

Lupus Nephritis:

The Most Common Lupus Complication

What is lupus nephritis (LN)?

Lupus nephritis (LN) is inflammation of the kidney that occurs as a common symptom of systemic lupus erythematosus (SLE), also known as lupus. Proteins in the immune system called antibodies damage important structures in the kidney. ii

Why are the kidneys important?

To understand how lupus nephritis damages the kidney, it is important to understand how the kidneys work. The kidneys' main function is to filter out excess waste and water from the blood through the urine. Kidneys also balance the salts and minerals circulating in the blood, help control blood pressure and make red blood cells. So, when the kidneys are damaged or fail, they can't do their job as well. As a result, the kidneys are not able to filter out waste and water into the urine causing it to stay in the blood.

What are the signs and symptoms of LN?

Signs to ask the doctor about include blood in the urine or foamy urine which can mean that there is excess protein. Other signs to notice are swelling of legs, ankles, hands or tissue around the eyes as well as weight gain that can be caused by fluid the body isn't getting rid of. iii Symptoms of lupus nephritis also include high blood pressure, joint/muscle pain, high levels of waste (creatinine) in the blood, or impaired/failing kidney. iv

How common is LN?

Lupus nephritis is the most common complication of lupus. Five out of 10 adults with lupus will have lupus nephritis, while eight out of 10 children with lupus will have kidney damage, which usually stems from lupus nephritis. v LN is more common among women than men and particularly among those who are Black, Latinx, and/or Asian. vi

How is LN diagnosed?

Lupus nephritis is diagnosed through urine and blood tests and monitored through a kidney biopsy which requires tests samples of kidney tissue to test for signs of damage or disease within the kidney. vii

What are the complications of LN?

Roughly 10-30% of people with lupus nephritis develop kidney failure.

How is LN treated?

It is important to relay all symptoms to the doctor and to following directions for treatment. The following medicines are used to help reduce inflammation, lower immune system activity, and block the body's immune cells or antibodies from attacking the kidney: ix

- Corticosteroids and immunosuppressive drugs like azathioprine (Imuran) and mycophenolate (Cellcept) help suppress the immune system to keep it from attacking the kidneys

- A type of chemotherapy, cyclophosphamide (Cytoxan), is also given, particularly in severe cases of lupus nephritis to help suppress the overactive immune system.
- Drugs used to control blood pressure also may be used to treat hypertension caused by lupus nephritis including ACE inhibitors, angiotensin receptor blockers, diuretics, beta blockers, calcium channel blockers.
- ACE inhibitors and angiotensin receptor blockers also help protect the kidneys while diuretics help the kidneys remove excess fluid from the body
- Changing your diet to minimize your intake in salt, protein and fats can help lower and maintain healthy blood pressure. x,xi
- Patients with severe damage may need additional treatments such as kidney dialysis (removing waste from the kidneys through a filtering machine) or a kidney transplant (surgically replacing kidneys with a donated organ). xii

Why are new treatments needed?

Currently, there is no cure for lupus nephritis and no treatment has been approved by the U.S. Food and Drug Administration specifically for this condition. Existing medicines are used to lessen symptoms, keep the disease from getting worse and avoiding the need for dialysis or kidney transplant but can have uncomfortable or dangerous side effects.

Today's research progress

Improving diagnosis, treatment and prevention of lupus nephritis has always been a top priority for the Lupus Research Alliance, with 40 studies funded by the organization in this area.

Much progress already has been made. LRA-funded work is approaching the ability to eliminate the need for invasive surgical biopsy to monitor disease. And three drugs -- voclosporin, anifrolumab, and belimumab -- are currently in late-stage development for treating lupus nephritis. xiii The prospects of better ways to diagnose, monitor and manage lupus nephritis have never been brighter.

ii Ibid.

iii Lupus and Kidney Disease. National Kidney Foundation. <https://www.kidney.org/atoz/content/lupus>

iv Lupus Nephritis. Mayo Clinic. <https://www.mayoclinic.org/diseases-conditions/lupus-nephritis/symptoms-causes/syc-20354335>. Accessed 7.22.20.

v Lupus and Kidney Disease (Lupus Nephritis). National Institute of Diabetes and digestive and Kidney Diseases. <https://www.niddk.nih.gov/health-information/kidney-disease/lupus-nephritis#:~:text=2-,How%20common%20is%20lupus%20nephritis%3F,10%20will%20have%20kidney%20disease>. Accessed 7.22.20.

vi Ibid.

vii Kidney Biopsy. Mayo Clinic. <https://www.mayoclinic.org/tests-procedures/kidney-biopsy/about/pac-20394494>. Accessed 7.22.20.

ix Ibid.

x Lupus Nephritis, Healthline. <https://www.healthline.com/health/lupus-nephritis>. Accessed 7.22.20.

xi Lupus Nephritis. Mayo Clinic. Available at: <https://www.mayoclinic.org/diseases-conditions/lupus-nephritis/diagnosis-treatment/drc-20446438>. Accessed 7.22.20.

xii Lupus Nephritis. Mayo Clinic. Available at: <https://www.mayoclinic.org/diseases-conditions/lupus-nephritis/diagnosis-treatment/drc-20446438>. Accessed 7.22.20.

xiii Parikh, Samir V., and Brad H. Rovin. "Current and Emerging Therapies for Lupus Nephritis." *Journal of the American Society of Nephrology: JASN* vol. 27,10 (2016): 2929-2939. DOI:10.1681/ASN.2016040415. Accessed 7.22.20.

