



Lupus (systemic lupus erythematosus) is a serious and potentially fatal disease that mainly affects young women. The cause of the disease is not known, but it is believed to be an autoimmune disease (an illness that occurs when the body mistakenly detects its own tissue as foreign and attacks itself). The disease often starts between the ages of 15 and 44. The manifestations of lupus are diverse: it can affect many parts of the body, including the joints, skin, kidneys, heart, lungs, blood vessels, and brain.

An estimated 240,000 Americans are diagnosed with lupus. People of all races can have the disease; however, African American women have a three-times higher incidence (number of new cases) than Caucasian women. They tend to develop the disease at a younger age than Caucasian women and to develop more serious complications. Nine times more women than men have lupus, and it is also more common in women of Hispanic, Asian, and Native American descent.

Yesterday

- A significant number of people diagnosed with lupus faced the prospect that they would die within 5 years of the diagnosis. While patients who were diagnosed with lupus faced an uncertain future, they knew that, in addition, to the shortened life span, they were quite likely to have a significantly compromised quality of life.
- Treatments for lupus were of limited effectiveness, typically targeting the entire immune system rather than the specific elements of the immune system involved with the disease course in lupus. Therapies were associated with significant and often debilitating side effects.
- Diagnosis of lupus was more difficult because the symptoms of lupus are similar to a number of other diseases, and sophisticated tools of molecular medicine were not yet available.

Today

- People who are diagnosed with lupus today have hope for a significantly increased life span and improved quality of life compared with those 30 years ago.
- Studies from the NIH Intramural Research Program determined that treatment with immunosuppressive drugs (cyclophosphamide and prednisone) can prevent or delay kidney failure due to nephritis, one of the most serious and life-threatening complications of lupus.



Characteristic “butterfly” rash on a lupus patient. Photograph courtesy of the American College of Rheumatology.

- Hydroxychloroquine, an antimalarial medication, is also used in the treatment of lupus and other autoimmune diseases, and is associated with a reduced risk of overall tissue damage. Recent NIH-supported research has shown that lupus patients treated with hydroxychloroquine were less likely to develop severe kidney disease, had lower disease activity, and used less steroid medication.
- A number of genes associated with lupus risk and severity have been discovered. Some are linked to

patient populations at high risk for lupus, including African American and Hispanic individuals.

- The Office of Women’s Health at the U.S. Department of Health and Human Services has partnered with the Ad Council, with input from patient advocacy groups and federal agencies involved in lupus research and treatment, such as the NIH, to produce a lupus awareness campaign entitled, “Could I Have Lupus?” (<http://www.couldihavelupus.gov/>) The main message of the campaign is that lupus is a life-altering disease that primarily affects young women who may be experiencing symptoms of lupus but have not been diagnosed.

Tomorrow

Genetic studies will allow the identification of those at risk for lupus so that interventions can be made earlier in the disease process. They will also identify molecular pathways that cause lupus and its symptoms, which can be targeted in the design of new therapies. Recent research has already revealed common disease mechanisms among different autoimmune diseases, so advances in treatment of one condition may be applicable to others.

- Recent discoveries about the influence of X-chromosome genes on lupus risk may provide future explanations for female predominance of the disease.
- Biological indicator molecules, or “biomarkers,” will help to predict who is likely to develop lupus, what organ systems are more likely to be targeted, and the severity of disease. Identifying lupus patients at particular risk for severe disease before serious complications arise has implications for early diagnosis and treatment.
- Blood tests that measure biomarkers may be used to predict flares of lupus activity and guide individualized treatment. Methods to analyze patients’ blood samples are already being developed to group disease-specific gene expression patterns according to disease-causing biological mechanisms.
- Therapeutics will be designed to diminish or reverse immune dysfunction and inflammation. Similar drugs that have been approved for other autoimmune diseases will be tested for effectiveness in lupus patients.
- The variations in disease course and severity that are associated with minority populations, due to genetics,

environment, or social issues, will be targeted to personalize treatments and reduce health disparities.

- Participation of patients in clinical research is one of the best ways to advance new knowledge and contribute to the development of new treatments.

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