

Cowboy Back in Saddle After Successful Treatment of Glomerulonephritis



During the summer of 2016, for the first time in years, Jack Rhodes did something he doubted he'd ever do again. The 68-year-old retired rancher from central Alberta saddled up a two-year old stallion to train, exercise and ride.

Four years ago, Jack had gained 40 pounds due to fluid retention that resulted in swelling throughout his body. He suffered severe shortness of breath and was unable to walk, much less get on a horse. But thanks to an accurate diagnosis of glomerulonephritis and successful treatment under the care of nephrologist Nabeel Aslam, M.D., Jack's condition has improved dramatically.

Glomerulonephritis is inflammation of the tiny filters in your kidneys (glomeruli). Glomeruli either become inflamed, which causes protein and blood to spill into the urine, or they become scarred, which prevents the elimination of waste from the body. Glomerulonephritis can be acute (i.e. a sudden attack of inflammation) or chronic (i.e. coming on gradually).

If glomerulonephritis occurs on its own, it's known as *primary glomerulonephritis*. If another disease such as lupus or diabetes is the cause, it's called *secondary glomerulonephritis*. Severe or prolonged inflammation from glomerulonephritis can damage your kidneys.

Causes

Many conditions can cause glomerulonephritis; however, sometimes the cause is unknown. Conditions that can lead to inflammation of the kidneys' glomeruli may include:

1. Infections

- a) *Post-streptococcal glomerulonephritis* may develop a week or two after recovery from a strep throat infection or, rarely, a skin infection.

- b) *Bacterial endocarditis* (i.e. a bacterial infection of the heart valves) is associated with glomerulonephritis, but the exact connection between the two is unclear.
- c) *Viral infections*, such as the human immunodeficiency virus (HIV), hepatitis B and hepatitis C, may trigger glomerulonephritis.

2. Immune diseases

- a) *Lupus nephritis* is inflammation of the kidney that is caused by systemic lupus erythematosus (SLE)
- b) *Goodpasture's syndrome* - a rare immunological lung disorder that may mimic pneumonia, Goodpasture's syndrome causes bleeding in your lungs as well as glomerulonephritis.
- c) *IgA nephropathy* - characterized by recurrent episodes of blood in the urine, this primary glomerular disease results from deposits of immunoglobulin A (IgA) in the glomeruli. IgA nephropathy can progress for years with no noticeable symptoms.

3. Vasculitis

- a) *Polyarteritis*. This form of vasculitis affects small and medium blood vessels in many parts of your body, such as your heart, kidneys and intestines.
- b) *Wegener's granulomatosis*. This form of vasculitis affects small and medium blood vessels in your lungs, upper airways and kidneys.

Conditions causing scarring of glomeruli

- a) *High blood pressure* - can damage your kidneys and impair their ability to function normally. Glomerulonephritis can also lead to high blood pressure because it reduces kidney function and may influence how your kidneys handle sodium.
- b) *Diabetic kidney disease (diabetic nephropathy)* - can affect anyone with diabetes; usually takes years to develop. Good control of blood sugar levels and blood pressure may prevent or slow kidney damage.
- c) *Focal segmental glomerulosclerosis* - characterized by scattered scarring of some of the glomeruli, this condition may result from another disease or occur for no known reason.

Signs & Symptoms

Signs and symptoms of glomerulonephritis depend on whether you have the acute or chronic form, and the underlying cause. The first indication that something is

wrong may come from symptoms or from the results of a routine urinalysis.

Signs and symptoms of glomerulonephritis may include:

- Pink or cola-colored urine from red blood cells in the urine (hematuria)
- Foamy urine due to excess protein (proteinuria)
- High blood pressure (hypertension)
- Fluid retention (edema) with swelling evident in one's face, hands, feet and abdomen
- Fatigue from anemia or kidney failure
- The need to urinate during the night

Testing and Diagnosis

Specific signs and symptoms may suggest glomerulonephritis, but the condition often comes to light when a routine urinalysis is abnormal. Tests to assess one's kidney function and make a diagnosis of glomerulonephritis include:

- **Urine test** - A urinalysis may show red blood cells and red cell casts in your urine - an indicator of possible damage to the glomeruli. Urinalysis results may also show white blood cells, a common indicator of infection or inflammation, and increased protein, which may indicate nephron damage. Other indicators include increased blood levels of creatinine or urea
- **Blood tests** - These can provide information about kidney damage and impairment of the glomeruli by measuring levels of waste products, such as creatinine and blood urea nitrogen.
- **Imaging tests** - If your doctor detects evidence of damage, he or she may recommend diagnostic studies that allow visualization of your kidneys, such as a kidney X-ray, an ultrasound examination or a computerized tomography (CT) scan.
- **Kidney biopsy** - This procedure involves using a special needle to extract small pieces of kidney tissue for microscopic examination to help determine the cause of the inflammation. A kidney biopsy is almost always necessary to confirm a diagnosis of glomerulonephritis.

To find out more about Jack's condition, Dr. Aslam ordered several tests, including urine tests and a kidney biopsy. Tests showed that Jack had 11,000 milligrams of protein in his urine. The normal amount is 150 milligrams. With the information from the tests, Dr. Aslam was able to give Jack a diagnosis.

Treatment

Treatment of glomerulonephritis depends on whether one has an acute or chronic form of the disease, the underlying cause, as well as the type and severity of your signs and

symptoms. In general, the goal of treatment is to protect one's kidneys from further damage.

Treatment for high blood pressure - Keeping one's blood pressure under control is key to protecting one's kidneys. To control high blood pressure and slow the decline in kidney function, your doctor may prescribe one of several medications, including:

- Diuretics
- Angiotensin-converting enzyme (ACE) inhibitors
- Angiotensin II receptor blockers
- Treatment for an underlying cause

If there's an underlying cause for the kidney inflammation, your doctor may prescribe other drugs to treat the underlying problem in addition to treatment to control any hypertension:

- **Strep or other bacterial infection** - Treatment usually focuses on easing your signs and symptoms. Your doctor also may prescribe an appropriate antibiotic.
- **Lupus or vasculitis** - Doctors often prescribe corticosteroids and immune-suppressing drugs to control inflammation.
- **IgA nephropathy** - In some cases, both fish oil supplements and certain immune-suppressing drugs can successfully treat certain people with IgA nephropathy. Researchers continue to investigate fish oil supplements for IgA nephropathy.
- **Goodpasture's syndrome** - Plasmapheresis is sometimes used to treat people with Goodpasture's syndrome. Plasmapheresis is a mechanical process that removes antibodies from your blood by taking some of your plasma out of your blood and replacing it with other fluid or donated plasma.

Therapies for associated kidney failure - For acute glomerulonephritis and acute kidney failure, dialysis can help remove excess fluid and control high blood pressure. The only long-term therapies for end-stage kidney disease are kidney dialysis and kidney transplant. When a transplant isn't possible, often because of poor general health, dialysis is the only option.

In Jack's case, the first course of treatment was to stop taking nonsteroidal anti-inflammatory drugs (e.g. aspirin, ibuprofen) and to adjust the diuretic he had previously been given. Dr. Aslam also prescribed Jack some blood pressure and cholesterol-lowering medications, as well as an ace inhibitor to reduce the loss of protein

"It's a night-and-day difference. Four years ago, he was unable to walk and was emotionally distraught. Now he can walk on his own," Dr. Aslam says. "It's so rewarding to see the progress."