Corticosteroids in Lupus

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KEYWORDS

• Systemic lupus erythematosus • Glucocorticoids • Corticosteroids • Prednisone
• Methylprednisolone

KEY POINTS

- Corticosteroids are the mainstay of therapy for patients with systemic lupus erythematosus but use is associated with numerous adverse effects.
- Treatment with corticosteroids should be tailored to control symptoms with the lowest possible dose for the shortest possible duration to minimize adverse effects.
- Comorbidities predisposing to adverse effects such as diabetes, cardiovascular disease, peptic ulcer disease, and osteoporosis should be evaluated and controlled when initiating corticosteroid therapy.

INTRODUCTION

Corticosteroids play a central role in the treatment of systemic lupus erythematosus (SLE), a complex autoimmune disease with multiorgan involvement. Corticosteroids were trialed in SLE in the late 1940s to early 1950s, soon after their successful use in rheumatoid arthritis, and quickly revolutionized the treatment of SLE by rapidly inducing remission.[1–3] It became clear early on that steroid therapy came with a price because cessation of symptoms gave way to the hazards of a cushingoid state.[2] The struggle to balance risks and benefits continues because steroids remain the cornerstone of SLE treatment. Long-term follow-up of SLE cohorts shows that up to 88% of patients are treated with steroids, with as many as 57% to 86% receiving continuous treatment.[4–6] Steroids have not only been credited with symptom relief but also with mortality reduction in SLE.[7] This article discusses the role of corticosteroids in SLE, describing clinical applications, dosing and administration, side effects, and drug interactions. Nomenclature for corticosteroid dosing ranges is adapted from Buttgereit and colleagues[8] (**Table 1**).

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Table 1
Standardized nomenclature for glucocorticoid dosage

EULAR Grading	Dose; Prednisone Equivalent (mg)
Low dose	≤7.5
Medium (moderate) dose	7.5–30
High dose	30–100
Very high dose	>100
Pulse therapy	≥250

Abbreviation: EULAR, European League Against Rheumatism.
Data from Buttgereit F, da Silva JA, Boers M, et al. Standardised nomenclature for glucocorticoid dosages and glucocorticoid treatment regimens: current questions and tentative answers in rheumatology. Ann Rheum Dis 2002;61(8):720.

CLINICAL APPLICATIONS

SLE is a condition with protean manifestations and a relapsing and remitting course. Corticosteroids can be used for nearly every manifestation of SLE, although evidence guiding dose and duration is limited and clinical practice is largely eminence based. A comprehensive review by Luijten and colleagues[9] details the available clinical evidence for steroid treatment in SLE (**Table 2**).

In general, corticosteroids are best used for acute treatment of exacerbations in SLE; in light of their serious long-term side effects, every effort should be made to implement steroid-sparing medications for ongoing chronic therapy. Hydroxychloroquine (HCQ) is indicated as baseline treatment for most patients with SLE unless a specific contraindication is present, and is often effective alone for mild systemic, mucocutaneous, and musculoskeletal symptoms. When HCQ is inadequate, when corticosteroids cannot be tapered, or when more serious inflammation is present, steroid-sparing immunosuppressive agents are used and include azathioprine (AZA), mycophenolate mofetil (MMF), and methotrexate. Cyclophosphamide (CYC) is generally reserved for renal and neurologic disease but may also be necessary for other less common life-threatening complications such as pulmonary hemorrhage or noncutaneous vasculitis.

General

General systemic manifestations of SLE include fever, fatigue, weight loss, and lymphadenopathy. Two cohort studies examining use of corticosteroids to treat SLE-related fever showed prednisone doses from 20 to 100 mg daily to be effective.[10,11] Similarly, a cohort study found that 20 mg daily was effective in treating lymphadenopathy.[12] Constitutional symptoms generally occur in conjunction with organ-specific manifestations of SLE, and, as a result, treatment is typically tailored toward the latter. However, when systemic symptoms occur in isolation, low-dose to medium-dose corticosteroids are often effective with the addition of HCQ. Immunosuppressive agents are often necessary if symptoms persistently recur with taper of steroid despite use of HCQ.

Mucocutaneous

Rashes, alopecia, and oral ulcers are common organ-specific manifestations of SLE but typically do not require treatment with systemic steroids. Topical and intralesional steroids are often used for rashes and alopecia in association with antimalarial