INFECTIONS IN SLE

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Infectious agents especially viruses e.g. Epstein Barr virus contribute to systemic lupus erythematosus (SLE) pathogenesis and can trigger lupus disease activity by driving autoimmunity through molecular mimicry, bystander activation and epitope spreading. This intricate relationship between viruses and autoimmunity is further substantiated by contemporary observations on the effects of dysregulated host immune response in severe COVID-19 infection resulting in development of autoantibodies and clinical manifestations simulating a lupus flare, albeit with distinguishing features.

Infections are a significant cause of morbidity and mortality in SLE, with infections and active lupus as the most frequent causes of death across various cohorts. Compared with the general population, SLE patients have a median 3-fold increased risk of severe infection and are more likely to die of an infection with standardised mortality ratio (SMR) of 5 specifically due to infections alone. The most common infections in SLE are pneumonia and bacterial sepsis, with Streptococcus pneumoniae, Staphylococcus aureus, Pneumocystis jirovecii and Escherichia coli as the most common causative agents. There is also a 2.5-fold higher risk of herpes zoster in SLE, and a 6-fold risk of tuberculosis especially in endemic countries. There is a higher incidence of Hepatitis B infection especially in Asia usually triggered by B-cell depleting agents, as well as Pneumocystis jirovecii pneumonia and other opportunistic infections.

The susceptibility to infections among lupus patients may be explained by several intrinsic and acquired defects in the immune system. Established risk factors for infection in SLE patients are disease activity including high anti-double-stranded DNA titres, low complement levels, active nephritis, leucopenia, and medications including prednisone or prednisone-equivalent dose greater than 7.5 mg/day, corticosteroid pulse therapy, and high-dose cyclophosphamide. Conversely, antimalarials particularly hydroxychloroquine not only control disease activity and prevent flares, but also prevent serious infections in SLE.

Although vaccination is essential in the prevention of infections, concerns regarding efficacy (lower immunogenicity and seroprotection), and safety (adverse events or disease flares), among physicians and patients are major deterrents for vaccination. In general, vaccinations against influenza, Streptococcus Pneumonia, Hepatitis A and B, and Human Papilloma Virus are recommended for SLE patients with clear benefit-risk/side-effect profile. Vaccinations should be administered during stable disease and before B cell depletion therapy. Conversely, live vaccines should be avoided in patients on immunosuppressive therapy.

REFERENCES


Learning Objectives

- Explain the role of infections in SLE pathogenesis
- Describe the spectrum of infections in SLE
- Discuss the risk factors for infections
- Discuss strategies for prevention of infections in SLE