regulate blood pressure. Kidney disease, also called **Chronic Kidney Disease** (or CKD for short), occurs when the kidneys do not function properly due to a variety of factors like diabetes and hypertension. These conditions reduce the filtering ability of the kidneys and decrease the overall functionality of them.

When coupled with Congestive Heart Failure, Chronic Kidney Disease can worsen and vice versa. This results in worsening fluid retention and increased shortness breath, edema and electrolyte abnormalities. CKD & CHF can sometimes be a complex, vicious circle and is often difficult to treat.

However, recent advances in early detection for both Chronic Kidney Diseases and Congestive Heart Failure along with close evaluation and monitoring with a medical healthcare team have resulted in patients achieving improved outcomes and, ultimately, improved wellbeing. In managing Cardiorenal Syndrome your nephrologist often works together with your cardiologist to provide patients with the best possible clinical plan.



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Treatment Options

The following are some treatment options that your doctor and healthcare team may implement with you to better control both Chronic Kidney Disease and Congestive Heart Failure. Our approach to managing patients with these two chronic conditions consists of four main interventions.

1. **Patient education**
2. **Dietary changes**
3. **Weight based diuretic management.**
4. **Treatment of concurrent medical conditions.**

Understanding the interplay of the heart and kidney is very important as patients help manage the diuretic dosing based on daily weight monitoring. Maintaining of meticulous weight and blood pressure records by a patient/caregiver or home health services for patients with CHF helps the physician dose medications appropriately so that patients are at less risk of dehydration from over use of diuretic or going into decompensated heart failure for taking too little. We request when possible that patients keep a log of their daily weight in pounds, blood pressure readings and diuretic doses. We then monitor the renal function to ensure that the kidney will tolerate these medication changes. The added advantage of this approach is that it provides a visual guide for patients to be able to understand their own diuretic doses to prevent complications.



We request all patients to make **dietary changes**. Having patients follow a low salt or a 2 gm salt diet is a very important intervention. Diuretics (fluid pills) and high blood pressure medications work better when a patient eats less salt. As part of this diet we request patients to eliminate drinking sodas or eating prepackaged foods as they tend to be high in sodium content. We also advise them not to use a salt substitute as it has a large amount of potassium that can be dangerous in the setting of poor kidney function. When appropriate, we also request the patient be on a fluid restriction and decrease the amount of fluids they drink. The idea of this regimen is to help lose excess fluid and decrease fluid accumulation.

This sets the stage of a **weight based diuretic regimen**. Patients are started on diuretics to help remove excess fluid and then to prevent weight gain from fluid accumulation. We do this with daily or 3 times a week weight monitoring to determine the dose of diuretic. Patients should take water pills (diuretics) as prescribed. Patients should weigh themselves at least 3-4 times a week (if possible every day) at the same time each day. If a patient gained more than 5 pounds in the last 2-3 days, they need to call a doctor.



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Treatment Options Continued

It is crucial to **continue treatment of comorbid conditions** such as:

- Appropriate treatment of the underlying CHF with medications that reduce the work of the heart pump
- High blood pressure treatment; taking medications as prescribed for your high blood pressure
- Diabetes management
 - Since we know that diabetes can decrease kidney function, work closely with your primary care doctor for treatment of it, as it will improve your overall quality of life.
 - Also, if you have diabetes, make sure to get your HgbA1C checked at least 2 times a year with the target range to be at 6% or lower

Finally, an additional tip for managing these two conditions is exercise. In CKD patients, studies have shown that both resistance (exercise with weights) and aerobic (exercise such as swimming or running) training can improve the following: ¹

- Overall physical function
- Quality of life
- Symptoms of depression
- Patient survival
- Number of hospitalizations



While sometimes difficult to do, even moderate weight loss and light exercise can help. Of course, it is always best to talk with your doctor before starting a diet or exercise program, but working together with your healthcare team can help you accomplish even small goals.

Other items to either include or exclude;

- Eliminate taking any non-steroidal anti-inflammatory drugs including: Motrin, Advil, Naprosyn, Voltaren or Celebrex.
- These medications can increase blood pressure, further complicating both Chronic Kidney Disease and Congestive Heart Failure

While the list of treatment options is not all inclusive, it is meant to be representative of just some of the available management choices. While many of them are easy, some are more difficult. Working together, we can achieve great outcomes!

While having both Congestive Heart Failure and Chronic Kidney Disease sounds overwhelming, with careful monitoring and treatment in partnership with your physician and the healthcare team, you can experience both a healthy lifestyle while decreasing potentially disabling effects of both conditions.



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