

LUPUS AND ORGAN FUNCTIONS

MISSION

The Lupus Foundation of America, Indiana Chapter is part of a national force devoted to solving the cruel mystery of lupus while providing caring support to those who suffer from its brutal impact.

EFFORTS

Support research and conduct education programs so everyone affected by lupus can have an improved quality of life and get answers and health professionals know about new means to diagnose and manage the disease.

Conduct activities to increase awareness of lupus, rally public support for those who are affected by lupus, and advocate on their behalf.

ABOUT LUPUS & EFFECTS ON DIFFERENT ORGANS

Lupus is an autoimmune disease that impacts the immune system- like an organ in the body. The immune system normally protects your body against invaders and infection using proteins called antibodies. However, in certain situations, the antibodies of the immune system recognize parts of a person's own body as foreign, which results in conditions called autoimmune diseases. Lupus is a complex and challenging disease that can involve any organ system in the body.



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DIAGNOSING LUPUS

- ✓ Malar rash – a rash over the cheeks and nose, often in the shape of a butterfly
- ✓ Discoid rash – a rash that appears as red, raised, and disk-shaped patches.
- ✓ Photosensitivity – a reaction to sun or light that causes a skin rash or fatigue.
- ✓ Oral ulcers – sores appearing in the mouth.
- ✓ Arthritis – joint pain and swelling of two or more joints in which the bones around the joints do not become destroyed.
- ✓ Serositis – inflammation of the lining around the lungs (pleuritis) or inflammation of the lining around the heart that causes chest pain which is worse with deep breathing (pericarditis)
- ✓ Kidney disorder – persistent protein or cellular casts in the urine
- ✓ Neurological disorder – seizures or psychosis
- ✓ Blood disorder – certain types of anemia (low red blood cell count), leukopenia (low white blood cell count) or thrombocytopenia (low platelet count)
- ✓ Immunologic disorder – anti-dsDNA or anti-Smith or antiphospholipid antibodies
- ✓ Positive antinuclear antibody (ANA)

Central Nervous system (brain and spinal cord)

- ✓ CNS lupus is less common than other forms of lupus and can create numerous symptoms and issues for patients because it reaches out beyond the brain and spinal cord to all other parts of the body.
- ✓ Lupus impacting the central nervous system can cause several issues including:
 - Confusion
 - brain fog
 - seizures
 - changes in personality
 - stroke.
- ✓ The treatment for CNS lupus varies, depending on the symptoms experienced by the patient.

Dermatologic system (skin)

- ✓ Lupus can produce a variety of different rashes anywhere on the body such as lacey rashes on the arms or discoid rashes on the scalp, face and inside the ears often leaving scars. There are other less common rashes such as bullous rashes that produce blisters, Chilblain's and psoriasiform rashes.
- ✓ It is important to determine if rashes are due to lupus or to other issues like a fungus or bacterial infection.
 - Depending on the nature of the rash, the patient may be sent to a dermatologist for a skin biopsy.
- ✓ Treatment for rashes
 - topical creams, lotions, or ointments
 - hydroxychloroquine (Plaquenil) for extended periods of time which can be good for treating skin lupus.

Cardiopulmonary system (heart and lungs)

- ✓ The walls of the heart are made up of muscle. In some patients with lupus there can be inflammation and weakening of the heart muscle which can result in less effective pumping of the heart- cardiomyopathy.
- ✓ Patients with lupus can also experience problems with the heart valves. The valves may not open and close properly. Sometimes clumps or "vegetations" will develop on the valves that may be from lupus or may be caused by an infection not directly related to lupus.
- ✓ Another common impact of lupus is called pericarditis- irritation and inflammation of the sac lining the heart or pericardium.
 - Patients with pericarditis may experience chest pain that may worsen when they lie on their back.
 - Patients may also experience a pericardial effusion which is a build-up of fluid in the pericardium.
- ✓ Treatments for cardiomyopathy may include steroids or other lupus medications.
- ✓ Those with valve disease may need blood thinners or antibiotics for treatment.
- ✓ Treatment for pericarditis and pericardial effusion may include:
 - anti-inflammatories, or in more severe pericardial effusion, they may need to be treated with steroids or have the fluid drained.
 - Imuran, Cellcept or Benlysta

Renal system (kidney)

- ✓ Lupus nephritis develops when certain cells and inflammation invade portions of the kidneys causing difficulties with releasing urine and therefore, produces swelling in areas of the body such as the face, hands, legs, and feet due to water retention. This is often worse in the morning.
- ✓ Patients may experience high blood pressure, bloody urine (pink or brown), protein in the urine (foamy urine or bubbles in the toilet), fatigue, weight gain (due to excess fluid), or decreased urination.
- ✓ There are five or six different types of nephritis - doctors base their diagnosis of lupus nephritis on the patient's symptoms, an evaluation of blood tests and urinalysis, and often a kidney biopsy. A blood test includes looking at creatinine levels.
 - High creatine levels indicate that the kidneys are not functioning correctly.
- ✓ A urinalysis is used to look for protein and blood cells in the urine as well as the protein/creatinine ratio.
- ✓ A kidney biopsy is used to determine the type of nephritis a patient has.
- ✓ Treatments
 - use of steroids by mouth and/or IV.
 - cyclophosphamide (Cytoxan) or mycophenolate mofetil (Cellcept).
 - mycophenolate mofetil
 - Blood pressure medications called ACE inhibitors (such as lisinopril or enalapril) are often given to control blood pressure as well as help the kidneys keep proteins in the body and prevent them from spilling into the urine.

Hematologic system (blood)

- ✓ Lupus in the blood can lead to several issues that impact all three different types of blood cells.
- ✓ Each lupus patient is different in the way that lupus affects their blood cells.
 - Some may have low blood cell counts across the board and others may have low blood cell counts of one or two specific types of blood cell.
- ✓ Low white blood cell counts may increase the risk for infection. Low platelet counts may increase the risk of bleeding.
- ✓ When red blood cell counts are low it is called anemia.
 - People with chronic disease who consistently experience inflammation throughout the body may be more at risk for a type of anemia called "anemia of chronic disease."
 - There is also an increased risk of anemia in those with kidney disease.
 - Another cause of anemia is hemolysis, where the red blood cell count decreases due to red blood cells popping and dying. Symptoms of anemia may include fatigue, lightheadedness, and more.
- ✓ Phlebotomy (a blood test) is used to determine if lupus is impacting the blood.
 - In rare instances, a patient may require a bone marrow biopsy.
- ✓ Other treatments include steroids or other lupus medications such as Cellcept or Imuran.

Musculoskeletal system (muscles, joints, and bones)

- ✓ avascular necrosis- occurs when there is a lack of blood flow to certain parts of the bone which results in the death of that area of the bone.
 - more commonly in patients who take high doses of steroids for a prolonged period.
 - An x-ray or MRI can be used to evaluate a patient for avascular necrosis.
 - Treatment is rest, pain medication, and may ultimately result in joint replacement surgery.
- ✓ Bone issues may also be caused by medications used to treat lupus.
 - patients who have taken steroids for long periods of time are at risk for issues with their bones.
 - They may experience a thinning of the bone and decrease in bone density.
 - Osteopenia is a mild thinning of the bone and decrease in bone mineral density.
 - The test for osteopenia and osteoporosis is a bone density test (DEXA scan).
 - The treatment for either osteopenia or osteoporosis may include calcium supplements, vitamin D, bisphosphonates (such as alendronate/Fosamax/Boniva), parathyroid hormone (teriperatide/Forteo), denosumab (Prolia), and weight-bearing exercise.