Bacterial Infections in Patients with Systemic Lupus Erythematosus (SLE)

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Abstract:

Systemic lupus erythematosus (SLE) is a chronic multisystem autoimmune disease characterized by clinically heterogeneous manifestations in various organs. In SLE, the skin, the musculoskeletal system, the kidneys, the cardiovascular system, and the central nervous system can all be involved (*Jakes et al, 2012*). The breakdown of tolerance, which is poorly understood, is the main feature of the disease. It involves intrinsic and extrinsic mechanisms, such as genes, deficiency of regulatory T/B cells, and hormonal and environmental factors (*Uccellini et al,* 2008).

Several lines of evidence suggest that there is familial aggregation; a sibling of an SLE patient is approximately 20 times more likely to develop disease. Deficiencies in C1q (>90% develop the disease), C2,C4 and CR1 receptor, and polymorphic variants of the mannose binding lectin (MBL)-2 gene, and certain human leukocyte antigen (HLA) class II haplotypes, such as DR2-DQ6, the extended haplotype HLA A1-B8-DR3-DQ2-C4AQ0, and tumour necrosis factor (TNF) gene variants are associated. Other polymorphic genes implicated are Fc-receptor genes IIa and IIIa, C-reactive protein, programmed cell death-1 (PDCD-1), IL-1 receptor antagonist (Ra), chemokines (CCL2), and genes being part of interferon (IFN) pathways (Rhodes *et al,* 2008).

Environmental factors, such as infections, which are an important cause of morbidity and mortality, hormones, smoking, alcohol intake, exposure to aromatic amines, pesticides, silica, organic solvents, heavy metals, ultraviolet light, dietary factors, such as alfalfa sprouts and saturated fats, and the drugs hydralazine, procainamide, estrogens, TNF-inhibitors, antiepileptics, sulfasalazine, statins and type 1 IFN are potential triggers of the disease (*Tsay et al,* 2008).

Survival rates for SLE patients in developing countries are comparatively lower than those reported in industrialized countries, with early death from infection and active disease. In addition, immunosuppressive agents used in therapy enhance susceptibility to infection. The endemicity of certain infections like tuberculosis further poses a special health issue in developing countries (Navarro et al, 2010).