



educate your patients

GOUT AND CHRONIC KIDNEY DISEASE (CKD)

GOUT AND CKD

- **Gout** happens when **uric acid**, a normal body waste, gets too high in the blood. Uric acid comes from the breakdown of **purines**, which are chemicals found in both our diet and our bodies. In some people, high uric acid may turn into crystals that settle in the joints.
 - These crystals may cause pain and swelling that limit how you move. They may also change the shape of your joints over time.
 - Some people with very bad gout get **tophi**, which are lumps of uric acid under the skin. They usually form on the joints, fingers, and the upper ear.
- **CKD** (chronic kidney disease) means that your kidneys have not been working at a normal level for at least 3 months. This loss of function usually can't be reversed. The **good news** is that there's a lot you can do to slow the loss of your kidney function.

THE GOUT-CKD CONNECTION

- Uric acid moves through your blood to your kidneys. Your kidneys then add that uric acid to your urine, so it can leave the body.
- But sometimes uric acid in the blood gets too high. This happens because:
 - The body makes too much uric acid for you to get rid of *and/or*
 - The kidneys can't add enough uric acid to your urine, so it builds up in your blood (the more common reason).
- That's why having gout and high uric acid may be signs of CKD. So, if you have gout, get checked for CKD.
- If you already know you have CKD, ask your healthcare professional about gout. Some studies show that gout and high uric acid may harm the kidneys. It's very important to treat your gout early to protect your kidneys from more harm.
- High uric acid may not cause problems for many people, but it may cause gout in some people.

SIGNS AND SYMPTOMS

- Sudden episodes of extreme pain in one or more joints, usually with one or more of these signs:
 - Swelling
 - Tenderness
 - Stiffness
 - Redness
- More than half of patients get their first gout attack in a big toe (called **podagra**), and most patients will get it there at some point during the disease.
- Uric acid crystals can form kidney stones in some people. These stones are very painful and can hurt the kidneys by: 1) blocking the kidneys from removing wastes, which can cause infection, and 2) scarring the kidneys with their sharp edges. Both problems can lead to CKD, and even kidney failure.
- If gout isn't treated, it can become a long-term problem and affect many joints at once, in both the lower and upper body. At this stage, joints can be damaged, and pain is constant. Tophi can also form in many other parts of the body.



HOW PATIENTS ARE DIAGNOSED FOR GOUT AND CKD

- **Arthrocentesis**, also called synovial fluid aspiration of the joint: A needle is used to take fluid from a joint to see if it has uric acid crystals. The fluid is studied under a microscope to find crystals. This method is the gold standard for diagnosing gout.
- **Imaging:** Ultrasound, CT scan, and magnetic resonance imaging (MRI), have also been used for diagnosing gout.
- **Physical exam**
- **Medical and family history review**
- **Uric acid level:** The blood test for uric acid is called serum uric acid (sUA) and the normal range depends on your age, gender, and each lab's normal values. Most experts say that if you have gout, your uric acid level should stay below 6.0 mg/dL to prevent gout attacks. Some people may need to keep their uric acid level lower than 6.0 mg/dL.
- CKD is diagnosed with two simple tests:
 - **Glomerular filtration rate (GFR):** a blood test that checks how well the kidneys are filtering wastes from your blood.
 - **Albumin-to-creatinine ratio (ACR):** a urine test that shows if protein (albumin) levels are too high, which may mean kidney damage.

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GOUT TREATMENTS

MEDICINE FOR:

- **Sudden gout flares:** non-steroidal inflammatory drugs (**NSAIDs**) like ibuprofen and naproxen are pills usually avoided in CKD, but used by others with gout. The pill **Colchicine** is often used, but the dose is lowered for people with CKD. **Cortisone** is sometimes used in CKD, and can be given as a pill or a shot.
- **Long-term treatment to lower uric acid and prevent gout flares:** **allopurinol**, **febuxostat**, **probenecid**, and **lesinurad** are all pills. **Pegloticase** is given through a vein for severe gout that doesn't get better with pills. When you start long-term therapy, you'll also take one of these pills for awhile to prevent gout flares: colchicine; an NSAID if it's safe for you; or cortisone.
- **Lifestyle changes**
 - Avoid or limit high purine foods and drinks such as: organ meats, shellfish, beer, and products with high-fructose corn syrup. Eating less animal protein like meat keeps the urine less acid, which may lower the risk for gout flares and kidney stones. Eat lots of vegetables and fruits.
 - Drink plenty of water, unless your healthcare professional says you need to restrict your fluid intake. Drink water at night too, when crystals tend to form more often.
 - Treat CKD, obesity, high blood pressure, high blood sugar, and heart disease, because they may increase uric acid and the risk for gout. Review all your medicines and supplements with your healthcare professional, as some can increase uric acid.

WHAT PATIENTS CAN DO

- Eat healthy. Be aware of portion sizes and don't skip meals. Be more active.
- Control high blood pressure and high blood sugar.
- Lose weight if needed. Extra weight can lead to high blood pressure and diabetes, which can hurt the kidneys.
- Avoid NSAIDs such as ibuprofen, and naproxen, which can hurt the kidneys.
- Don't take herbal supplements. Many herbal products can harm the kidneys.
- Don't smoke. Smoking increases the chance of heart and lung disease, and stroke.
- If you need a test such as an MRI with contrast dye, make sure your healthcare professional measures your kidney function first.
- Know your GFR and ACR test results.



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