

SYSTEMIC LUPUS ERYTHEMATOSUS (SLE)

(DISORDER IN WHICH THE IMMUNE SYSTEM ATTACKS VARIOUS BODY TISSUES)

BASICS

OVERVIEW

- “Autoimmune disease” is a disease in which the immune system attacks the animal’s own tissues
- “Antibodies” are proteins that are produced by the immune system in response to specific antigens—in the case of autoimmune disease, these antigens are located on body tissues; “antigens” are substances that induce sensitivity or an immune response
- Systemic lupus erythematosus is an autoimmune disease that involves many different body systems; it is characterized by the formation of antibodies against a wide array of body antigens
- Also known as “SLE”

GENETICS

- Inherited in a colony of German shepherd dogs

SIGNALMENT/DESCRIPTION of ANIMAL

Species

- Dogs and cats

Breed Predispositions

- Dog breeds that may be more likely to develop systemic lupus erythematosus (SLE) than other breeds—Shetland sheepdog, collie, German shepherd dog, Old English sheepdog, Afghan hound, beagle, Irish setter, and poodle
- Cat breeds that may be more likely to develop systemic lupus erythematosus (SLE) than other breeds—Persian, Siamese, and Himalayan

Mean Age and Range

- Mean age is 6 years, but systemic lupus erythematosus (SLE) can occur at any age

Predominant Sex

- None

SIGNS/OBSERVED CHANGES in the ANIMAL

- Onset of signs can be sudden (acute) or subtle (insidious)
- Depend on the location in the body (such as skin or joints) where the immune system is attacking the body
- Signs vary in intensity—they may increase and decrease over time (known as a “waxing and waning” course) with clinical signs often occurring sequentially
- Sluggishness (lethargy)
- Lack of appetite (known as “anorexia”)
- Shifting-leg lameness; “shifting-leg” lameness is characterized by lameness in one leg, then that leg appears to be normal and another leg is involved
- Swollen and/or painful joints—major presenting sign in most patients
- Symmetrical or localized skin lesions—redness of the skin (known as “erythema”); scaling; superficial loss of tissue on the surface of the skin, frequently with inflammation (known as “ulceration”); loss of pigment in the skin and/or hair coat (known as “depigmentation”); and/or loss of hair (known as “alopecia”)
- Fever—especially in the sudden (acute) phase of the disease
- Superficial loss of tissue on the surface (ulceration) of the areas of the body where the skin and moist tissues of the body meet (areas known as “mucocutaneous junctions”) and on the moist tissues of the mouth (known as “oral mucosa”) may develop
- Enlargement of lymph nodes (known as “lymphadenopathy”) and of the liver and spleen (known as “hepatosplenomegaly”)
- Muscle pain or wasting
- Nervous system signs

CAUSES

- Definitive causes unidentified

RISK FACTORS

- Exposure to ultraviolet light may increase the severity of the disease

TREATMENT

HEALTH CARE

- Hospitalization—may be necessary for initial management (such as in a patient with rapid breakdown of red-blood cells [known as a “hemolytic crisis”])
- Outpatient management—often possible
- Supportive care varies with body systems affected

ACTIVITY

- Enforced rest—during episodes of sudden (acute) inflammation of several joints (known as “polyarthritis”)
- Avoid sunlight if sensitization to light (known as “photosensitization”) is suspected

DIET

- Protein restriction—recommended in animals with glomerulonephritis; “glomerulonephritis” is inflammation and accompanying dysfunction of glomeruli (plural of glomerulus) of the kidney; each kidney is composed of thousands of nephrons (the functional units of the kidney, each consisting of the glomerulus [a tuft of blood capillaries—the “blood filter”] and a series of tubes and ducts, through which the filtered fluid flows, as urine is produced); inflammation most commonly is due to the presence of immune complexes in the glomerulus

MEDICATIONS

Medications presented in this section are intended to provide general information about possible treatment. The treatment for a particular condition may evolve as medical advances are made; therefore, the medications should not be considered as all inclusive.

- Steroids—to control the abnormal immune response and reduce inflammation; example is prednisone
- Chemotherapeutic drugs to decrease the immune response—may be added to the treatment when prednisone fails to improve the condition after 7 to 10 days or if the patient is (or is expected to be) steroid intolerant; possible drugs include azathioprine, cyclophosphamide, or chlorambucil
- **Levamisole**—also may be useful in achieving remission and can be combined with lower dose of prednisone
- Cyclosporine (Neoral® formulation)—may be tried in patients that do not respond to other medications; use with caution, and withdraw if side effects occur; requires measurement of blood cyclosporine concentration at regular intervals

FOLLOW-UP CARE

PATIENT MONITORING

- Physical examination—weekly
- Blood work, including a complete blood count (CBC) and serum biochemical analysis—to monitor the side effects of chemotherapeutic drugs on Day 7, then CBC and possible liver enzymes every second week until tapering drug dosages
- Antinuclear antibody (ANA)—the antinuclear antibody test measures antibodies in the blood to the nuclei of cells—it is used in the diagnosis of systemic lupus erythematosus (SLE); often remains elevated during remission, but may fall as patient improves clinically

PREVENTIONS AND AVOIDANCE

- Do not breed affected animals

POSSIBLE COMPLICATIONS

- Kidney failure and nephrotic syndrome (a medical condition in which the animal has protein in its urine, low levels of albumin [a type of protein] and high levels of cholesterol in its blood, and fluid accumulation in the abdomen, chest, and/or under the skin) secondary to glomerulonephritis (inflammation and accompanying dysfunction of glomeruli [plural of glomerulus] of the kidney)
- Pneumonia or the presence of pus-forming bacteria and their poisons in the blood or tissues (known as “sepsis”) secondary to decrease of the immune response (known as “immunosuppression”)

EXPECTED COURSE AND PROGNOSIS

- Prognosis is guarded
- The presence of low red-blood cell count due to the breakdown of red-blood cells (known as “hemolytic anemia”) and glomerulonephritis (inflammation and accompanying dysfunction of glomeruli [plural of glomerulus] of the kidney) and the development of bacterial infection warrant a poor prognosis

KEY POINTS

- Systemic lupus erythematosus (SLE) is a progressive and unpredictable disease
- The patient needs long-term treatment to decrease the immune response (known as “immunosuppressive therapy”)
- Immunosuppressive therapy has potentially serious side effects; discuss the side effects with your pet’s veterinarian
- Systemic lupus erythematosus (SLE) has been shown to have a genetic basis in a colony of German shepherd dogs; potentially it could be inherited in other animals

