

Complement 3 Glomerulopathy

Complement 3 Glomerulopathy (**C3G**) is a very rare kidney disease. It is caused by irregular activation of the **complement system**. This is a normal part of your immune system that helps protect you from infection. In C3G, this system becomes too active and starts to damage the kidneys.

C3G is a lifelong and progressive disease. It is burdensome on both the mental and physical health of patients. Over time, C3G may lead to kidney failure requiring dialysis or transplant. Even then, the disease journey may not be over as recurrence is common.

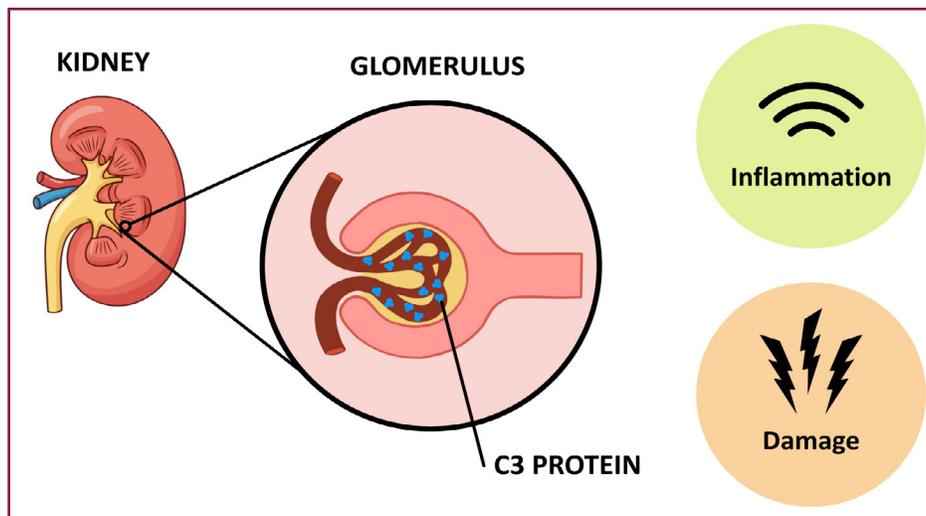
Who is affected by C3G?

- There are only about 1-2 new diagnoses of C3G per million people each year.
- C3G can affect people of any age, gender, or ethnicity. It is most common in children and young adults.
- C3G can run in families, but more often it occurs by chance.

What causes C3G?

C3G occurs when the complement system becomes overactive, causing:

- A build-up of complement 3 (**C3**) protein in the kidneys
- Inflammation and damage to the filtering units of the kidneys
- Reduced kidney function and kidney failure over time



An overactive complement system results in a buildup of C3 protein (blue) in the glomeruli (bundles of blood vessels that filter blood in the kidneys). This triggers inflammation and damage to the kidney.

Always follow the advice and recommendations of your healthcare team for your individual health needs.

There are 2 key factors that contribute to C3G:

- **Genetic changes** that affect the complement system.
 - Genetic changes refer to when the information in DNA is altered.
- **Autoimmune activity** that disrupts the complement system.
 - Autoimmunity is when your immune system mistakenly attacks the body.

There may also be other unknown factors that influence or lead to C3G. This is an ongoing area of research.

What are the symptoms of C3G?

C3G looks very similar to other kidney diseases, with symptoms including:

- Swelling around the eyes, feet, or ankles
- Blood in the urine
- Foamy urine due to protein leakage
- High blood pressure

C3G can be difficult to bear and may affect your health and wellbeing in many ways, including*:

- Pain and discomfort
- Frequent infections
- Depression and anxiety
- Eye and vision problems
- Fatigue

*Some people may experience other symptoms or complications

C3G is different for everyone and can change over time.

- The severity of symptoms may fluctuate.
- Some people may have stable kidney function for years. Others may experience a faster decline in kidney function.

Many people may need dialysis and/or a kidney transplant as C3G progresses. And around 50% of people experience a recurrence of C3G within 10 years of a kidney transplant.

How is C3G diagnosed?

C3G can be hard to diagnose and is best done by specialists with experience in C3G or related conditions. Getting a correct diagnosis is important to reduce delays in treatment and management.

The following tests help diagnose C3G:



Urine and blood tests to assess kidney function and complement system activity.



Kidney biopsy to check for C3 protein deposits. This is the only way to make a definitive diagnosis



Genetic or antibody tests to check for underlying causes and guide treatment.

Your care team may use different terms for C3G based on the type.

- There are 2 types of C3G: **Dense Deposit Disease** and **C3 Glomerulonephritis**.
- The types differ based on how the deposits of C3 protein appear in the kidney's filters.

Always follow the advice and recommendations of your healthcare team for your individual health needs.

What medications treat C3G?

There is no cure for C3G, but there are medications that can help manage it. Here are some of the types of medications that may be involved in your care:

Category	Purpose	Examples
Immunosuppressants/ Anti-inflammatory therapies	To reduce immune response and inflammation.	Steroids, mycophenolate mofetil (MMF)
Protective kidney therapies	To reduce strain on the kidneys (by managing blood pressure, blood sugar, and/or other factors).	ACE inhibitors, ARBs, SGLT2 inhibitors
Targeted therapies	To specifically target the complement system.	Complement system inhibitors

How can I manage C3G?

There are many steps you can take to help slow the progression of C3G and protect your kidney health:



Track your symptoms and medications:

To detect changes in health earlier and adjust treatment when needed.



Follow a kidney-friendly diet:

To help reduce the strain on kidneys and manage the side effects of medications.



Maintain an active lifestyle:

To help manage blood pressure, cholesterol, and body weight and reduce strain on your kidneys.



Seek mental health or peer support:

- To help you manage mental health struggles.
- Find mental health resources at www.kidneyinfo.ca.
- Access peer support groups at www.kidney.ca/peersupport.



Talk to your healthcare team:

To help manage your health and treatment options, and to connect you with relevant research and clinical trials.

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