

USANA Technical Bulletin

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Systemic Lupus Erythematosus

General Description

- Systemic lupus erythematosus (SLE) is a chronic inflammatory, and potentially life threatening autoimmune disorder that primarily affects the connective tissues. It can affect the central nervous system, the cardiovascular system, and other structures including the joints, skin, kidney, serosa (serous membranes), brain, lung, and gastrointestinal tract.
- SLE is characterized by recurrent remission and exacerbation, especially during the spring and summer months.
- This disease has no cure. However, the prognosis improves with early detection and treatment. The complications are more severe in those that suffer from cardiovascular, renal, or neurological diseases, and bacterial infections.

Causes

- The etiology of SLE is not known. Evidence suggests interrelated immune, environmental, hormonal, and genetics are factors in the development of SLE. Researchers think that autoimmunity is the primary cause.
- In autoimmunity, the immune system loses its ability to tell the difference between foreign substances and the body's own cells. This causes the body to produce antibodies against its own cells, causing the formation of antigen-antibody complexes which in turn suppress the body's normal immune function, causing inflammation and tissue damage.

At Risk

- Certain predisposing factors may increase the susceptibility to SLE. These include stress, streptococcal or viral infections, exposure to sunlight or ultraviolet light, pregnancy, immunization and abnormal estrogen metabolism.
- Women are affected eight times more than men, and more frequently during the childbearing years.
- SLE appears to be more common in certain racial groups, and is particularly more prevalent among Asians and Blacks.¹

Prevention and Management

- Because this disease has no known cure, treatment is based on relieving symptoms, suppressing inflammation, and preventing future complications.
- The prognosis of SLE has improved over the last few decades. Some of these improvements are due to the use of conventional treatments such as dialysis, antibiotics, antihypertensives and newer immunosuppressive medications.²
- Very little research has been done on nutritional influences in systemic lupus erythematosus (SLE).
- Some studies have shown that vitamin D is involved in the regulation of the immune system. One study found that the levels of Vitamin D were lower in patients with SLE when compared with healthy controls.³
- Another study has shown that serum levels of antioxidants are lower in SLE, and may be considered a risk factor.⁴
- Administration of vitamin E has shown to reduce effects of the chronic oxidant-antioxidant imbalance in SLE patients taking corticotherapy.⁵
- Because systemic lupus erythematosus can affect multiple systems, is potentially life threatening, and is usually treated with pharmacological therapies, individuals diagnosed with SLE should consult with their health care provider before beginning any vitamin and mineral program.

Abstracts

Thomasset M. Vitamin D and the immune system. *Pathol Biol (Paris) 1994 Feb; 42(2):163-72.* There is now increasing evidence that the hormonal form of vitamin D, 1,25(OH)2D3, is involved in the regulation of the immune system. Local production of the hormone in various infectious diseases can benefit the immune environment. 1,25(OH)2D3 exerts most of its actions only after it has bound to its specific nuclear receptor. These receptors are present in monocytes and activated lymphocytes. The hormone inhibits lymphocyte proliferation and immunoglobulin production in a dose-dependent fashion. It also blocks the accumulation of the mRNAs for IL-2, IFN-gamma and GM-CSF. It interferes with T helper cell (Th) function, reducing Th-induction of immunoglobulin production by B-cells and inhibits the passive transfer of cellular immunity by Th in vivo. The steroid hormone promotes suppressor cell activity and inhibits the generation of cytotoxic and NK cells. The expression of Class II antigen by lymphocytes and monocytes is also affected. In vivo, 1,25(OH)2D3 is particularly effective in preventing auto-immune diseases such as experimental auto-immune encephalomyelitis, murine lupus, and diabetes in NOD mice. Synthetic analogues of vitamin D3 that bind to receptors but have no hypercalcemic effect in vivo have recently been developed for therapeutic use.

Karlson EW, Daltroy LH, Lew RA, Wright EA, Partridge AJ, Fossel AH, Roberts WN, Stern SH, Straaton KV, Wacholtz MC, Kavanaugh AF, Grosflam JM, Liang MH. *The relationship of socioeconomic status, race, and modifiable risk factors to outcomes in patients with systemic lupus erythematosus. Arthritis Rheum 1997 Jan; 40(1):47-56.*

OBJECTIVE: To study the relationship of race, socioeconomic status (SES), clinical factors, and psychosocial factors to outcomes in patients with systemic lupus erythematosus (SLE). METHODS: A retrospective cohort was assembled, comprising 200 patients with SLE from 5 centers. This cohort was balanced in terms of race and SES. Patients provided information on socioeconomic factors, access to health care, nutrition, self-efficacy for disease management, health locus of control, social support,

compliance, knowledge about SLE, and satisfaction with medical care. Outcome measures included disease activity (measured by the Systemic Lupus Activity Measure), damage (measured by the SLICC/ACR damage index), and health status (measured by the SF-36). RESULTS: In multivariate models that were controlled for race, SES, center, psychosocial factors, and clinical factors, lower self-efficacy for disease management ($P < \text{or} = 0.0001$), less social support ($P < 0.005$), and younger age at diagnosis ($P < 0.007$) were associated with greater disease activity. Older age at diagnosis ($P < \text{or} = 0.0001$), longer duration of SLE ($P < \text{or} = 0.0001$), poor nutrition ($P < 0.002$), and higher disease activity at diagnosis ($P < 0.007$) were associated with more damage. Lower self-efficacy for disease management was associated with worse physical function ($P < \text{or} = 0.0001$) and worse mental health status ($P < \text{or} = 0.0001$). CONCLUSION: Disease activity and health status were most strongly associated with potentially modifiable psychosocial factors such as self-efficacy for disease management. Cumulative organ damage was most highly associated with clinical factors such as age and duration of disease. None of the outcomes measured were associated with race. These results suggest that education and counseling, coordinated with medical care, might improve outcomes in patients with SLE.

References

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- ⁵ Serban MG, Bălănescu E, Niță V. Lipid peroxidase and erythrocyte redox system in systemic vasculitides treated with corticoids. Effect of vitamin E administration. Rom J Intern Med 1994 Oct-Dec;32(4):283-9.